

10TH STS Italia Conference

Technoscience for Good:

Designing, Caring and Reconfiguring

POLITECNICO DI MILANO, 11-13 JUNE, 2025

Conference Programme and Book of Abstracts



POLITECNICO
MILANO 1863

Technoscience for Good:

Designing, Caring and Reconfiguring

POLITECNICO DI MILANO, 11-13 JUNE, 2025

Welcome!

This document gathers all the essential information about the conference, including practical details about the venue, the schedule of plenary and parallel sessions, and the book of abstracts.

To facilitate navigation, the document includes internal links between sections. For the best experience, we recommend opening the PDF with a viewer that supports internal link navigation (note that not all PDF readers enable this functionality).

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Technoscience for Good:

Designing, Caring and Reconfiguring

POLITECNICO DI MILANO, 11-13 JUNE, 2025

ABOUT THE CONFERENCE

Conference theme

How might we work towards achieving 'good' technoscience?
How can we – with our various technologies and ways of knowing, in diverse environments facing different challenges, across disciplinary boundaries and wide distances both geographical as well as socio-cultural, together with Others of all sorts – achieve good relations?

To address what might count as technoscience for good – and for whom – we need to question our methodologies and concepts, interrogate our epistemological and ethical frameworks, and redesign our technoscientific landscapes, institutions, infrastructures, and practices.

In recent decades, STS has emphasised the complex and at times conflicting entanglement of the various social, ethical, and political aspects involved in the making of technoscience in more-than-human worlds and naturecultures. Furthermore, as a field we have become increasingly willing to critique the intersectional harms that technoscientific developments can create for marginalised social groups as well as society at large. STS scholars are starting to confront questions of what 'good' certain socio-technical developments are serving, who gets to define what counts as 'good', for whom technoscientific developments might be 'good' (or not), how actors and institutions have historically worked towards defining and achieving the 'good', and how such a goal might be collectively accomplished, upheld, and contested.

To address the issue of what 'good' technoscience can or should be, we need to break down old and emerging boundaries as well as open up new cross-disciplinary and trans-cultural debates. Adjacent academic fields and disciplines, for example, have undergone a similar shift towards thinking about the relationship between ethics, care, epistemology, and materiality. Philosophers of science and technology have started to engage with questions of epistemic (in)justice as well as care and repair; historians have examined how technoscientific actors have sought to achieve overtly social and political goals; and designers and developers are increasingly acknowledging the sociomaterial impacts of their practices and their consequences for fairness, equality, diversity, and justice.

STS Italia seeks to provide space for a renewed engagement across disciplines in order to rethink the enactment of 'good' technoscience.

Scientific Supervisors

Paolo Volonté (Conference Chair, Politecnico di Milano),
Paolo Bory (Program co-chair, Politecnico di Milano),
Christopher Hesselbein (Program co-chair, Politecnico di Milano)

Scientific Committee

Maria Carmela Agodi (Università di Napoli, Federico II),
Simone Arnaldi (Università DI Trieste),
Paolo Bory (Politecnico di Milano),
Attila Bruni (Università di Trento),
Stefano Crabu (Università di Padova),
Paolo Giardullo (Università di Padova),
Christopher Hesselbein (Politecnico di Milano),
Paolo Magaudda (Università di Padova),
Alvise Mattozzi (Politecnico di Torino),
Alessandro Mongili (Università di Padova),
Federico Neresini (Università di Padova),
Ilenia Picardi (Università di Napoli, Federico II)
Annalisa Pelizza (Università di Bologna/Aarhus University),
Giuseppina Pellegrino (Università di Calabria),
Manuela Perrotta (Queen Mary University of London),
Viola Schiaffonati (Politecnico di Milano),
Assunta Viteritti (Sapienza, University of Rome),
Paolo Volonté (Politecnico di Milano).

Organizing Committee

Paolo Bory (Politecnico di Milano),
Stefano Canali (Politecnico di Milano),
Riccardo Chesta (Politecnico di Milano),
Chiara Di Lodovico (Università degli Studi di Milano),
Fabio Fossa (Politecnico di Milano),
Christopher Hesselbein (Politecnico di Milano),
Fabio Iapaolo (Politecnico di Milano),
Lara Marziali (Politecnico di Milano/Università di Bologna),
Marianna Musmeci (Politecnico di Milano),
Camilla Rinciari (Politecnico di Milano),
Viola Schiaffonati (Politecnico di Milano),
Roberta Spada (Università di Padova),
Sahar Tavakoli (Università degli Studi di Milano),
Paolo Volonté (Politecnico di Milano).



Organized by



STS Italia – The Italian Association for Social Studies of Science and Technology was founded in 2005 to build up an Italian network of researchers oriented to study Science and Technology starting from the social dynamics which characterize and interweave science and technology themselves.

www.stsitalia.org



META – Social Studies and Humanities for Science and Technology is an interdisciplinary research unit at the Politecnico di Milano with expertise in the study of scientific research and technological innovation, it produces and disseminates knowledge and offers expertise on epistemological, ethical, social and political issues related to science and technology.

www.meta.polimi.it

Partners



Department of Design – Politecnico di Milano.

The Department of Design is the leading Italian centre for scientific research in the field of design.



CEI – Central European Initiative.

The Central European Initiative (CEI) is a regional intergovernmental forum of 17 Member States* in Central, Eastern and South-Eastern Europe.

*Belarus suspended



Fondazione Silvio Tronchetti Provera.

Fondazione Silvio Tronchetti Provera is committed to the promotion of the most innovative research projects, the popularization of science and the development of young people.



Museo Nazionale Scienza e Tecnologia Leonardo da Vinci.

The Museo Nazionale Scienza e Tecnologia Leonardo da Vinci is the largest museum in Italy dedicated to science, technology and industry.



Palgrave Macmillan.

Palgrave Macmillan is a world-class publisher of books and journals with more than 175 years' experience in the Humanities and Social Sciences.



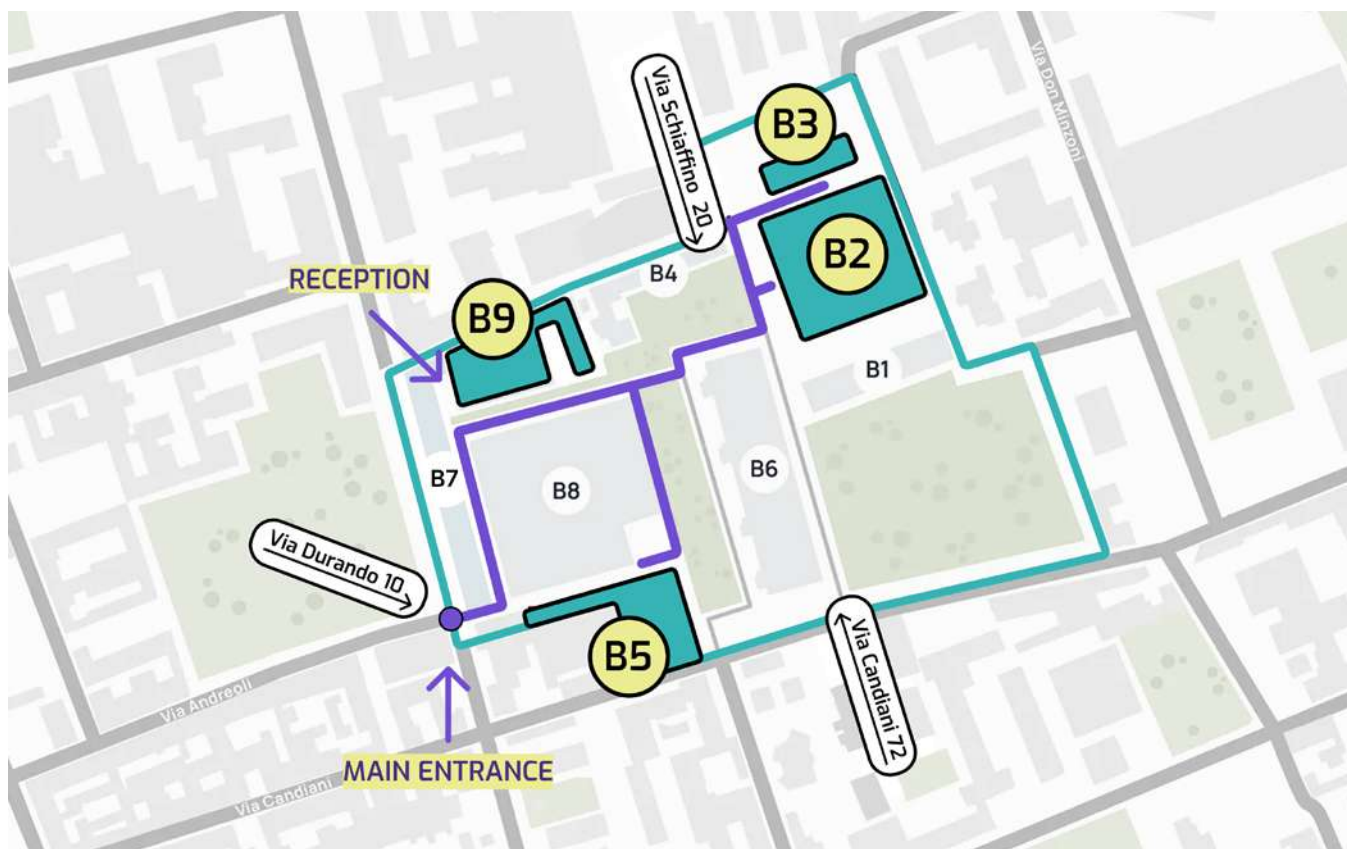
The WPI Press - Worcester Polytechnic Institute.

The WPI Press is committed to supporting a wide range of authors: experts, observers, literary scholars, memoirists, artists and other creatives, from around the world.

Conference location

Politecnico di Milano, Dipartimento di Design,
Campus Bovisa, Via Durando 10, Milano 20158, Italy

<https://maps.app.goo.gl/uhNy7pYmG51oUORH8>



Registration

The reception desk is organized into lines according to the first letter of each attendee's last name.

11 JUNE 2025	08.30 - 19.00	ROOM B9 DE CARLI
12 JUNE 2025	08.30 - 19.00	ROOM B9 DE CARLI
13 JUNE 2025	08.30 - 13.30	ROOM B9 DE CARLI

Coffee breaks

11 JUNE 2025	11.00 - 11.30	16.30 - 17.00	ROOM B9 DE CARLI
12 JUNE 2025	11.00 - 11.30	17.00 - 17.30	ROOM B9 DE CARLI
13 JUNE 2025	11.00 - 11.30		ROOM B9 DE CARLI

Lunches

11 JUNE 2025	13.30 - 14.30	ROOM B9 DE CARLI
12 JUNE 2025	13.00 - 14.00	ROOM B9 DE CARLI

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Plenary sessions

WEDNESDAY, 11 JUNE 2025, 11.30 - 13.30, PLENARY SESSION

ROOM B9 DE CARLI

Technology for Good

Dystopia, Utopia, or UStopia: Whose Imagination Are We Living In?

Keynote:

Ruha Benjamin, Princeton University

In this talk, Ruha Benjamin takes us into the liberating power of the imagination. Deadly systems shaped by white supremacy, patriarchy, capitalism, colonialism, and eugenics all emerged from the human imagination, and have real-world, often deadly impacts. To fight harmful systems and create a world in which everyone can thrive, we will have to imagine things differently. Drawing on work that critically examines tech-mediated inequities and engagement with grassroots approaches to viral justice, she offers a pragmatic and poetic approach to worldbuilding that invites each of us to consider the role we play in maintaining or transforming the oppressive status quo.

Discussants:

Elena Popa, Universidad de Sevilla

Jorge Nuñez Vega, University of Amsterdam

THURSDAY, 12 JUNE 2025, 17.30 - 19.00, PLENARY SESSION

ROOM B9 DE CARLI

Knowledge for Good

In a Mirror, Dimly: Why AI Can't Tell Our Stories, and Why We Must

Keynote:

Shannon Vallor, University of Edinburgh

Today's generative AI tools are flooding the media ecosystem with mirrored reflections of humanity's digitized past, reconstituted as the future. Companies are rapidly embracing these tools as ways to automate the already endangered professions of storytelling and knowledge creation. Why should we resist? After all, telling our own stories can often be painful and risky, frustrating and fruitless, or just tedious drudgery. What do we lose by surrendering the task of creating and conveying knowledge to machines that promise to remove the psychological, emotional and epistemological friction of storytelling? This talk explores AI's unwinding of the inextricable bonds between storytelling, human wisdom, knowledge and purpose, and why our future depends on their renewal.

Discussants:

Philippe Sormani, Zurich University; University of Siegen

Vladan Joler, University of Novi Sad



Labour and Technology for Good - Roundtable

Discussants:

Alessandro Delfanti, University of Toronto

Karen Gregory, University of Edinburgh

Kylie Jarrett, University College Dublin

Emiliano Treré, Cardiff University; University of Valencia

Generative Labour

Alessandro Delfanti, University of Toronto

Artificial intelligence cannot exist without the human labour it codifies and incorporates, but the recent wave of new generative AI (gen-AI) technology raises new questions about this bond. Who generates what in the relation between humans and gen-AI? Is human creativity dead, as many seem to suggest? In this talk, I will sketch out a theory of "generative labour", proposing a new way to look at the relation between work, technology and creativity. A director prepares the pilot for their next shooting with a video generator tool; a customer service worker is guided by software that analyzes their emotional connection with a client; a retail worker follows instructions dictated by inventory software. In all these examples, workers' generativity materializes in their capacity to produce new content in collaboration with machinery; their awareness that they rely on the past labour of many others, and that their own work will keep feeding technologically-mediated forms of cooperation; and sometimes their resistance to and subversion of AI-mediated commodification processes. The generative labour hypothesis is based on empirical research on the algorithmic re-organization and capture of labour from e-commerce to advertising, aviation, and video making, among others. It relies on a broad conceptualization of creativity and thus views all labour as inherently creative, challenging existing separations between manual, relational, and intellectual work. Finally, it sees workers as active-generative-rather than as the passive receivers of AI, unveiling the collective and embodied nature of human labour and creativity.

From Algorithms to AI: Why Worker Inquiry Matters

Karen Gregory, University of Edinburgh

Considerable work has now taken place on the nature of the "gig economy," and it has become clear that on-demand platform workers not only face myriad work-related risks but are also subject to a double regulatory gap: broadly, their employment is not regulated, nor are the technologies used to control their work. We know that platform workers often face endemic safety, financial, and mobility risks, which have been fomented by platform business models and the use of algorithmic and AI-driven management. In the absence of regulatory support, collaborative research projects involving workers and workers' collectives have been at the forefront of investigating how to mitigate risk in the on-demand economy. Workers are making use of data protection laws and developing tools to investigate proprietary data-driven systems and are compiling and presenting evidence of algorithmic and AI-driven harms. In some cases, workers are leading the technical and legal exploration of exploitation in the platform economy.

In this talk, I will review research conducted by the Workers Observatory in Edinburgh, as well as by the UK-based Worker Info Exchange, to take stock of the value of worker-led inquiry into opaque socio-technical systems. Both projects illustrate how workers' tacit knowledge of socio-technical systems is a fundamental starting point for understanding the construction of risk, as well for gathering reliable evidence of wage discrimination and racial bias in platform labour. These projects have also begun documenting the challenges that workers face in drawing meaningful links between their own research and broader policy regulation. Here, these projects reside at what has been called the "micro" level of worker voice.



However, as “innovations” in Artificial General Intelligence (AGI) stand to overshadow platform research, as well as recast working conditions for gig workers, this talk argues that worker inquiry is a vital methodology for understanding what matters both to workers and to the broader regulatory debates. Worker inquiry is also a link between what we know about platforms and what we will know about AI at work. As projects such as the Data Workers Inquiry and Planetary AI are showing, forging this link is essential to building solidarities across different groups of data workers and to raising workers’ voices to the “macro” level of regulatory input.

Digital Labour for Good

Kylie Jarrett, University College Dublin

The mediation of work by digital technologies – especially platform-mediated work – is often associated with reduced conditions, increased surveillance and micromanagement, and heightened exploitation. It is quite often and quite legitimately understood as anything but good work. This talk today, though, will take up the theme of the conference and accept the challenge of exploring how platform-mediated work may be approached as good work. Drawing on a broad range of studies into platform-mediated labour, it will initially explore conditions in which this kind of work is experienced as – or can be objectively understood as – a positive working context. By approaching labour through a lens that appreciates the differential effects of where and how bodies are situated in socioeconomic relations, this approach will challenge some of the assumptions about the always negative experience of platform work. We will then also consider the powerful imaginaries of good work that animate participation in many forms of digitally mediated labour. It will particularly focus on the mythology of entrepreneurialism that circulates and resonates in platform work contexts through its promised capacity to dis-alienate the labour experience and provide autonomous, creative, and fulfilling work. By refusing to accept the embrace of this imaginary as merely false consciousness, it will question narratives about the inevitable decline in the labour experience associated with platform capitalism. Finally, then, we will consider how these imaginaries might also serve as motivation for critique, struggle, and various forms of labour unrest. When the promises of good work are betrayed, how do workers react? Drawing this intentionally partial picture of digital labour for good is intended as a provocation to broaden our critical responses to what happens when work is entangled with digital technologies.

Bridging STS and cultural studies: Investigating the contested morality of artifacts in the algorithmic society

Emiliano Treré, Cardiff University; University of Valencia

This intervention highlights the benefits of integrating Science and Technology Studies (STS) with cultural studies to analyze the moral dimensions of technological artifacts. This approach, developed during the AlgoRes project co-led with Tiziano Bonini, which culminated in the book *Algorithms of Resistance* (MIT Press, 2024), reveals the interplay between design and use in shaping moral values.

Central to this discussion is the concept of moral economy, which serves as a bridge between the moral frameworks inscribed into technologies by their designers and those reinterpreted or contested by their users. Using examples from gig economy platforms, I will illustrate how moral norms are embedded into platforms through affordances and terms of service, shaping user behavior and reinforcing neoliberal values such as competition and data extractivism.

However, this moral framework is not immutable. Users actively reinterpret and challenge the moral scripts embedded in technologies, resisting through actions like mutual aid networks or hacking affordances to meet their needs. This negotiation of moral economies extends beyond gig workers to the algorithmic society, where daily interactions with algorithms—from content moderation to personalized recommendations—reveal an ongoing contestation of moral and social values. By combining insights from STS and cultural studies, this intervention provides a nuanced framework for understanding how artifacts mediate and reflect broader societal values. It underscores the need to move beyond deterministic views of technology to examine the dynamic, contested, and distributed nature of moral agency within the algorithmic society.



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Parallel sessions schedule

WEDNESDAY, 11 JUNE 2025, 09.00 - 11.00, PARALLEL SESSIONS

11 JUNE 2025 09.00 - 11.00

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Panel 57. Creating, Crafting, Designing, Fashioning, Moulding, Shaping, Fixing. Aesthetic Practices as Instaurative Practices: How to Account for Them and for the Good they Produce?

Alvise Mattozzi, Politecnico di Torino

Laura Lucia Parolin, Syddansk Universitet

Carmen Pellegrielli, Università di Trieste

11 JUNE 2025 09.00 - 11.00

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Panel 59. Disentangling AI and Health/Healthcare: imaginaries, Narratives, Values

Elisabetta Locatelli, Università Cattolica del Sacro Cuore

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Panel 79. Technoscience in War and Peace: (Dis-)entangling Ethics and Technoscientific Knowledge in Conflicts' (de) Construction

Fabio Fossa, Politecnico di Milano

Andrea Barca, Politecnico di Milano

Ilenia Piccardi, Università di Napoli, Federico II

Maria Carmela Agodi, Università di Napoli, Federico II

11 JUNE 2025 09.00 - 11.00

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Panel 76. Where Sociomateriality Lies: Re-Thinking the Synergies Between STS and Information Infrastructure Studies in the Age of Datafication

Annalisa Pelizza, Università di Bologna/Aarhus University

Claudio Coletta, Università di Bologna

Chiara Loschi, Università di Bologna

Lorenzo Olivieri, Università di Bologna

11 JUNE 2025 09.00 - 11.00

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Panel 41. Sampling and the Making of Good Science: Examining Data Collection Practices and Their Implications

Victor Secco, Università Ca' Foscari Venezia

Valentina Marcheselli, Università Ca' Foscari Venezia



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Panel 81. Technoscience and the Future of Agricultural Ecosystems

Marco Serino, Università di Napoli, Federico II

Eleonora Ciscato, Università degli Studi di Milano

Eleonora Dallagiacoma, Università Cattolica del Sacro Cuore

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Panel 29. Navigating the Grey: Assemblage Thinking and Digital Artifacts

Kevin Carillon, Université Catholique de Louvain

Lilo Meier, European University Institute

Viadrina François Lambotte, Université Catholique de Louvain

Silvia Gherardi, Università di Trento

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Panel 56. The Good and the Beautiful: visualizing science in the (post)-digital age

Valeria Burgio, Università Ca' Foscari Venezia

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Panel 53. Algorithmic Imaginaries: Discourses on AI in Digital Media

Sahar Tavakoli, Università degli Studi di Milano

Lorena Cano-Orón, Universitat de València

Dafne Calvo, Universitat de València

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Panel 27. Problematizing Science, Technology, and Culture through 'Cultured Food'

Fatih Tatari, Politecnico di Milano

11 JUNE 2025 09.00 - 11.00

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Panel 55. Infrastructuring AI: A view from the Global South

Iginio Gagliardone, University of the Witwatersrand

Stefania Milan, Universiteit van Amsterdam



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Panel 48. Decolonising Science and Technology Studies for Good?

Anwasha Chakraborty, Università di Urbino Carlo Bo

Christopher Lorenz Hesselbein, Politecnico di Milano

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Panel 36. Reconfiguration of the City: technology, play, art

Giulia Conti, Università degli Studi di Modena e Reggio Emilia

Federico Montanari, Università degli Studi di Modena e Reggio Emilia



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Panel 3. Simondon and AI: A Collective Individuation in the Year of His Birth Centenary

Fabio Iapaolo, Politecnico di Milano

Susana Aires, King's College London

Ludovico Rella, Durham University

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Panel 6. Constructing, Maintaining, and Caring for Technoscientific Heritage: Exploring Sociomateriality in Museums, Collecting, and Beyond

Roberta Spada, Politecnico di Milano

Stefano Crabu, Università di Padova

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Panel 54. Re-ordering Care: Algorithmic Transformations of Medical Knowledge, Practice, and Governance

Benedetta Catanzariti, University of Edinburgh

Natalia-Rozalia Avlona, Københavns Universitet

11 JUNE 2025 14.30 - 16.30

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Panel 4. Ageing in the Digital Age: The Technological conundrum and its implications for Active Elders

Arianna Radin, Università di Torino

Luisa Errichiello, Consiglio Nazionale delle Ricerche

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Panel 76. Where Sociomateriality Lies: Re-Thinking the Synergies Between STS and Information Infrastructure Studies in the Age of Datafication

Annalisa Pelizza, Università di Bologna/Aarhus University

Claudio Coletta, Università di Bologna

Chiara Loschi, Università di Bologna

Lorenzo Olivieri, Università di Bologna



11 JUNE 2025 14.30 - 16.30

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Panel 75. Regulation, innovation and materiality in technological transition: a socio-technical comparative perspective

Alessandro Sciullo, Università di Torino

Claudio Marciano, Università degli Studi di Genova

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Panel 71. Mapping Public Space through Participatory Data Narratives and Cartographies

Sonia Bergamo, Università degli Studi di Milano-Bicocca

Enrico Petrilli, Università di Torino

Francesca Valsecchi, Tongji University

María de los Ángeles Briones Rojas, Politecnico di Milano

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Panel 77. Reimagining More-Than-Human Intimacies: From Disenchantment to Technologies for Connection

Cosimo Marco Scarcelli, Università di Padova

Sander De Ridder, Universiteit Antwerpen

Stefanie Duguay, Concordia University

Skyler Wang, McGill University

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Panel 8. Emerging Technologies: Negotiation and Transformation

Suania Acampa, Università di Napoli, Federico II

Biagio Aragona, Università di Napoli, Federico II

Francesco Amato, Università di Napoli, Federico II

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Panel 60. Assemblages of the Broken World

Minna Vigren, Lappeenranta-Lahden Teknillinen Yliopisto



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Panel 13. Artificial Intelligence, Cultural Production and Media Consumption ‘for the Good’

Sergio Minniti, Università Mercatorum

Paolo Magaudda, Università di Padova

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Panel 72. Ethics of Imagination in the Age of Technology

Somreeta Paul, University of California Santa Cruz

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Panel 49. Classificatory Systems, Values, and Standards in the Context of Migration, Borders, and Security

Paul Trauttmansdorff, Technische Universität Munich

Maria Volkova, University of Exeter

Silvan Pollozek, Europa-Universität Viadrina Frankfurt (Oder)

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Panel 23. Human-AI feedback loops in platformized consumption

Massimo Airoidi, Università degli Studi di Milano

Alessandro Caliandro, Università di Pavia

Alessandro Gandini, Università degli Studi di Milano

Gabriella Punziano, Università di Napoli, Federico II



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Panel 68. Infrastructural Perspectives on Sufficiency Practices and Policies: Exploring the Materialities and Politics of 'Doing with Less'

Olivier Coutard, Centre National de la Recherche Scientifique

Daniel Florentin, École Nationale des Ponts et Chaussées

Claire Le Renard, École Nationale des Ponts et Chaussées

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Panel 23. Human-AI feedback loops in platformized consumption

Massimo Airoidi, Università degli Studi di Milano

Alessandro Caliandro, Università di Pavia

Alessandro Gandini, Università degli Studi di Milano

Gabriella Punziano, Università di Napoli, Federico II



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Panel 10. Searching for the Metaverse: Mapping and disentangling the imaginaries of VR-MR

Paolo Bory, Politecnico di Milano

Stefano Bory, Università di Napoli, Federico II

Gianluigi Negro, Università degli Studi di Siena

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Panel 39. Data flow integration: investigating the 'good' of interoperability

Dario Pizzul, Università di Pavia

Laurène Le Cozanet, European University Institute

Michele Veneziano, Università di Bologna

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Panel 80. Interventionist STS and Futures: Reflecting on and Renewing Forward-Looking Approaches, Methods, and Practices for 'Better' Socio-Technical Governance

Sergio Urueña, Euskal Herriko Unibertsitatea-Universidad del País Vasco/Universiteit Twente

Lorenzi Olivieri, Università di Bologna

Arianna Ferrari, Austrian Institute of Technology

Annalisa Pelizza, Università di Bologna/Aarhus University

Cansu Güner, Technische Universität München

Renata Mandzhieva, Austrian Institute of Technology

Dana Wasserbacher, Austrian Institute of Technology

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Panel 2. Expertise for the good? Experts and technoscience governance in turbulent times

Riccardo Emilio Chesta, Politecnico di Milano

Luigi Pellizzoni, Scuola Normale Superiore di Pisa

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Panel 28. Transportation Ethics

Alessandro Piazza, Politecnico di Milano

Fabio Fossa, Politecnico di Milano



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Panel 34. The Good, the Bad, and the Neutral. Exploring the Materiality-Temporality Nexus of Large Technological Infrastructures

Lara Marziali, Politecnico di Milano

Ginevra Sanvitale, Trinity College Dublin

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Panel 35. Technoscience for (Good) Ecological Transitions: What Spatial Justice?

Beatrice Galimberti, Politecnico di Milano

Simonetta Armondi, Politecnico di Milano

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Panel 65. Designing Worlds, Worlding Design: The Ethics and Politics of Value Creation in Digital Health and Health Data Integration

Joseph Donia, Università degli Studi di Milano

Luca Marelli, Università degli Studi di Milano

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Panel 43. Technoscientific Narratives and Social Inequalities: Rethinking Epistemic Justice in the Digital Age

Giulia Melis, Università degli Studi di Milano-Bicocca

Mino Novello, Politecnico di Milano

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Panel 7. Who Cares About AI? Navigating the challenges of AI in Health Practices

Veronica Moretti, Università di Bologna

Francesco Miele, Università di Trieste

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Panel 18. What comes next for Feminist STS?

Anna Jabloner, Universidad Instituto de Empresa

Danya Glabau, New York University



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Panel 16. Integrating Technology, Ethics, and Creativity in Healthcare

Orhan Önder, Universität Wien

Boris Abramovic, Universität Wien

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Panel 17. From Efficiency to Entanglement: Rethinking Technology, Work, and Organisation

Francesco Bonifacio, Università Cattolica del Sacro Cuore

Cherry Jackson, Royal Holloway



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Stefano Bory, Università di Napoli, Federico II

Gianluigi Negro, Università degli Studi di Siena

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Panel 12. Coloniality, Technoscience, and the Margins: Spatial and Conceptual Topologies of Power

Alessandro Mongili, Università di Padova

Amit Prasad, Georgia Tech

Nil Uzun, Rheinisch-Westfälische Technische Hochschule Aachen

Alexandra Hofmänner, Universität Basel

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Panel 78. From 'Digital Technology' to 'AI': Emerging Challenges in the Making

Annapaola Ginammi, Politecnico di Milano

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Panel 2. Expertise for the good? Experts and technoscience governance in turbulent times

Riccardo Emilio Chesta, Politecnico di Milano

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Panel 45. Reconfiguring Scientific Publishing: Promoting More Fairness and Equity by new Technologies and Pluriversal Practices

Eleonora Lupo, Politecnico di Milano

Elena Formia, Università di Bologna

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Panel 63. Addressing Scientism through the Lens of STS

Marianna Musmeci, Politecnico di Milano

Alessandro Ricotti, Università Cattolica del Sacro Cuore



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Panel 21. Perpetual Opacity of Repair and Maintenance: Histories of Technological Upkeep and Reparazione from Informal Economies to Political Resistance Movements

Dhritiman Barman, Virginia Tech

Alexander Nicholas Rewegan, Massachusetts Institute of Technology

Lee Vinsel, Virginia Tech

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Panel 22. Redefining Relationships: Human Vulnerability and AI-driven Technologies

Maria Zanzotto, Università di Torino

Norberto Albano, Università di Torino

Laura Gorrieri, Università di Torino

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Panel 58. Caring for “Care”: Feminist STS Perspectives on Researching Robots and AI

Stevienna de Saille, University of Sheffield

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Panel 1. Imagination and Technoscience: Ethnography of Creative Connections

Maria Concetta Lo Bosco, Universidade de Lisboa

Pedro Carlessi, Politécnico de Lisboa

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Panel 67. Making and Undoing BS Digitalization

Jessica Coetzer, Vrije Universiteit Amsterdam

Teun Zuiderent-Jerak, Vrije Universiteit Amsterdam

Minna Ruckenstein, Helsingfors Universitet



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Panel 78. From 'Digital Technology' to 'AI': Emerging Challenges in the Making

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Panel 25. At the borders of biomedicine: How health and care are reconfigured as do-able problems beyond biomedical expertise

Stefano Crabu, Università di Padova

Caragh Brosnan, The University of Newcastle

Federico Neresini, Università di Padova

Pia Vuolanto, Tampereen Ammattikorkeakoulu

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Panel 50. STS and the History of Technoscience Diplomacy

Roberto Lalli, Politecnico di Torino

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Panel 62. Technoscience and the Self: Emotions, Identities, and Self-knowledge

Jacopo Domenicucci, Dartmouth College

Serena Ciranna, Università di Napoli Federico II

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Panel 30. The Intersection of STS and Video Game Studies: Exploring Recuperation, Reconfiguration, and Regeneration within and beyond the Social through video games

José David Gómez-Urrego, Abertay University

Stefano De Paoli, Abertay University

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Panel 40. The Good, the Bad, and the Ugly: Designing and Reconfiguring Organisational and Work Processes through AI and Digitalisation

Attila Bruni, Università di Trento

Lia Tirabeni, Università degli Studi di Milano-Bicocca



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Panel 26. Dialoguing Species: Dialoguing Disciplines

Lara Giordana, Politecnico di Torino

Elisabeth Tauber, Libera Università di Bolzano-Freie Universität Bozen-Università Lieda de Bulsan

Alvise Mattozzi, Politecnico di Torino

Secil Ugur Yavuz, Libera Università di Bolzano-Freie Universität Bozen-Università Lieda de Bulsan

Micol Rispoli, Politecnico di Torino

Lisa Maria Zellner, Libera Università di Bolzano-Freie Universität Bozen-Università Lieda de Bulsan

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Norberto Albano, Università di Torino

Laura Gorrieri, Università di Torino

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Panel 66. More-than-(Just)-Human Politics of Relating

Elisa Giaccardi, Politecnico di Milano

Valentina Rognoli, Politecnico di Milano

Emma Sicher, Humboldt-Universität Berlin

Francesco Nappo, Politecnico di Milano

Francesco Vergani, Politecnico di Milano

Laura Forlano, Northeastern University

Martín Tironi, Pontificia Universidad Católica de Chile

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Panel 84. Sustainable Interaction Design, HCI and STS: challenges and examples when analysis and ideals meet in teaching design of computational systems for sustainability

Peter Gall Krogh, Aarhus University

Davide Spallazzo, Politecnico di Milano

Marianne Graves Petersen, Aarhus University

Besana Nicola, Politecnico di Milano



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Panel 33. Digital Inclusion and Disability: Theoretical, Methodological and Ethical Challenges

Fabiana Battisti, Sapienza, University of Rome

Lorenzo Dalvit, Rhodes University

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Panel 20. Good Technoscience for the energy transition: Dealing with infrastructures implementation and renovation

Paolo Giardullo, Università di Padova

Ivano Scotti, Università di Napoli, Federico II



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Panel 9. Affective Technopolitics of Genocide

Stephen Hughes, University College London

Hania Tayara, University College London

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Panel 12. Coloniality, Technoscience, and the Margins: Spatial and Conceptual Topologies of Power

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Alexandra Hofmänner, Universität Basel

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Panel 80. Interventionist STS and Futures: Reflecting on and Renewing Forward-Looking Approaches, Methods, and Practices for 'Better' Socio-Technical Governance

Sergio Urueña, Euskal Herriko Unibertsitatea-Universidad del País Vasco/Universiteit Twente

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Arianna Ferrari, Austrian Institute of Technology

Annalisa Pelizza, Università di Bologna/Aarhus University

Cansu Güner, Technische Universität München

Renata Mandzhieva, Austrian Institute of Technology

Dana Wasserbacher, Austrian Institute of Technology

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Riccardo Emilio Chesta, Politecnico di Milano

Luigi Pellizzoni, Scuola Normale Superiore di Pisa

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Panel 44. Is Constructivism Dead?

Martina Merz, Alpen-Adria-Universität Klagenfurt

Tarja Knuuttila, Universität Wien



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Panel 19. Technosciences in City-Making: How to tackle urban emergenc(i)es

Saskia Gribling, Politecnico di Torino

Tommaso Listo, Politecnico di Torino

Micol Rispoli, Politecnico di Torino

Francesca Moro, Politecnico di Torino/Tsinghua University

Shiila Infriccioli, Eidgenössische Technische Hochschule

Albena Yaneva, Politecnico di Torino

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Panel 14. Education for Good. Affirmative technoscientific practices in the educational space

Leonardo Piromalli, Istituto di Ricerche Educative e Formative

Assunta Viteritti, Sapienza, University of Rome

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Panel 11. Critical Hype Studies: Towards a Collaborative and Unified Approach

Vassilis Galanos, University of Stirling

Andreu Belsunces, Universitat Oberta de Catalunya

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Panel 31. AI & Democracy: A discourse demanding plurality

Ilaria Mariani, Politecnico di Milano

Marzia Mortati, Politecnico di Milano

Francesca Rizzo, Politecnico di Milano

Marco Deseriis, Scuola Normale Superiore di Pisa

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Panel 38. Entangled Theories and Practices: Navigating Relational Ontologies In and Through Design, HCI, STS, and Philosophy of Technology

Chiara Di Lodovico, Politecnico di Milano/Università degli Studi di Milano

Elisa Giaccardi, Politecnico di Milano

Iohanna Nicenboim, Technische Universiteit Delft

Verena Fuchsberger-Staufer, Universität Salzburg

Virginia Tassinari, Technische Universiteit Delft

Grace Turtle, Technische Universiteit Delft



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Panel 42. Building Trustworthy Infrastructures: Community-Based Resistance to Technological Intrusion

Joan Mukogosi, Data & Society Research Institute
Maia Woluchem, Data & Society Research Institute
Sareeta Amrute, The New School

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Panel 5. Quantum social science, reflexivity and STS: Engaging with agential realism and other reals

Robert Braun, Institut für Höhere Studien, Wien

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Panel 61. Public Sector, Public Interest?

Philip Boucher, European Commission



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Panel 31. AI & Democracy: A discourse demanding plurality

Ilaria Mariani, Politecnico di Milano

Marzia Mortati, Politecnico di Milano

Francesca Rizzo, Politecnico di Milano

Marco Deseriis, Scuola Normale Superiore di Pisa

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Panel 82. Novel Methodologies in Ascertaining Scientific Consensus and Issues in their Institutionalised Applications

Peter Vickers, University of Durham

Owen Towler, University College London

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Panel 83. Artistic, Speculative, and Embodied Explorations into Technologically Altered Experiences

Jurgis Peters, Tampere University



10TH STS Italia Conference

Technoscience for Good:

Designing, Caring and Reconfiguring

POLITECNICO DI MILANO, 11-13 JUNE, 2025

Book of Abstracts

12 JUNE 2025 11.30 - 13.00**ROOM B3.4**

Panel 1. Imagination and Technoscience: Ethnography of Creative Connections

Convenors:

Maria Concetta Lo Bosco, Universidade de Lisboa

Pedro Carlessi, Politécnico de Lisboa

Keywords: imagination, methodologies, technoscience, technoscientific practices

Could technoscience and imagination be regarded as two distinct realms of human experience? Anthropologists and STS scholars have highlighted the close relationship and interaction between scientific methodologies and imagination in producing technoscientific knowledge. This panel addresses the role of imagination in technoscience by documenting how scientists, engineers, physicians, and other professionals negotiate technical control with inventive and disruptive elements, such as fantasy, intuition and random thoughts. It aims to document and reflect on the dynamic interplay between imagination and the functional, replicable, and explainable notions in technoscience and how their interaction contributes to scientific production. The panel seeks contributions that examine how imagination shapes experiments, laboratories, and technoscientific practices, transforming "black boxes" into "resonance boxes", which in Latour and Stengers terms, amplifies technoscientific futures beyond the modern ones. We suggest thinking of 'creativity' as a way of doing ethnographies that emphasize the creative/inventive character through which the technosciences negotiate the disruptive sense of the imaginary with the demands of standardisation and control. From the perspective of STS and anthropology, we invite proposals that investigate how concepts of functionality, replicability, and explainability interact with experiences that scientific reasoning cannot fully encompass. How does imagination participate in technoscientific practice and methodology? What other futures become possible when challenging the opposition between the real and the imagined? How do scientists visualize, imagine and think beyond this dichotomy? What does an anthropology of imagination in technoscience look like? How does conducting STS and anthropology within the politics of imagination expand and shape the discipline's practice and theory?

12 JUNE 2025 11.30 - 13.00**ROOM B3.4**

ID 333 - Reconfiguring technology through the study of film prop: the case of Dr Strangelove and his glove

Nicolas Marechal, Royal College of Art

Keywords: Interaction design, mediation, cinema, performativity

Props in cinema have long been relegated to the background as passive objects. However, their role is more complex, as they exist in various forms—often enacting existing or speculative future technologies and serving as tools that aid the actor's performance. In this sense, props are performative, possessing the ability to generate new representations.

In this paper, I examine the role of Dr. Strangelove's glove in shaping the interpretation of British actor Peter Sellers. In *Dr. Strangelove or: How I Learned to Stop Worrying and Love the Bomb* (Stanley Kubrick, 1964), Sellers portrays a scientist advising the U.S. president while embodying ideologies reminiscent of wartime Germany. At one point, his paralysed arm involuntarily performs a Nazi salute, as though he has lost control of his own body. This gesture was improvised by Sellers shortly after receiving the glove as a prop to aid his performance. I interpret this as a performative relationship—an attempt to construct a new narrative through the dynamic interaction between actor and prop. Furthermore, in the film, the glove acquires new meaning as it reveals the character's true intentions, exposing him to the other figures in the film.



Through archival research at the Stanley Kubrick Archive, I explore the glove's significance on the set then use in the film as a framework for the reconfiguration of technology. The implications extend beyond the discussion of an obscure prop in an old film; I argue that the prop challenges our relationship with technology. From an interaction design perspective, the glove serves as a lesson in mediation—demonstrating how objects influence users and, more broadly, how they can be reconfigured as relays within society. This aligns with the concept of transindividual objects, which connect the user to the collective, revealing new ways to rethink the role of technology in human interaction.

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ID 538 - Imagining Together: Sensorial Play and Intergenerational Mental Well-being in Autoethnographic Design

Kristi Kuusk, Eesti Kunstiakadeemia

Paula Veske-lepp, TTK University of Applied Sciences

Azeem Hamid, Eesti Kunstiakadeemia

Zaur Babayev, Eesti Kunstiakadeemia

Nesli Hazal Oktay, Eesti Kunstiakadeemia

Keywords: autoethnography, sensorial play, intergenerational, e-textiles

The UN Human Development Report connects humanity's future to mental health and the ability to cope with global risks, emphasizing the need for preventive approaches to well-being. While research on mental health often focuses on disorders and treatment, a growing body of work suggests that strengthening family networks plays a crucial role in prevention. Grandparents play a critical role in family life, particularly in children's education and care. When this connection between children and grandparents weakens, older adults may experience worsening depressive symptoms. Digital communication tools, such as video calls and messaging apps, help in maintaining relationships across distances. However, growing concerns about children's screen time and its negative impact on sleep, behaviour, and cognitive development highlight the need for alternative modes of connection that move beyond screen-based interactions.

This abstract presents an ongoing project that employs autoethnographic and participatory design methods to explore how embodied sensorial play can facilitate meaningful intergenerational connection, support mental well-being and cognitive development. Researchers with backgrounds in smart textiles, digital product design and social design delve into autoethnographic journeys to imagine alternative forms of remote interactions. This supports the engagement of children and their geographically distant grandparents through embodied sensorial experiences rather than screens.

Through three interlinked case studies, this research examines different aspects of intergenerational sensorial play. The first case study explores how to involve children and their distant grandparents in the design process of embodied sensorial play. The design researchers involve prompts and sensorial aspects in this exploration while communicating with children and their grandparents through digital means. The design researchers observe their own ideation process getting inspired by the experiences of the participants. The second case study investigates how embodied sensorial play can support intergenerational mental well-being. Here, the focus shifts to the wellbeing of the grandparents while they reflect and imagine their interactions with their grandchildren who live far from them. The third case study looks into how children and their distant grandparents can actively engage in embodied sensorial play. Here the impossibility of sensorial experiences over distance will be explored.

Drawing from Science and Technology Studies (STS) and anthropology, this abstract positions imagination as a central force in technoscientific knowledge production. It argues that by integrating creative, intuitive, and speculative elements into the design process, we can move beyond conventional technological solutions and explore new possibilities for fostering intergenerational intimacy. By transforming "black boxes" into "resonance boxes" (Latour & Stengers), this work expands the discourse on the intersection of



technoscience, imagination, and relational well-being.

In conclusion, this research aims to contribute to the anthropology of imagination in technoscience by demonstrating how intergenerational design practices challenge standardized technological approaches towards health and mental well-being. It offers new perspectives on the role of creativity in shaping inclusive and emotionally sustainable futures.

12 JUNE 2025 11.30 - 13.00 ROOM B3.4

ID 602 - They Also Call It The Moon: Connecting imagination and technoscience at the LUNA analog facility

Joseph Popper, Universität Wien

Nina Klimburg-witjes, Universität Wien

Keywords: imaginary, infrastructure, moon, Europe, analog

In September 2024, the European Space Agency (ESA) opened the LUNA moon analogue facility at the European Astronaut Centre in Cologne. Featuring over seven-hundred tons of lunar regolith simulant, a gravity-offload system and sunlight simulator, its accurate replication of lunar conditions leads European actors to proudly call the facility "the Moon on Earth". ESA expects LUNA to be so relevant that any person or thing bound for the moon in the future will at some point train and test there. With this in mind, the analog promises to be a critical site for exploring Earth-space futures and for studying the interplay of imagination and technoscience. How are moon futures imagined and narrated at LUNA? How do ESA actors envision Europe on the moon? This paper responds to these questions by exploring LUNA as an imaginary infrastructure—an infrastructure that materialises, builds upon, and creates shared visions of desirable futures. Working with document analysis, expert interviews, and audiovisual media, the research studies the material and imaginative conditions of the analog and their dynamic interactions. In doing so, we focus on the lunar regolith simulant (EAC-1) as matter that grounds lunar perceptions in Cologne and shapes many projected lunar activities that are rehearsed on site. We further analyse the ways in which powerful imaginaries both justify the design and everyday operations of LUNA in the present (Messeri and Vertesi 2015) and affectively inform the rich telepresence experienced by the astronauts, scientists, and engineers who stand on its simulated lunar surface (Kerruish 2019). Through a multimodal ethnography that pays symmetrical attention to material and imaginative dimensions, we detect and amplify connections that render LUNA a particular outer space infrastructure and research subject that escapes linear narration (Law 2012). This approach also enables us to study our case from different perspectives: thinking with David Valentine (2024), we question not only how future imaginaries shape the technoscientific practices it houses but what future images do, or can its distinct material conditions support?



Panel 2. Expertise for the good? Experts and technoscience governance in turbulent times

Convenors:

Riccardo Emilio Chesta, Politecnico di Milano

Luigi Pellizzoni, Scuola Normale Superiore di Pisa

Keywords: co-production, control and care, post-normal science and post-truth, scientific expertise, technoscience governance

The problem of expertise has recently received renewed attention, rediscussing the scientific boundaries and political meanings of authoritative knowledge. Debates on 'post-truth', the rise of AI, the polarization occurred in the Covid-19 crisis or on climate change – just to mention a few – are not only the sign of a re-configuration in the public perception of expert authority but speaks of new trading zones and practices of co-production investing the knowledge and power nexus, where normative and technical dimensions are embedded. The question of the 'good' takes on specific connotations when at stake is not science but expertise, that is, the application of scientific knowledge to questions and goals set by a principal, or a client. Likewise, the boundaries and relationships between formally recognized competences and between these and lay local experience and insight becomes more tangled, as at stake is not just an (alleged) 'general interest' but the positionality of the parties involved in an issue. Modern science was born out of the claim that the 'true' and the 'good' could and should be kept separate. Yet, as the case for 'post-normal science' (Funtowicz and Ravetz 1993) argues, the very capacity of technoscience to even more affect social and biophysical processes, the growing uncertainty with which it is confronted make this separation increasingly difficult and controversial - perhaps undesirable, or not? As its alleged 'crisis' (Eyal 2019) highlights, the field of expertise puts in an especially sharp light the issue of how to handle technoscience in a socio-material world whose growing turbulence stems to a significant extent from technoscience itself.

In the framework of the idea of 'technoscience for good', we therefore welcome contributions theoretically or empirically grounded (in such fields as AI, climate, biomedicine, digital-molecular agriculture, etc.) aimed at deepening and updating the reflection over expertise. Relevant topics include but are not limited to:

- Definitions of and distinctions between science and expertise
- Expertise and technocratic vs. participatory governance of innovation
- New challenges for science and expertise over emergent technoscientific controversies
- Expertise, post-truth and science deconstruction
- Expertise as a new form of contentious politics: the role of social movements, grassroots organisations, NGOs, and concerned publics in the social shaping and co-production of technoscientific expertise
- The rise of 'automated expertise' and struggles to democratize artificial intelligence
- Scientists and experts vis-à-vis issues of trust, authoritativeness and responsibility
- Expertise and conflicts over nature: new socio-ecological paradigms, expertise and the redefinition of environmental problems
- How open-endedness, unpredictability and the breakdown of sharp distinctions between human agent and reality acted upon in a growing number of fields affect the application of expertise
- How growing claims for an approach to the world based on a logic of care versus a logic of control affects the understanding of expertise and its social role



12 JUNE 2025 09.00 - 11.00

SESSION 1

ROOM B2.2.8

ID 233 - Dynamics of Expertise in Civic, Populist, and Melodramatic Epistemologies

Robert P Crease, Stony Brook University

Keywords: Expertise, Acoustical Model, Laboratories, Emplacement, Melodramatic Epistemology

A useful place to examine the dynamics of expertise is in relations between scientific facilities and surrounding communities. This is especially interesting in episodes where a lab has released some amount of toxin into the environment. Studying such episodes was the topic of a grant that I was awarded by the National Science Foundation. In such episodes, experts matter a great deal. People with different concerns and experiences will hear expert voices with different degrees of interest and trust.

How experts are heard does not depend on credentials or track record. Such episodes are a dramatic way to illustrate that expertise doesn't play out in an abstract, logical, or neutral space but "in the wild," so to speak. Such episodes also show that an account of expertise must be based on the fact that humans are first of all sense-makers, not data-gatherers. This suggests an "acoustical" model of expertise. An acoustical model of expertise, like other models, sees expertise, and knowledge formation and development, as a dynamic and ongoing process in which advice is sought and delivered to someone who intends to act. But it sees the movement of expertise as occurring in a hermeneutical (sense-making) space in which expert voices are heard and interpreted differently. One doesn't suddenly show up in a situation, with no pre-conceptions, and then get to choose experts. Rather, we are always already in a pre-understood and evolving situation where some voices appear more authoritative than others because they speak more directly to our experiences and concerns. Acoustical space is thus never neutral. Some voices are always clearer and more audible than others. Investigating the dynamics of lab-community relations must begin by "mapping" the acoustical space. The acoustical model brackets the perspective that there's one situation supervised by one set of privileged experts. That would put us on the outside already knowing the authoritative voice. That's the "scientifically literate natural attitude," or "expert exceptionalism," and bracketing it "Expert (with a capital E) bracketing." Most models of expertise, including information-communication, multidirectional, constructivist, competitive framing, and ethos-rhetoric models, are but special cases of the acoustical model. This paper uses examples of lab-community relations dynamics to determine features of the acoustical landscape, or the emplacement, as well as three different narrative structures that shape the epistemology of expertise: melodramatic, populist, and civic. Experts play a different role in each of these three narrative structures.

12 JUNE 2025 09.00 - 11.00

SESSION 1

ROOM B2.2.8

ID 265 - Roots of Distrust: The Xylella Epidemic and the Crisis of Scientific Authority in Apulia

Federico Brandmayr, Yale University

Keywords: Conspiracy theory, expert, Italy, left-wing, mafia, multimodal, olive tree, agriculture

This paper addresses a blind spot in studies of public resistance to scientific expertise, which often categorize such opposition in simplistic and politically polarized terms. Left-wing movements are frequently portrayed as justified in challenging scientists depicted as unscrupulous agents of corrupt politicians or as rigid technocrats indifferent to local needs and values. Conversely, right-wing groups are often dismissed as irrational in rejecting guidance from public authorities on issues such as vaccination or environmental regulation. The Xylella epidemic in Salento offers a compelling case where left-wing activists, despite their moral and epistemological sophistication, resisted measures such as systematic monitoring, tree removal, and vector control, with unintended and devastating consequences.

Drawing on insights from cultural sociology, this study analyses four binary codes rooted in Italy's left-



wing and environmental political culture that structured the activists' interpretations. While morally defensible and epistemologically sophisticated, these framings ultimately fostered an antagonistic stance that deepened the destruction of the region's olive groves. The case underscores the broader implications of anti-expert sentiment across the political spectrum and calls for a more nuanced understanding of such dynamics.

12 JUNE 2025 09.00 - 11.00**SESSION 1****ROOM B2.2.8**

ID 334 - Expertise for the good of whom? Agnotology and democracy in PFAS-related environmental and health risk knowledge

Paolo Crivellari, Université de Toulouse

Keywords: Agnotology, ARPAV, Expertise, PFAS, Veneto

PFASs (per- and polyfluoroalkylated substances) are a family of over 12,000 chemical substances found in a wide range of products, including cookware, clothing, food packaging, fire-fighting foams and cosmetics. Also known as "forever chemicals" because of their persistence (they are not biodegradable), PFAS can cause harmful effects on health (cancers, hormonal disruptions, immune problems, etc.) and the environment (water, air, and soil pollution). Public policy on PFAS varies from one country to another, regarding especially risk prevention (including thresholds on concentrations in water), mitigation, and remediation. Regulation on PFAS relies on official expertise that is (like in many other risks) incomplete and often challenged by NGOs and citizens that conduct their own research, resulting in forms of contested knowledge that raise questions about whose good is sought after in risk governance: The good of the citizens; of industry; of regulatory agencies?

My proposal is based on exploratory empirical sociological research conducted using qualitative methods in Italy and funded by the Maison de Sciences de l'Homme de Toulouse (France). The case study focuses on the Veneto region, where the identified source of PFAS pollution is the Miteni plant (Mitsubishi-Enichem) in the municipality of Trissino (province of Vicenza), which has contaminated groundwater serving around 300,000 people for decades in the provinces of Vicenza, Padova and Verona. In particular, I will examine the expertise of the ARPAV (the Regional agency for environmental protection of Veneto). This public agency pursues environmental protection and prevention through research, training, information, and environmental education, and is a "boundary organisation" that has both scientific competences and policy-making roles. Since 2013, ARPAV has been carrying out qualitative and quantitative environmental investigation activities, performing analyses of PFAS in water and food and biomonitoring the exposed population. Moreover, as part of the European Phoenix project, this agency has introduced an innovative modelling tool to study the pathways of PFAS in groundwater and surface water.

The ARPAV's expertise has been challenged by local groups of citizens, including MammeNoPfas (MomsNoPfas) that conducted their own research and asked for more inclusion in PFAS risk governance, also questioning ARPAV's alleged inaction and selective knowledge, and by Greenpeace, that points out silence, hesitations, and institutional omissions on PFAS contamination in Veneto (<https://www.greenpeace.org/static/planet4-italy-stateless/2023/04/b3da1cee-dossierpfasalimentifinal.pdf>).

My purpose is not to unveil institutional corruption, collusion, regulatory capture or conspiratorial production of ignorance (there is an ongoing trial in Vicenza on this subjects), but to: 1) shed light on how a public agency routinely operates in confined spaces avoiding public debate and protecting itself and its reputation from external pressure and contention; 2) show that organisations' (and actors') social position can shape what, how, and when they can (and can't) know.

Conclusions will focus on: technocracy and agnotology regarding expertise in PFAS-related risks (also in comparison to major industrial accidents risk governance and expertise) ; the relationship between different types of knowledge; the importance of democratizing expertise on PFAS.



12 JUNE 2025 09.00 - 11.00

SESSION 1

ROOM B2.2.8

ID 443 - Neither "good" nor "bad": Neutrality of science in Radical Science Journal

Takvor Voskeritsian, Εθνικό και Καποδιστριακό Πανεπιστήμιο Αθηνών (National and Kapodistrian University of Athens)

Keywords: radical science movements, sociology of scientific knowledge, Robert M. Young, neutrality of science, political activism

Since the founding of the British Society for the Social Responsibility in Science in 1969, the British radical science movement included various discrete radical collective endeavours, which developed their characteristic approaches to science and its relation to society. In this talk I will focus on Radical Science Journal, one of the primary journals of the British radical science movement, and its attempts to foster its peculiar theoretical framework. Radical Science Journal was programmatically engaged in challenging established theorizations regarding neutrality of science which, at that time, flourished in various contexts such as the radical science movements, the field of the History of Science and the nascent sociological approaches of the 1970s.

The Radical Science Journal collective was formed in the early 1970s consisting of scientists, historians of science and activists who desired to develop a novel critical discourse regarding science and its relation to society. One of Radical Science Journal's primary targets was the established "use/abuse" model which was the main critical instrument of the anglophone radical science movements. According to this model, science could function either as a vessel of progress or a force of destruction, depending on its economic, political and social context. Radical Science Journal attempted to move forward from this functionalistic interpretation that presupposed a distinction between a "good" and "bad" science and focused on the ways scientific knowledge was historically produced. The Journal's priority was to demonstrate that the social context was an inherent constituent of science's content. Furthermore, Radical Science Journal challenged the whiggish approach that dominated the field of the History and Philosophy of science, according to which, science was an a-social form of knowledge defined exclusively by its "internal" and "rational" elements.

Radical Science Journal's intention to develop a distinctive theory of science by integrating in its approach tools of historical analyses and the Marxist tradition provoked strong reactions from the wider radical milieu. In my talk, based on unpublished archival material and the Journal's published issues, I will bring to surface novel ideas, historical actors and ignored debates, important not solely for Radical Science Journal's peculiar history, but for a series of cultural developments that were taking place at that time as well. The anglophone radical science movements, cold war science politics and the nascent British STS cannot be fully comprehended without Radical Science Journal's contributions to epistemology and politics.

12 JUNE 2025 09.00 - 11.00

SESSION 1

ROOM B2.2.8

ID 457 - Boundary Work and the Attainment of Scientific Authority in a Politicized Research Field: Post-9/11 Terrorism Studies and the Emergence of 'Radicalization'

Stefano Pirisi, Università di Torino

Keywords: Scientific Authority, Boundary Work, Politicization, Autonomy

In the years following 9/11, the research field of Terrorism Studies underwent transformations that challenged the scientific legitimacy of its actors and the knowledge they produced. Particularly in the context of the War on Terror, research on 'terrorism' – especially its causes – became highly politicized, undermining the perception of scientific researchers as autonomous from politics and, consequently, weakening their scientific authority. In other words, in this context, the already fragile boundaries separating



Terrorism Studies (as the specific locus of scientific research) from political debates on 'terrorism' further eroded, complicating the claims to scientific legitimacy of the field's actors.

Amid these challenges, a new concept (and the research perspectives accompanying it) emerged and quickly gained prominence both in terrorism studies and in the world of counterterrorism policies: 'radicalization'. The rise of research perspectives focusing on 'radicalization' – characterized by a predilection for the analysis of the individual and the (social)psychological factors pushing him/her toward becoming a 'terrorist' – mitigated accusations of politicization of research, rebuilding part of the scientific legitimacy of the field and its actors, and allowing for new fruitful collaborations between them and counterterrorism policy circles.

In this contribution – drawing from findings from my Ph.D. research – I will offer an analysis of how the emergence of such a research paradigm redefined the field's main research object and delimited the scope of research on terrorism while simultaneously offering an avenue for the technical specialization of the field's actors. Furthermore, I will discuss how such a redefinition of the field's main object of knowledge engendered a peculiar process of autonomization of Terrorism Studies, allowing for a simultaneous redefinition of the boundaries separating scientific research and political debates on the causes of terrorism by depoliticizing terrorism research. The analysis of this empirical case will support broader theoretical reflections on how Thomas Gieryn's notion of boundary work can be reformulated to understand how a boundary separating science and politics takes shape. Following a suggestion initially put forward by Gil Eyal, I will argue that we need to understand boundary work as more than mere rhetorical work (and boundaries themselves as more than rhetorical mystifications of a political-scientific hybrid reality) and that, as suggested by the analysis of the case study, boundary work also involves epistemic work: a redefinition of the very object of research, together with its aims and possibilities. Finally, by looking back at the empirical case, I will reflect on the trade-offs involved in establishing scientific authority on a politically contentious – and thus both risky and highly profitable – object of knowledge: the costs of achieving autonomy.



ID 644 - Rethinking demarcation: science, expertise and the politics of boundary-blurring

Luigi Pellizzoni, *Scuola Normale Superiore*

Keywords: science demarcation, boundary-work, truth regimes, time politics, responsibility

Boundary demarcation is a highly debated topic in STS, at least since the seminal work of Gieryn (1983). Studies have mostly focused on that between scientific and non-scientific knowledge, and between scientific knowledge and political decision-making. As with all boundaries, the very idea of demarcation between fields or systems presupposes the existence of shared elements. The relationship between separation and sharing has gained salience in recent years, due to both the increasing complexity of scientific issues (Funtowicz and Ravetz 1993) and the growth of public controversies on the social impacts of science (Felt and Wynne 2009). This has paved the way for increasingly sophisticated reflections on the balance between 'co-production' of scientific knowledge and maintenance of a line of distinction, however conceived (Callon 2000; Collins and Evans 2002; Pielke 2007). Another demarcation, that between science and expertise, has remained relatively neglected. The expression 'scientific expertise' is largely taken for granted, as if knowledge could be transferred smoothly from scientific to policy arenas, and only the power effects such shift entails were worthy of attention, especially as related to a 'crisis' of the public role of (scientific) expertise (Eyal 2019; Chesta 2019). Some scholars reject precisely this assumption, emphasising the profoundly different nature of scientific and expert knowledge (Nowotny 2003; Pellizzoni 2011, 2021). Following this line of thought, the contribution aims to put forward the hypothesis of an increasing convergence of science and expertise, the problematic implications of which (for both) being overlooked precisely insofar as the knowledge at stake is considered the same. What does such boundary-blurring consist of and entail? Without aspiring to an exhaustive answer, the contribution aims to reflect on three aspects: the social responsibility of the two types of knowledge; their respective regimes of truth; and their temporal regimes. I will argue that the convergence of science and expertise on each of these aspects is a key way for the ruling social order to obstruct any possibility of change.

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ID 360 - An agonistic epistemic stance to legitimize experts' non-epistemic values

Hernán Bobadilla, Politecnico di Milano

Keywords: Agonism, legitimation, experts' non-epistemic values, relativism, pluralism

The literature on values in science has grown vast and diverse, with broad consensus on the descriptive claim that values influence scientific research. Consequently, debates have shifted toward normative concerns, determining whether values should influence science, which values are acceptable, and what roles they should play. Scholars navigate a spectrum between the value-free ideal and the recognition of science's inherent value-ladenness. Advocates of the value-free ideal defend both its desirability and feasibility, with a focus on non-epistemic values. Critics challenge the feasibility of eliminating non-epistemic values, notably through the gap argument and the inductive risk argument, leading proponents of the value-free ideal to emphasize its desirability.

The appeal of the value-free ideal is often grounded in liberal democratic principles, particularly concerns about scientific experts serving political agendas and the potential erosion of public trust. Lusk (2021) explores the political legitimacy of non-epistemic values of scientific experts informing decision-making, arguing that such values are justified if they align with the outcomes of deliberative democratic processes. While this approach advances democratic considerations in science, I contend that deliberative democracy imposes limitations by requiring rational consensus. Instead, I propose an alternative framework based on agonistic democracy, which better addresses political pluralism and conflict.

Drawing from Mouffe (2000), agonistic democracy transforms political antagonism into constructive dissidence among legitimate rivals. This model acknowledges and mobilizes passions in democratic engagement rather than suppressing them in favour of rational consensus. Furthermore, agonism recognizes the exclusions it entails as inherently political rather than justifying them through rationality. Democracy, in this view, thrives on the confrontation of diverse perspectives rather than striving for unanimity.

Wenman (2013) identifies three central components of agonistic democracy: constitutive pluralism, which prescribes a plurality of societal ends; a tragic view of the world, which sees conflict as endemic rather than resolvable; and the value of conflict, which emphasizes its constructive potential. These tenets, interpreted as values, emotions, policies, and preferences (VEPPs), form the foundation for an agonistic epistemic stance within a voluntaristic framework (cf. van Fraassen 2002). First, constitutive pluralism translates into epistemic pluralism, aligning with van Bouwel's (2014) interactive pluralism. Second, the tragic worldview entails accepting uncertainty at multiple levels: aleatoric (complexity and variability of the world), epistemic (uncertainty in representations of the world), and incommensurability (incompatibility among epistemic systems). Third, the value of conflict fosters an engaged relativism that supports appraisability.

The ensuing epistemic stance aligns with agonistic democracy, offering an alternative framework for legitimizing non-epistemic values of scientific experts. Instead of requiring compatibility with a deliberative rational consensus, legitimacy emerges through agonistic encounters between epistemic agents from diverse epistemic systems. Crucially, this framework acknowledges the political agency of scientific experts. Liberal concerns about the undue influence of experts on political decision-making are addressed, not by suppressing experts' political agency, but by reforming mechanisms of decision-making. These mechanisms should embrace epistemic plurality expressed in agonistic encounters, ensuring that science remains a dynamic and politically engaged enterprise within democratic societies.



12 JUNE 2025 11.30 - 13.00

SESSION 2

ROOM B2.2.8

ID 503 - What are experts interested in? Tensions between journalistic and scientific objectivity in the debate on the environmental footprint of AI

Theophile, Università degli Studi di Milano Statale

Keywords: objectivity, expertise, journalism

The debate around the environmental footprint of AI creates a high demand for numbers and, with it, a demand for both expertise and objectivity. The extent to which experts can bring objective perspectives in public debates is a longstanding source of preoccupation (Jasanoff, 1990). The influence of experts on decision-making raises concerns regarding the extent to which epistemic claims serve personal interests. Expert claims have been repeatedly challenged in controversies, such as those concerning tobacco's health effects (Oreskes & Conway, 2010), AIDS treatment (Epstein, 1995), nuclear waste disposal (Callon et al., 2011), climate change (Franta, 2022) and, more recently Covid-19 (Au & Eyal, 2022).

The paper investigates the relationship between expertise and objectivity in the quantification debate about the environmental footprint of AI. More than twenty non-scientific organisations have published reports on the environmental footprint of AI, ranging from intergovernmental organisations, to consultancies and associations. Based on semi-structured interviews with report authors, the paper asks, "Why do experts publish reports and seek to become visible in a context of a 'crisis of expertise' (Eyal, 2019) and related distrust towards experts' claims"? In answering this question, it investigates the interests of experts in participating in public debates by examining both their self interests and the collective values they care about (Martin & Lembo, 2020).

Whilst critics point to the impossibility of attaining a purely disinterested "view from nowhere" (Haraway, 1988), two institutions have developed a coherent set of values in order to hide the personal interests of its practitioners: science and journalism. The paper demonstrates that experts mobilize both scientific and journalistic values in order to justify their participation in the debate. In doing so, they expand the reservoir of resources to minimize their personal interests by mobilizing the journalistic ideal of building a shared world and the scientific ideal of progress. Ultimately, the paper contributes to the sociology of expertise by providing a deeper understanding of the relation between expertise and objectivity in democratic societies.

12 JUNE 2025 11.30 - 13.00

SESSION 2

ROOM B2.2.8

ID 685 - Staging early phase trials on the spot: how experts in oncology navigate scientific, practical and normative uncertainties

Geoffroy Carpier, McGill University

Keywords: Biomedicine, clinical trials, oncology, expertise, uncertainty, boundary work, ethics

Institutional Review Boards (IRB) in oncology face vexing challenges when they review early phase (first-in-human) clinical trials before their initiation. Major human protection regulations and clinical guidelines require IRBs to include in their ethical review – as part of the risk/benefit balance – an assessment of the social value of advancing medical knowledge that these trials seek to offer. Nonetheless, these regulatory texts fall short on details on how to proceed accordingly. While offering no prospect of therapeutic benefit, these early phase trials recruit participants who have exhausted all standard-of-care options. These trials tie up more patients than any other trial type, and more drugs fail in early phase due to lack of efficacy or safety concerns. Moreover, they are usually pursued on the backs of limited preclinical evidence. In oncology, reviewing these protocols is made even more daunting due to 3 factors: the increasing complexity of protocols, the reproducibility crisis and translationality issues. For these reasons, IRBs often need to marshal a wealth of expertise when reviewing these protocols (oncologists, haematologists, geneticists, pharmacologists, nurses, biostatisticians, bioethicists, etc.).



Based on a one-year fieldwork among IRBs in North America, our ethnographic study sought to understand how these expert collectives navigate the interface of science, regulations and ethics when deciding to initiate early phase cancer trials. What does matter when IRB members review their scientific rationale? How do they approach and structure their review process in the case of heightened scientific, practical and normative uncertainties?

Our study suggests that IRB experts in oncology frame their review process with respect to 3 epistemic perspectives: authority and reputation; temporality and promissory futures; and, opportunity and practicality. IRB members articulate these perspectives based on a specific moral economy (including affects, trustworthiness and responsibility) and boundary work, so as to articulate these epistemic perspectives together, make the protocols they review tangible, alleviate uncertainties and ultimately reach a situational consensus.



13 JUNE 2025 09.00 - 11.00

SESSION 3

ROOM B2.2.8

ID 145 - What is good for whom? Actors, expertise and (un)revealed purposes within environmental governance strategies

Valentina Capocéfalo, Università degli Studi di Milano Statale

Keywords: socio-ecological relationship, environmental governance, Ecosystem Services, Nature's Contribution to People

Benefits provided by the ecosystems and biodiversity have been described as ecosystem services (ES) starting from the late 1980s. The ES analytical framework consolidated during the 1990s especially through the scientific literature produced by economy and ecology disciplines. Later, it reached the peak of its success through the Millennium Ecosystems Assessment (MEA) in 2005. In the following decade, the paradigm came under harsh criticism. Controversial aspects were noted initially in relation to payments for ecosystem services (PES) schemes. Later, other limits have been detected in the few attentions paid to the local geographical context and to environmental justice issue. The critical deconstruction of the ES paradigm generated two main effects. On the one hand, it increased the awareness of the importance of the socio-cultural and political dimensions within the paradigm itself. On the other hand, it prompted some scholars to develop partly alternative analytical frameworks. Among the latter, the best known is Nature's Contribution to People (NCP). It has been promoted by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) starting from 2015. The debate within the newest paradigm involves scholars with a wide range of disciplinary backgrounds. The assessment produced generally pay more attention on what is defined as 'indigenous and local knowledge' and they directly involve indigenous and local communities into the debate. Although the intentions manifested are virtuous, some scholars state that even within this paradigm power inequalities are not adequately highlighted.

Both MEA and IPBES constitute science-policy interface arenas in relation to socio-ecological issues. Their work engage scholars, politicians, NGOs and private sector actors at different geographical scales. The assessment produced by these international bodies are never neutral. Indeed, all the actors engaged embed different knowledge, values and goals, which are not always convergent. Therefore, the final version of the official documents released are the outcome of a power relationship between the different parties involved. They reflect a negotiation rather than the 'true'. Since the assessments produced are not purely scientific sources, there is an ideal of "good" in them, even when this is not overtly made explicit.

Given these premises, the contribution has three main purposes. Firstly, it aims to define what has been identified as 'good' within the two analytical frameworks here considered. Secondly, it aims to analyse which kind of expertise is required to reach this ideal of 'good'. Finally, it aims to explore how ES and NCP shape the approaches to current turbulent times. Relating to the latter purpose, the paper questions how the two paradigms promote caring practices and enable us to reconfigure our relationship with the ecosystem and biodiversity. The contribution will be elaborated starting from the consultation of a rich bibliography. Additionally, it will be enriched by the experience gained on the research field during the investigations conducted within some urban agriculture experiences on the Milanese territory.

13 JUNE 2025 09.00 - 11.00

SESSION 3

ROOM B2.2.8

ID 608 - Forms of Anticipation of Energy Transition Policies in Europe

Alexandre Violle, Mines Paris – PSL

Brice Laurent, Mines Paris – PSL

Keywords: expertise, politics of anticipation, civic epistemologies, mineral resources, energetic transition

This presentation explores how expertise is mobilized to inform energy transition policies in Europe. Based on a qualitative investigation into the genesis, development, and circulation of criticality studies—a form of geological and economic knowledge aimed at modeling future primary resource needs for a given



economy—we draw on a variety of cases where experts are called upon to develop such studies to guide public action in Europe (e.g., the European Commission, the French national geological service). We aim to characterize civic epistemologies (Jasanoff, 2011) in which the ways of modeling future resource needs, the role of state intervention in securing mineral resource supply, and a specific conception of the common good are jointly problematized.

To do so, the presentation will first revisit the origins of this expertise in the United States, showing that early criticality studies were developed during wartime in the 20th century by the US Geological Survey to establish strategic reserves of mineral resources. This knowledge, intended to guide public action, was coupled with a wartime economic conception in which the state—and not the market—was seen by geologists and economists as the key actor in securing raw materials. We then demonstrate how this form of knowledge gradually lost influence in both the US and Europe after the Cold War. However, around the 2010s, this type of expertise was once again championed by countries in the Global North, particularly to address supply risks linked to China's dominant role in the production and export of certain strategic minerals (including metals known as "rare earths").

We show how this knowledge is now being solicited in Europe, with different ways of framing the role of the state, the economy, and the common good. In some cases, such as with the European Commission, it involves thinking about the European energy transition by anticipating market failures and supporting private investment in new resource production sectors. In other cases, particularly in various organisations in France, it involves considering the energy transition in relation to supply risks linked to war or debating the use of mineral resources in the functioning of national economies.

13 JUNE 2025 09.00 - 11.00

SESSION 3

ROOM B2.2.8

ID 686 - Bridging policy and practice in EU data governance: Co-producing expertise and best practices with the Social Economy's Data Code of Conduct

Dwayne Ansa, Universiteit Utrecht

Mai Ishikawa Sutton, Commons Network

Sophie Bloemen, Commons Network

Keywords: Data governance, social economy, institutionalization, expertise

The European Union (EU) seeks to both modernize its digital sector and foster the social economy, as outlined in the new Action Plan on the Social Economy and the Transition Pathway for Proximity and Social Economy. Within EU data policy, the Data Governance Act (DGA) introduces new legal mechanisms to facilitate ethical data sharing and establish trust between actors. Among them, data intermediaries are envisioned as key instruments for governing data flows in ways that promote economic growth and social innovation. However, these regulatory interventions risk imposing rigid frameworks that fail to accommodate the grassroots, cooperative data-sharing practices that have long sustained the EU Social Economy.

This paper examines how expertise within the EU Social Economy is mobilized to bridge European economic policy objectives with grassroots cooperative data governance. Rather than treating expertise as a property of individual actors, we draw on relational understandings of expertise to show how it is co-produced through dynamic interactions between social economy actors, policymakers, technical experts, and regulatory frameworks. Our core argument is that expertise in cooperative data governance is not simply being recognized or formalized through EU regulation. Rather, data governance is being negotiated in an ongoing process where social economy actors must balance regulatory compliance with their pre-existing practices, infrastructures, and values.

To investigate this process, we adopt an embedded, action-oriented research approach, engaging directly with the co-production of the Social Economy's Code of Conduct (CoC) for data management and sharing. As co-authors of this CoC, we have participated in consultation meetings, focus groups, and real-time negotiations with EU policymakers and social economy actors. This insider position allows us to analyse



not just the outcomes of these discussions but also the tensions and frictions that arise in the process. For instance, we reflect on the challenges of explicating cooperative values into a soft law framework that prioritizes EU harmonization and economic scalability. We also consider how different forms of expertise, legal, technical, policy and grassroots, compete or converge in shaping the final document.

Rather than portraying EU data governance processes as either enabling or constraining, our analysis highlights its ambivalent effects. On one hand, the DGA provides an institutional space where socially-oriented data-sharing practices gain legitimacy, allowing social economy actors to shape formal governance mechanisms. On the other hand, these same actors may face the burden of adapting their practices to fit regulatory expectations, potentially shifting their priorities away from grassroots cooperation toward bureaucratic compliance. We situate this dynamic within broader debates on the institutionalization of digital solidarity economies, asking whether regulatory recognition ultimately reinforces or transforms grassroots expertise.

By analysing the social economy's role in co-producing data governance frameworks, this paper contributes to scholarship on expertise, regulatory co-production and the politics of data governance. We argue that the participatory turn in EU data policy, while promising, requires ongoing critical and reflexive engagement to ensure that formal institutionalization does not impede the very cooperative principles it aims to support.

13 JUNE 2025 09.00 - 11.00

SESSION 3

ROOM B2.2.8

ID 785 - Good Fences Make Good Experts: Unpacking the European Commission's Discourse on Evidence-Informed Policymaking

Giuseppe Cannata, Scuola Normale Superiore

Alice Dechamps, Université Libre de Bruxelles

Keywords: European Commission, expertise, evidence-informed policymaking, science-policy interface, discourses

Scholarship on the European Commission emphasises how the institution extensively relies on expertise and access to knowledge as a crucial source for legitimation and influence. This technocratic approach has been raising concerns about the accountability and democratic legitimacy of EU decisions, to which the institution has responded, over the last decade, with stronger calls for a 'more political' Commission. Nonetheless, the idea of evidence-informed policymaking still is at the core of the Commission's approach, as the new élan of the Better Regulation agenda and recent initiatives on 'science-for-policy' suggest (European Commission 2021; 2022). These calls for a more prominent role of evidence in policymaking have been launched in a context characterised by rampant misinformation and growing contestation of experts – what has been defined as a 'crisis of expertise' (Eyal 2019, Abazi et al. 2021). Yet, there is still limited research on the Commission's political work in organizing this science-policy interface. Considering such developments, the question guiding our analysis is: how does the Commission envision the role of science and expertise in the EU policymaking processes, and how has its approach evolved over time?

Drawing on existing research in critical policy studies and STS, we inquire into the discursive construction of policymaking as a terrain for science-based policies. We aim to understand how these discourses redefine the expected role of science and expertise in policymaking, tapping into the Commission's work of balancing 'technocratic' arguments and concerns about democracy and accountability. To explore this question, the paper analyses official documents and reports issued in the last two decades, to reconstruct the Commission's discourse on the role of science and evidence in policy. In order to corroborate and give empirical depth to this analysis, we also draw on a wider range of empirical materials, including interviews with relevant stakeholders and field notes. Our analysis aims to provide a better understanding of how the Commission (re-)produces discourses and practices about evidence-informed policymaking and adapts them to current challenges, such as the so-called crisis of expertise.



ID 813 - Leveraging Knowledge and Expertise Deficits in Autonomous Vehicle Rulemaking

Eilat Navon, *וליא-רב תטיסרבינוא* (Bar-Ilan University)

Keywords: autonomous vehicles, knowledge, regulatory rulemaking

This paper examines the regulatory process that authorized the deployment of autonomous vehicles (AVs) in California, addressing how knowledge is shaped and validated within regulatory frameworks when prior knowledge and expertise have not been established.

Regulatory authority over AVs in California is divided between two agencies: the California Department of Motor Vehicles (DMV), which oversees safe operation on public roads and licenses AV companies, and the California Public Utilities Commission (CPUC), which determines whether AV service providers can safely transport passengers. This paper analyses the CPUC-led regulatory process from 2016 to 2023.

The CPUC's regulatory authority over AVs is derived from its broader mandate to oversee passenger charter-party carriers. Consequently, AV regulations are integrated into the existing legal framework governing passenger carriers, which primarily emphasizes business operations and technical compliance—including liability, drug testing, compensation insurance, and enforcement mechanisms such as sanctions and unannounced inspections.

Rather than designing a regulatory framework specifically tailored to AV technology, CPUC adopted a trajectory-based regulatory approach, incorporating AVs into pre-existing passenger service regulations with minor procedural adjustments. By embedding AV regulation within traditional passenger transportation frameworks, CPUC maintains continuity in its regulatory approach while establishing control over knowledge production, reinforcing industry-driven data as the foundation for future decision-making.

The study argues that in the regulation of innovation, evidence-based knowledge is often scarce (Asquer & Krachkovskaya, 2020) creating a temporal point in time of knowledge symmetry between regulators and stakeholders. This symmetry enables a negotiated co-production of policy in which stakeholders without prior expertise contribute to the establishment of regulatory knowledge. However, this paper contends that the absence of prior knowledge and expertise is leveraged by regulatory agencies to consolidate authority and shape rulemaking without substantive evidence-based opposition.

The discretionary power of regulators to shape knowledge is reflected in their ability to determine what constitutes valid evidence. By prioritizing industry data reporting, regulators construct the basis of future knowledge while simultaneously marginalizing alternative sources of information. Although hundreds of citizen and first responder reports of AV-related incidents exist, they are often dismissed as "anecdotal." This prioritization normalizes certain knowledge claims while excluding others, as demonstrated by the CPUC's framing of the issue: "How should the CPUC move beyond anecdotal and/or ad-hoc information so we may quantitatively and objectively monitor impacts (positive or negative) of AV operations to promote passenger and public safety, AV program goals?" (Consumer Protection and Enforcement Division [CPED], 2023). By privileging industry-generated data over public testimony, regulators exclude potential insights that could challenge technological assumptions otherwise rendered invisible (Wynne, 1988).

The regulator's power to construct and guide knowledge formation aligns with Bowker and Star's (2000) concept of modes of clearance and selective erasure—whereby the creation of a new knowledge base, grounded in industry data, effectively renders other forms of knowledge obsolete. This process reinforces specific regulatory priorities while marginalizing alternative perspectives.



ID 200 - The Role of Experts in Clean Air Litigation: Insights from Public Interest Litigation in Italy

Cristina Poncibo, Università di Torino

Keywords: Right to Clean Air, Public Interest Litigation, Expert Evidence, Environmental Justice

This paper explores the critical role of experts in public interest litigation (PIL) aimed at protecting the emerging Right to Clean Air in cities, focusing on cases in Italy, particularly Turin and Milan, while incorporating comparative perspectives from the EU and the UK.

Drawing from the Right to Clean Air (R2CA) research project based at the University of Turin, the paper investigates how scientific evidence and expert contributions shape judicial decisions, influence air quality policies, and question governmental accountability. The project also investigates that role of civil society organisations such as Torino Respira and Cittadini per l'Aria, which are at the forefront of PIL in the country and the EU, advocating for the right to clean air through legal actions (criminal, civil and administrative actions). The analysis emphasises the interplay between science and law, identifying challenges such as the accessibility and credibility of scientific evidence in courtrooms and the opportunities for advancing environmental justice.

This paper will examine how experts-scientists, technical consultants, and academics-contribute to clean air litigation, shaping legal arguments and judicial outcomes. While focusing on Italian cases, the paper broadens its analysis to compare the state of clean air litigation in the EU and the UK, including an exploration of "Ella's Law", which seeks to enshrine the right to clean air into UK law following the landmark case of Ella Adoo-Kissi-Debrah. Additionally, the paper aims to provide a comprehensive exploration of the use and impact of expert evidence in clean air litigation to date. By drawing on insights from Science and Technology Studies (STS), the paper will explore the dynamics between law and technoscience in the context of environmental litigation, focusing on how courts negotiate the complexities of scientific knowledge and its implications for policy-making. It will critically assess the challenges involved in leveraging expert contributions, such as ensuring the accessibility, reliability, and clarity of scientific data, and explore opportunities for enhancing collaboration between the legal and scientific communities. By examining key cases in Turin and Milan alongside examples from the EU and UK, the research will highlight similarities and divergences in how courts engage with scientific evidence and uphold clean air rights. The paper adopts a socio-legal approach, combining comparative case-law analysis with empirical data from the R2CA project. It incorporates the outcome of interviews with stakeholders-activists, legal professionals, scientists, and policymakers-to provide insights into the dynamics of using expert evidence in court.

The paper contributes to the discourse on the right to clean air by shedding light on the critical role of experts in bridging the gap between science and law. It highlights lessons from Italian cases and broader European and UK experiences, offering practical insights into the use of PIL as a mechanism for environmental justice. It also explores pathways for improving the effectiveness of expert contributions in litigation, enhancing the dialogue between legal and scientific communities, and fostering governmental accountability.



Panel 3. Simondon and AI: A Collective Individuation in the Year of His Birth Centenary

Convenors:

Fabio Iapaolo, Politecnico di Milano

Susana Aires, King's College London

Ludovico Rella, Durham University

Keywords: AI, Gilbert Simondon, Individuation Theory, Machine Learning, Socio-technical Assemblages

At this historical juncture, when thinking about society seems inseparable from AI and related data-driven technologies, the work of French philosopher Gilbert Simondon is receiving renewed attention. Although his writings predate recent advances in AI and machine learning by decades, they are becoming increasingly relevant to contemporary reflections on these technologies. Simondon's legacy spans disciplines, influencing theorisations of technical cognition (Hayles, 2017), automated labour (Stiegler, 2016), digital media (Hui, 2016), Blackness and computation (Amaro, 2022), and algorithmic governmentality (Bardin and Ferrari, 2022), as well as research on specific technologies and contexts (e.g., Liyanage, 2024).

In retrospect, the resurgence of Simondon's oeuvre is hardly surprising. In *On the Mode of Existence of Technical Objects* (2017), his commitment to placing technicity at the heart of sociocultural enquiry resonates deeply in an era of inscrutable AI systems. At the same time, his tripartite framework of elements, individuals, and ensembles continues to offer a rich lexicon for articulating the co-constitution of agencies across the human-technology continuum. Equally important is his pursuit of a relational and processual ontology, further elaborated in *Individuation in Light of Notions of Form and Information* (2020), which has long unsettled the rigid binaries and essentialism that advancements in AI expose as ever more untenable. Unifying his thought is the notion of the transindividual—a co-individuating dynamic linking individual and collective life—which unfolds as fertile terrain for exploring the uncharted forms of sociality AI may yet bring into being.

As we mark the centenary of Simondon's birth, we embrace his genuine technical curiosity as a lens for engaging with AI both critically and generatively, thereby avoiding the comforting retreats into either technophobia or technophilia. With plans for a follow-up special issue, this panel welcomes contributions—whether theoretical, empirical, or both—that engage with Simondon's ideas, unrestricted by disciplinary, thematic, or methodological boundaries. Rather than outlining a predefined set of research questions or topics, we encourage submissions that, once brought together, may reveal emerging patterns of political concerns, ethical orientations, and research trajectories, especially those intersecting STS concepts and theories. In this way, we hope to facilitate a collective process of individuation, with Simondon and AI as the associated milieu.

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ID 893 - Simondon Reads Cybernetics: Thresholds in the Social History of Technology

Isabella Consolati, Politecnico di Torino

Keywords: cybernetics, Simondon, political technology, social quantification

Both the work of Gilbert Simondon and cybernetics as the 'prehistory' of artificial intelligence have recently been the subject of renewed critical attention (Pasquinelli, 2023). Much attention has rightly been given to Simondon's critique of the cybernetic concept of information and homeostasis, which allows for the identification of certain points of contact between the cybernetic conception of the social order and neoliberalism (Bardin & Ferrari, 2022; Halpern, 2022). The paper focuses instead on the role that cybernetics played, according to Simondon, as a threshold in which technology, for the first time in history, could present itself as a science of the social order (Consolati, 2024).

While the relationship between social science and technology is generally studied from the perspective of the technological modeling of society through cybernetics, Simondon's reading of cybernetics as a new *Discours sur la méthode* allows us to recognize the reverse process: that is, the way in which technology has incorporated models and methods from social science (Simondon, 1989). The historical role of cybernetics lies in having brought to consciousness the possibility of considering matter itself socially as a process of adaptive learning aimed at reproducing conditions of stability. In this way, the historicity of society is consciously reduced to a question of the continuity of behaviours, representable in terms of input and output, while technology intervenes to modify the relationships of authority that run through the social body.

From this point, the paper sets out two objectives: the first is to understand how this reading of cybernetics relates with Simondon's interpretation of other major historical shifts of the past, particularly the Renaissance and the Enlightenment, as thresholds that transform the relationships between techniques, institutional patterns, and culture. The second is to question whether AI and the related "social quantification sector" (Couldry & Mejias, 2019) represent a further threshold for redefining the links between the social order and its technology, or whether, from this perspective, they simply continue the cybernetic threshold.

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ID 688 - Simondon and the "Gestalt Controversy"

Freyja Häberlein, Leuphana Universität Lüneburg

Keywords: Gilbert Simondon, Gestalt, cybernetics, artificial intelligence

Early discourse on artificial intelligence is marked by what came to be known as the "Gestalt controversy", that is, as atomistic versus holistic approaches to the idea of cognition. In the work of Gilbert Simondon,



this controversy is reflected in profound philosophical terms, as he critically analyses both substantialism and hylomorphism as models for explanation of the genesis of the individual. According to Pasquinelli, who recalls the post-World-War-II experiments concerned with artificial neuronal networks, the Gestalt controversy was marked by the question of "whether or not human perception is an act of cognition that can be analytically represented and therefore mechanised". While Simondon does not explicitly address the question of artificial neural networks, he is nonetheless theoretically situated within this controversy, as both his critiques of automation in cybernetics as well as the idea of the good form (Prägnanz) in Gestalttheorie show. This contribution therefore aims to read Simondon's critique of modern psychology as a proto-theory reflecting on what, if anything, artificial intelligence could be conceived of in a way that is situated between these two positions.

In the time following World War II, especially during the Hixon Symposium in 1948, attended both by cyberneticians and Gestalt psychologists, the argument raised against artificial intelligence by theoreticians favourable to Gestalt was that human perception could not be mechanised, as this would involve a level of abstraction and universalisation that a machine could not achieve, given the infinite amount of isomorphisms (producing insight) in human perception. Cyberneticians, however, claim that human cognition can indeed be reproduced via automation, that is, that it can be derived via a mapping of the organisational properties of predetermined patterns. As Andrea Bardin points out, Simondon's philosophy is situated between cybernetics and the Gestalt school in an attempt to come up with a different understanding of the notions of both form and information. For Simondon, the claims made by cyberneticians that thinking can be wholly automatised is essentially a myth, and hence, information has to be understood both in terms of structure and operation, as that which signifies the relation between sender and receiver, and thus critically enquires into the hitherto existing static notion of homeostasis, especially in the work of Norbert Wiener. However, he also rejects the claim that there is something intrinsically incomprehensible to consciousness that exceeds all systematic science and that is metaphysically struck by the good form as a stable absolute. By conferring Simondon's critique of modern psychology to the theoretisation of cognition in terms of artificial intelligence, this paper aims to read his work as a position-taking in early discourse on AI.

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ROOM B2.1.1

ID 870 - "Anthropo-/socio-/zoo-/biomorphisms" as Foundational Processes for Human-AI Relation

Juho Rantala, Tampereen yliopisto

Keywords: Simondon, AI, anthropomorphism

The presentation considers the foundational role of anthropomorphism and other "morphisms" in the human-technology relation with the help of Gilbert Simondon's thinking. His philosophy of technics as well as analyses on information, imagination, invention, magical thinking, and images pave a way for more profound understanding of these "morphisms".

As Brian Duffy summarises, anthropomorphism is the "tendency to attribute human characteristics to inanimate objects, animals and others with a view to helping us rationalize their actions" (2003). It can also be thought as a special case of sociomorphism that effects, as the prefix indicates, humans. Thus, sociomorphism is, to summarize, tendency to attribute any kind of sociality – or livingness (biomorphism) – to inanimate matter, objects, or phenomenon. In addition, it is possible to differentiate also "zoomorphism", which is tendency to recognize animal features from different phenomena. Other studies have connected especially anthropomorphic tendency to more foundational relation or interaction of human with their milieu. This reciprocal cognitive mechanism – which might partly have its foundation in genetics – is, on the other hand, automatic and, on the other hand, constructed among the interactive relation between the individual, the object (or phenomenon etc.) and the environment. Thus, this framing of a situation of interaction, which also partly creates the situation, has its roots in social living and being.



The anthropomorphic situation also requires the framing of problematics, which, in turn, leans partly on narrativity and myths. Here, narrativity has images as its genetical elements. These images must be understood more profoundly as grounding images, kind of processes that tie together perceptive units – they are intra-perceptive and nonvisual. This nonvisuality rises out of biological domain: the image as a thought process is already (partly) formalized in pre-individuality, which, in turn, works as a foundation for ontogenesis (or individuation). Anthropomorphism (or socio-/biomorphism) is a schema that works upon this image, it is a kind of filter that extends to the environment and to the object/phenomenon. In addition, this cycle of images, that begins before perception, is tied to social domain through, for example, narrativity and myths, which has reciprocal effect on this cycle.

Technics (and technology) has become probably the most evident area that cultivates, uses, and occasionally challenges the anthropomorphic tendency. This is because technics is, as invented processes and objects, externalized human thinking and gestures. In addition, Simondon claims that it is also a more foundational and universal domain than, for example, religion – it strives to comprehend and answer universal problematics. Anthropomorphic tendency, as a complex multifaced process, grounds the relation between human and technics.

Better understanding of anthropomorphic (bio-/socio-/zoomorphic) elements in the relation between the human and the technics leads to opening and freeing the human and the machine (the technology) – as well as the co-constitution of subjectivity. This helps also framing and positioning of true problematics and avoiding "false problems" in AI. For example, complex problems like "uncanny valley" are connected to and created by the cycle of images that grounds these morphisms.

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ID 350 - The transductions of a purple pixel: conceptual tensions at the boundary between human and machine

Raffaele Andrea Buono, University College London

Keywords: Simondon, AI, transduction, machine learning, sociality, signification

This paper builds on 18 months of ethnographic fieldwork in a laboratory working at the intersection between robotics, AI and neuroscience. Particularly, the work of the laboratory attempts to shed light on human capacities for linguistic communication, while also building efficient robotic prototypes that mimic said capacities. I attempt to highlight vernacular conceptualisations of 'communication', by tracing the genealogy of tests performed. I focus on specific models (Variational Autoencoders), and their machinic implementation, which configure linguistic collaboration in specific technical, ontological and epistemic terms. In so doing, I show how 'communication' has vernacular contours which are dynamically diffracted and refracted via the functioning of the ML architectures being tested (Simondon, 2017[1958]), whose different regimes of operations construct specific modes of perception and inference (Rieder, 2020; Kockelman, 2017). Particularly, I highlight a central oeuvre: that is, stabilising the continuity of perceptual information into discrete, communicable linguistic and/or statistical tokens. I recognise in such technical and epistemic concerns traces of the individuation dynamics described by Simondon (2020[1964]), particularly through the concept of transduction. In further analysing the inner workings of VAEs however, I begin to question the extent to which the capacities for generalisation (Reigeluth & Castelle, 2020) touted by unsupervised learning speak to the schematics of attunement and dephasing, individuation and pre-individuality provided by Simondon's conceptual vocabulary.

I take such questioning to the forefront by discussing a simplified experiment involving red and blue pixels: its simplicity allows us to follow the operations of the VAE, teasing moments through which the transductive movements of human perception do not seem to map out to the operations of the model. I focus on how UL models deal with outliers, such as a purple pixel in a neatly laid out latent space of reds and blues.

On the one hand, a human mode of engagement which discovers significations by amplifying difference,



leveraging difference to de-individuate, constructing a meaningful, vertical, sedimented and porous history of "paths [...] (through which) the universe becomes ordered by individuating: [...] it is the signification of the system that has just been discovered as a unity that integrates the different anterior points of view" (Simondon, 2020[1964]: 233). On the other hand, ML models which seem to operationalise the plasticity neuroscience has been increasingly fascinated with: recruiting, flattening, mediating and ultimately enclosing difference through horizontal permutations of individuals, functioning through constant adjustments and re-parametrisations against breaking points and impossible saturations.

Through such analysis, I close by bringing to the forefront generative questions around these tensions in the socialities of humans and machines. How do these ontological shifts impact ways of communicating and learning? How does the social get to be not only conceptualised, but experienced? In gesturing towards, without fully stabilising, these tensions emerging at the encounter between ontogenesis and individualisation, metastability (Bardin & Ferrari, 2022) and ultrastability (Ashby, 1960), human and machine, I hope for this paper itself to become a site for signification and transduction, as an unruly pixel was in the field.

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SESSION 1

ROOM B2.1.1

ID 307 - Deep learning and "in-depth technology": the ethics of Artificial Intelligence systems

Diego Vicentin, Universidade Estadual de Campinas

Keywords: Technologie Approfondie, Deep Learning, Ethics, Gilbert Simondon, Critical AI

How to give depth to deep learning and find its ethics? Motivated by this question, this paper juxtaposes "deep learning" techniques of machine learning with Gilbert Simondon's (2014) notion of technologie approfondie ("in-depth technology" or "thorough technology") in a dialogue with contemporary critical and decolonial studies on Artificial Intelligence (AI) systems. That exercise will proceed in three steps.

First, we're going to unfold the notion of "in-depth technology" as articulated in two brief works separated by thirty years, at the beginning and at the end of Gilbert Simondon's career (Simondon, 2014 [1953; 1983]). Giving depth to technology is a way to find its ethics and, through invention, recuperate techniques to their full potential. Clearly, technologie approfondie is a notion intertwined with the problem of technical alienation, to the proposal of technoaesthetics and to Simondon's broader project to develop non-autocratic relations with technology.

Second, inspired by Simondon, this paper will unfold deep learning techniques, such as convolutional neural networks and generative adversarial networks, in terms of their architecture, basic operations and political economy. It's important to uncover what is the knowledge depth produced by AI's deep learning in order to find its ethical meaning; to achieve this task technicalities and operations are as important as the "history of thought and consciousness of a society" (Simondon, 2014, p. 224). The (lack of) consciousness of contemporary society on current deployment of AI systems will be addressed with the help of critical and decolonial studies on AI (Benjamin, 2019; Crawford, 2021; Hui, 2020, Pasquinelli, 2023).

Finally, the article revisits potentials and limits of the notion of technologie approfondie, arguing that giving depth to technology depends on the overcoming of the "ethics of destruction" tied to European and anthropocentric epistemic colonialism. This involves diversifying ways of knowing and transforming the world through technical systems.

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SESSION 1

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ID 358 - Technical culture beyond Simondon in the age of AI

Tyler Reigeluth, Université Catholique de Lille

Keywords: technical culture, maintenance and infrastructure studies, play, care, sociotechnical collectives

Simondon's concept of technical culture was developed as a remedy to his diagnosis of a generalized technical alienation within our culture. Simondon was already coming to terms with the paradox that technology was increasingly ubiquitous while people seemed to know less and less about these entities, treating them more and more like strangers to be mistrusted or slaves to be used. Over fifty years later, Simondon's diagnosis is more acute than ever as digital technologies and AI systems mediate nearly every aspect of our activities and experiences, and as engineers themselves openly claim they do not always understand the AI systems they have developed. Simondon defined technical culture as an active, affective and cognitive engagement with a technical schema that can be experienced through the concrete functioning of a technical object. While he was quick to emphasize the collective and institutional dimensions to the development of this culture (namely through reforms of the schooling system), it is ultimately grounded in individual competencies, knowledge and skills.

In this contribution, I will argue that while Simondon's conceptual dyad technical alienation/technical culture remains a critical and heuristic framework, we must rethink its dimensions in light of contemporary sociotechnical realities. Indeed, the dizzying complexity and scale of AI systems defies, more than ever, any neat adequation between the individual "user" and the technical ensemble. Furthermore, the division of labour and specialization involved in the development and maintenance of these systems encourages us to think of the collective dimensions that a relevant technical culture would have to assume for it to effectively respond to contemporary technical alienation.

To make space for something like technical culture and following Simondon, we must first deflate claims of automation regularly made by industrial, political and media discourses around AI. Contrary to what is often claimed or promised, these systems do not work by themselves. They are embedded in social interactions, they make "errors" (which are often social, not technical, evaluations), require maintenance, consume energy and resources, etc. By looking at the growing "margin of indeterminacy" of these AI systems (i.e. the relative unpredictability of their behaviours and increasing embeddedness in social and natural milieus) that function more as social partners than mere tools, we can begin to understand the multiple dimensions of a corresponding technical culture. I would like to suggest that Simondon's framework can be complemented by aspects of maintenance and infrastructure studies that can help foreground the disparate kinds of labor, engagement and care that underpin the functioning of and interaction with these systems. By mobilizing empirical examples, I would like to broaden what we might consider a technical schema so as to include relationships with AI systems that are not limited to "expertise" or "mastery", but could better be described as a playfulness and carefulness. Thus, technical culture is less about opening the black box and mastering a technical schema than it is does about the collectives that share forms of knowledge, skill and care about and for these systems.



ID 635 - Understanding technicity: towards a new approach to AI education

Susana Aires, King's College London

Keywords: Gilbert Simondon, technical education, technicity, AI education

At a time of unprecedented technological change, the oeuvre of Gilbert Simondon remains paramount. The rapid unfolding of AI technologies and the need to problematise their operation has led scholars to draw on Simondon's oeuvre to foreground, for example, research on the calculation of meaning of AI systems (Bunz, 2019), the evolution of algorithmic techniques (Rieder, 2020) and the nature of digital objects (Hui, 2016). While predominantly known for his study of the functioning and evolution of technical objects (2017) and individuation theory (2020), the plurality of Simondon's thought spans various domains of life, including aesthetics, invention and education, among others. To mark the centenary of his birth, this paper delves into Simondon's vision for what he termed "technical initiation" (2014a) and "technical education" (2017), which, albeit scattered across his oeuvre, concurs with his fundamental concern, i.e., the "misunderstanding of the machine" ensuing from the "non-knowledge" of its functioning qua technicity (Simondon, 2017: 16). Specifically, this paper posits that Simondon's oeuvre can advance contemporary pedagogical practices in AI education.

In light of the fast-paced developments in the field, marked by the release of sophisticated AI systems in the public domain (e.g., generative AI, multimodal AI), many have argued for introducing AI technologies in the classroom, using these to deliver personalised education and to learn with AI. Few, however, have looked into learning about AI. To be precise, while there has been an emphasis on developing students' AI literacy, aiming at the safe and competent use of these technologies, we are yet to systematise an approach to learning centred on the technicity of the technical objects of AI, especially given the complexity and unintelligibility of dominant, data-driven techniques. To this end, this paper draws on Simondon's vision for technical education (2017, 2014a, 2014b), to lay the foundations for a pedagogical practice that promotes the understanding of AI technologies by engaging with its schemas of functioning. Combining the intuitive and the conceptual, the visual and the discursive (Simondon, 2017), the technical AI education proposed herein – as an ambition and pedagogical practice – draws on Simondon's analogical thought to mitigate the challenges posed by the operational opacity and complexity of contemporary AI techniques, whilst placing it within Simondon's wider theory of individuation, fleshing out the transindividual potential of contemporary technical objects of AI.

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ID 831 - AI Beyond “the adversary of man”: Re-situating LLMs as Cultural Objects

Matt Ratto, University of Toronto

Sarah Gram, University of Toronto

Keywords: generative ai, LLMs, process philosophy, human-AI relations, machine learning, sociotechnical assemblages

Large language models (LLMs) seem like a fever dream for cognitivist thinkers, in which the situated and material nature of intelligence is replaced by a centralized, abstracted, and linguistic doppelganger. These systems are purported to engage in human-level intelligence (whether now or in some proximate future) but without having to get their (metaphoric) hands dirty. Instead, LLMs are often claimed to exist in a pure world of language, deriving their intelligence (real or imagined) from the complex pattern matching of billions and billions of tokens – words – archived from the vast richness of digitized human textual activity. Critical scholarship importantly rematerializes these systems by resurfacing clear connections to “real-world” systems: their energy and carbon footprints, their sources of training data, and the embodied human labour used in their production. Our goal is similar, in that we wish to better situate the potential value of LLMs as cultural artifacts within emergent relationships with humans. Here, the work of Simondon and related processualist thinkers can help us better contextualize and understand these relations.

LLMs fit into a longer history by and through which the human mind has been ‘mechanized’ (Dupuy, 2000) and, simultaneously, we have ‘become posthuman’ (Hayles, 1999). LLMs are the latest systems through which cybernetic visions are realized, starting with Ashby’s Homeostat in 1948, the Perceptrons and early neural nets of the 1960’s, and culminating in the Convolutional Neural Networks and Transformer model for natural language processing that power current LLMs. Hayles describes the waves of machine intelligence as ‘seriations’, drawing on the definition of this term in archaeology to emphasize chronological progression but also relation – each successive wave builds from previous ones and artifacts that show up in later contexts are clearly related to the ones that came before. For example, the auto-regressive nature of LLMs (feedback loops) and their use of training and weights (neural nets) clearly derive from the previous waves of machine intelligence described by Hayles. While it is clear that LLMs ‘prehend’ and ‘concesce’ (Whitehead, 1929/1978) attributes from previous waves, do they, and genAI systems more generally, constitute a new wave?

We explore this question, leveraging Simondon’s concept of ‘co-individuation’ and other processualist accounts of agency (e.g. Barad, 2007.) We consider whether this wave can be considered as a potential change in human-technology relations, away from relations of interaction and toward relations of “intra-action,” (Barad, 2007) and “modulation” (Simondon, 2010 cited in Rantala & Muilu, 2024). By doing so, we intend to situate LLMs within emergent human-AI relations and therefore to re-open the liberatory possibilities in these new digital systems. By taking up a processualist perspective on LLMs in particular and generative AI more generally, we hope to move beyond understandings of AI as “technical individual entity” that is the “adversary of man” (Simondon, 1958/2017). Rather, we suggest that through the application of a processualist approach, we can re-situate genAI as an “open machine” that human beings can intervene in and transform.



11 JUNE 2025 17.00 - 19.00

SESSION 2

ROOM B2.11

ID 737 - Techni(City): Environmental Cognition and the Techno-Geographies of Urban AI

Fabio Iapaolo, Politecnico di Milano

Keywords: Gilbert Simondon, Technicity, Environmentalism, Urban AI, Autonomous Driving

Attending to city-scale automation through the infrastructural and cognitive operations of autonomous driving, this presentation interrogates the distinct techno-geographies of urban artificial intelligences (AIs) as they concretize within and through urban environments. Bringing Gilbert Simondon's formulation of 'technicity' into dialogue with Jennifer Gabrys' articulation of 'environmentality', it reframes urban AI not simply as the deployment of AI technologies within cities but as a process generative of novel ways of "programming and concretizing environments and environmental relations" (Gabrys, 2016, p. 4).

If techno-geographies describe the spatial, material, and informational conditions that render AI actionable, then this paper introduces technicity as a conceptual lens for examining a double relation in which AI technologies—specifically self-driving cars—are at once conditioned by the environments they traverse while simultaneously transforming urban space as a 'condition of possibility' for their functioning. It is argued that as AI technologies become increasingly embedded in urban systems, they not only require the further exteriorization of cognition from individuated technologies into environments but also reconfigure urban governance and citizenship, engendering (as well as foreclosing) new modes of political subjectivation and participation.

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11 JUNE 2025 17.00 - 19.00

SESSION 2

ROOM B2.11

ID 444 - The space of concretization: a Simondonian approach to technical development

Enrico De Martin Topranin, Università di Pisa

Keywords: concretization, AI, space, Simondon, technicity

The French philosopher Gilbert Simondon provides useful tools for a critical study of artificial intelligence. I want to bring out how Simondonian thought can be helpful to analyse the effects of algorithmic technologies in the political space (Bardin, Ferrari, 2022). By conceiving the technical object beyond its mere instrumental and innovative status, Simondon provides a dynamic perspective to study the relations between the technical pole and the political pole.

For those not familiar with the works of Gilbert Simondon, his concepts may appear obscure: in my presentation I intend to explain and clarify some aspects of it. I will focus on the concepts of concretization, technicity and associated milieu; the importance of spatiality will emerge as a link between technology, politics and geography. Concretization is defined by the author as the process through which an object goes from an abstract condition to a concrete one. The more concrete the object is, the more its technical functions converge. This way, the global operating of the technical object is not split in different structures. There is, instead, a simultaneous functioning between sub-systems (Simondon, 1989). The technicity of an object describes this process of technical progress. It qualifies a technical element as something that can be transported in a different technical system. This dynamism allows Simondon to conceive technicity as spatially widespread between different technical objects (Simondon, 2014). The concretization process



brings into being an associated milieu, which is technical and geographical. The functioning of the technical object is mediated by the natural element around it; in this sense, the space of a technical object is not merely passive but active on the object itself (Simondon, 2014). Simondon recognizes the intersection between the techno-geographical space and the political one (Simondon, 2014, Hui, 2017). If relations between politics and AI are currently being studied (Bardin, Ferrari, Rodriguez, 2024), and environmental impact of AI is being investigated (Valdivia, 2024), I want to link these two different discourses.

Through concretization, technicity and associated milieu, Simondon offers an evaluative criteria of AI; these concepts allow to explore technical objects holding together technical, political and geographical elements (Simondon, 1989). Simondon's thought highlights the external influences that are placed on the technical object, for example by political, social or economic needs. In this way, it is considered possible to study AI showing its different stratifications and compositions, both technical and non-technical.

11 JUNE 2025 17.00 - 19.00

SESSION 2

ROOM B2.11

ID 533 - Agentification as Individuation? Generative AI, Reinforcement Learning and the Making of the Algorithmic Individual

Ludovico Rella, Durham University

Keywords: agentic AI, generative AI, individuation, algorithms, milieu

Generative AI has entered a new phase of hype, promise and investments under the banner of Agentic AI. From algorithmic traders to copilots, generative algorithms are being endowed with more and more individual-like affordances such as browsing the internet, taking control of a laptop, impersonating real-world people and so forth. This, in turn, begs several questions, to which a close reading of Simondon's theory of individuation might provide tentative answers. First of all, if this is an agentic turn, the question becomes what is the difference between an agentic and a non-agentic algorithm? Is the latter, and not the former, an individual and, if so, which mode of existence do algorithms inhabit? If they are at different stages of the process of individuation, what threshold is crossed between non-agentic and agentic algorithms? Furthermore, if individuation is always a relationship between the individual and its milieu, what specifically is the relationship that comes into play between an agent and its milieu? Which kind of environment is that which agents inhabit, how do they navigate it and how does it shape their mode of existence? Is that between agents and world a sui generis form of embodiment? How does the environment affect agential behaviour?

11 JUNE 2025 17.00 - 19.00

SESSION 2

ROOM B2.11

ID 609 - Pre-individual Per-sona: The role of voice in defining AI as an 'individual'

Francesco Bentivegna, University of Bristol

Keywords: voice, Simondon, pre-individual, performance arts, AI

The debate surrounding autonomous machines and art has only begun to scratch the surface of Performing Arts studies, where Artificial Intelligence is viewed as either an ideal of artificial life or merely a scientific tool that does not pertain to the field. However, the impact of AI needs to be critically examined and reimagined. Similarly, the role of voice in shaping 'AI identities' is frequently overlooked and downplayed. In this paper, commencing with AI vocalisation and speech synthesis, I aim to tackle the theoretical issue of 'the identity of the machine' by engaging with Simondon's theories on technicity in connection to voice and the performing arts. Starting with the role of voice and prosopopoeia as foundational elements of a 'godification' of AI, this paper intends to redirect the emphasis toward the relations we maintain with the 'mythical' AI, specifically examining metastability, pre-individuality, and technical objects. Building on Simondon's definition of the 'pre-individual' (1992, p. 306), Rosi Braidotti posits that machines exist within the



meta-stability of the pre-individual, a site of potential post-anthropocentric becoming or the threshold to numerous possible worlds (2019, p. 98). I argue that such possibilities are 'generated' or 'imagined' through the interaction of voice and language. In exploring this space 'within' machines, this paper will highlight three specific case studies, aiming to define and subsequently interrogate the notion of a voice in or of the machine, advocating for a voice 'with' the machine. I intend to investigate how the possibilities arising in the pre-individual state are articulated in contemporary performance practices, uncovering the voices in, of, and with machines while reflecting on my relationship with synthetic voices as a listener around which my argument is built: voice with the machine.

11 JUNE 2025 17.00 - 19.00

SESSION 2

ROOM B2.1.1

ID 815 - Beyond Instrumentalism: reframing human-centered AI through Simondon's philosophy of technical objects

Luuk Stellinga, Wageningen University & Research

Keywords: Human-Centered AI, Instrumentalism, Simondon

In recent years, 'human-centered artificial intelligence' (HCAI) has emerged as a prominent phrase in the societal debate about the implications of AI, framing the development, deployment, and governance of AI technologies. Despite widespread appeal to the phrase, current discourse on HCAI lacks critical reflection on the nature of AI as a technical object as well as human-AI relations, leading to an implicit instrumentalist perspective that treats AI technologies as means to human ends. As a result, current HCAI discourse is susceptible to wrongly conceptualizing the legitimate and pressing societal concern around the development of AI technologies in purely instrumentalist terms, reducing it to a matter of ensuring human control over AI. This view is both philosophically flawed and fails to map onto the reality of human-AI relations, as AI has come to shape human existence in more subtle and profound ways than can be captured by the instrumentalist schema. In response, we pose the question of how to ground the concept of HCAI in a richer understanding of technical objects that reflects the complexity of human-AI relations.

To begin, we provide a critical analysis of instrumentalism as a dominant yet reductive perspective in contemporary thinking about AI, reveal its shortcomings, and demonstrate the need for moving beyond it. A response can be found in Gilbert Simondon's philosophy of technical objects, which argues that instrumentalism stems from a false dualism between technics and culture (Simondon, 1958). Following a reconstruction of this argument, we introduce Simondon's understanding of technical objects as genetic and relational entities, meaning that they are never fixed but exist in a process of concretization, and always stand in relation to both humans and the natural environment. We build on Simondon's theory of technology, as well as recent scholarship that has investigated the relevance of Simondon's work in the context of digital technologies and AI, to rethink the human-technology relation in HCAI. This leads to an appraisal of current HCAI approaches as too focused on the utility of AI systems, seeking to design for usefulness and increasing human performance. Instead, Simondon's perspective invites us to consider how values materialize in AI technologies, for example through examining the processes by which large datasets are computed for classification and prediction in real-world settings.

In the following section, we consider two potential shortcomings of Simondon's theory of technology for grounding the concept of HCAI. First, we suggest that Simondon's analysis overlooks the role of technical objects as the infrastructure of political engagement, or "public things" to which human beings relate together as citizens (Honig, 2017). We analyse this shortcoming of Simondon as a limited philosophical anthropology that does not acknowledge the human as *zoon politikon*. Second, we question whether Simondon's perspective allows for contending with the environmental costs of technical progress, and suggest the importance of reckoning with the finality of the geographic milieu. This paper contributes critical engagement with the assumed instrumentalism in current HCAI discourse, and develops a response building on Simondon's philosophy of technical objects, while addressing its limitations.



Panel 4. Ageing in the Digital Age: The Technological conundrum and its implications for Active Elders

Convenors:

Arianna Radin*, Università di Torino

Luisa Errichiello*, Consiglio Nazionale delle Ricerche

Keywords: ageism; elderly; elderly workforce; digital inclusion; technology in healthcare; ageism in technology

In today's rapidly evolving digital landscape, the relationship between technology and the elderly has become a priority in sociology, economics, social psychology, and management research agendas. Digital technologies within the Industry 4.0 framework present both opportunities and challenges for an ageing population and workforce. Understanding how older adults interact with technology's affordances and constraints, how they benefit from or are impacted by its materiality, and how they socially construct it requires fresh perspectives and new empirical evidence.

On the one hand, advanced technologies offer numerous benefits to older adults and senior workers (enhanced health, improved quality of life, and greater independence). On the other hand, the ageing process can create barriers to technology adoption (limited digital literacy, economic constraints, and age-related cognitive or physical limitations). The shift towards the industry 5.0 paradigm, with the advent of cutting-edge technologies like AI and collaborative robots, introduces new complexities, tensions, and challenges in both personal and professional domains. These developments increase the interactive role of individuals, making it even more essential to consider how ageing populations engage with technology. Addressing ageism in technology design and implementation is crucial for ensuring equitable access and usability for aging populations for several reasons. Firstly, the digital divide can exacerbate social isolation and reduce access to essential services for individuals lacking adequate technological skills or resources. Secondly, while digital technologies can support and empower older workers and help them to remain active in the workforce through greater flexibility in time and space, they can also create barriers, particularly due to the rapid pace of technological change, which often requires continuous adaptation, upskilling, and re-skilling of an ageing workforce. Thirdly, the successful integration of technology into elderly care – through telemedicine, wearable health devices, and assistive technologies— holds the potential to improve health outcomes, extend working life, and foster greater and longer independence for older adults.

The panel will contribute to the STS debate by addressing critical questions surrounding the intersection of technoscience and societal well-being, particularly in the context of aging populations. It directly engages with the ethical and epistemological challenges raised by "good" technoscientific practices based on justice, inclusion and equitable access, by questioning how technological development can either empower or marginalize older adults and workers. The panel also questions how industry 5.0 and technologies reshape human-technology relations and emphasizes the transformative potential and ethical risks of integrating cutting-edge technologies, such as AI and collaborative robotics, into the lives of ageing populations by addressing their socio-material implications for older workers and looking for age-centered designed strategies that benefit society at large.

We welcome theoretical insights, empirical research, and case studies particularly in the following areas: Digital Inclusion and the Elderly; Technology and Elderly workforce; Technology in Healthcare and Assisted Living; Age-centered designed smart territories and cities; Social Media and Ageing; and Ethical Considerations and Ageism in Technology. Interdisciplinary approaches and international comparisons are highly encouraged.

*The activity falls within the scientific dissemination initiatives of CNR-ISMed, as part of the project Age-IT: "Ageing Well in an Ageign Society" [DM 1557 11.10.2022] funded from Next Generation EU, in the context of the National Recovery and Resilience Plan (PNRR), Investment PEB. his panel is part of the dissemination activities of the PNRR project Age-IT – "Aging Well in an Aging Society".



ID 218 - Do older workers benefit from telework? An investigation of the effects on job insecurity and work-life balance

Greta Falavigna, Istituto di Ricerca sulla Crescita Economica Sostenibile del Consiglio Nazionale delle Ricerche

Valentina Lamonica, Istituto di Ricerca sulla Crescita Economica Sostenibile del Consiglio Nazionale delle Ricerche

The COVID-19 pandemic has accelerated the adoption of telework, reshaping traditional work models and employee routines globally (Eurofound, 2020). Alongside this shift, the proportion of older workers in Europe has risen from 26% in 2009 to 34% in 2022 (Eurostat, 2023), emphasizing the need to assess how older employees adapt to telework compared to younger ones. Despite this demographic change, research on telework's impact on the aging workforce and work-life balance (WLB) remains limited (Scheibe et al., 2024; Hamouch & Parent-Lamarche, 2023).

Telework research showed mixed results regarding WLB. Some studies highlight positive impacts, such as via autonomy (Metselaar et al., 2023), while others report negative effects, e.g. via employees' difficulties in disconnecting from work (Felstead & Henseke, 2017). COVID-19 research has corroborated these inconsistencies, pointing to moderating factors like sex, boundary management, and telework frequency (Elbaz, Richards & Provost Savard, 2023).

Focusing on older workers, this study investigates the mediating role of job insecurity in the relationship between telework and WLB. Job insecurity is categorized as quantitative (concerns about job loss) and qualitative (perceptions of reduced job quality and career stagnation) (Hellgren et al., 1999). Drawing on Conservation of Resources (COR) Theory (Hobfoll, 1989), we propose that job insecurity undermines WLB by depleting resources like energy and psychological well-being, leading to stress.

Using data from the 2021 European Working Conditions telephone Survey (EWCS 2021), we applied regression models and mediation analysis. Preliminary results suggest that telework positively impacts the WLB of older workers engaged in partial or hybrid telework but shows no significant effect for those in full telework arrangements. While telework reduces older workers' perceptions of career-related qualitative job insecurity, this effect diminishes with increased telework intensity. Both quantitative and qualitative job insecurity negatively impact older teleworkers' WLB. Contrary to expectations, neither job autonomy nor financial security mitigates the detrimental effects of job insecurity on WLB for older workers, unlike for younger age groups.

Our findings reveal that age-based differences exist in teleworking experiences. Older workers benefit from telework in reducing perceptions of job insecurity but not in improving WLB. Furthermore, their resources—such as autonomy, social support, and financial stability—appear insufficient to counteract the negative effects of job insecurity on WLB. These results highlight the complexity of telework's impact on an aging workforce and underscore the need for age-sensitive telework policies to address the unique challenges faced by older workers.

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11 JUNE 2025 14.30 - 16.30

SESSION 1

ROOM B2.2.5

ID 197 - 'Someone makes videos and gets the money for it' - Agency of Older TikTokers in Digital Capitalism

*Edit Pauló, Eötvös Loránd University**Regina Gradwohl, Eötvös Loránd University***Keywords: digital capitalism, ageing, TikTok, visual-verbal video analysis**

The capitalist operation of this day and age has been described in various forms by the literature. Platform capitalism (Srnicsek 2017), surveillance capitalism (Zuboff 2019), techno-feudalism (Durand 2021), digital capitalism (Pogátsa 2024) and digital colonialism (Meijas and Couldry 2024) are concepts that describe the phenomenon of how the extensive spread of the internet, starting in the 1990s, has opened new markets for the capitalist operation. Although each concept underlines different aspects of the operation, they agree that those big tech companies are the biggest winners of this change that can determine the workings of the markets and customer behaviour. What opportunities does the individual have in this system? What options are open for those not the primary target group of this operation because of their age? Is it possible to win on an individual level in this setting? What dynamics describe the scope of the individuals, businesses, and big tech companies on a platform still mainly used by younger people?

In this research, we applied the Visual-Verbal Video Analysis Method to analyse the content of older TikTokers. Our results showed two ways to utilise the platform on the individual level. On the one hand, by displaying an existing product, service or brand. The TikToker can appear in an expert role based on their age, which grants credibility to their position. On the contrary, the popularity of personal accounts has grown so much that they have begun to provide income, and related services and product distribution have become profitable. Businesses also discovered the potential to reach the older TikTokers. We found examples of users becoming the faces of MLM systems to build their customer groups and share their good experiences with the advertised product. However, some profiles cannot be linked to individual users: an actress plays the role of an older woman, and the product is barely unperceivable.

What is the role of age in each case? How prominent is the display and stereotyping of age, and what conclusions can be drawn from this? Is the target audience of these videos the older age group, aiming at (creating) the 'grey market'? Or, on the contrary, do these videos try to appeal to the younger age groups, and by (over)emphasising the grandparental roles, they try to create a bond? And finally, is it worth it for the older TikTokers?

11 JUNE 2025 14.30 - 16.30

SESSION 1

ROOM B2.2.5

ID 446 - Digital Divide and Risk of Social Exclusion Among the Elderly: A Case Study from an Inner Area of Campania Region in Italy

*Francesco Notari, Consiglio Nazionale delle Ricerche**Tiziana Tesauro, Consiglio Nazionale delle Ricerche***Keywords: Ageism, Elderly, Digital Exclusion, Active Aging Policies**

Various studies suggest that the population aged 65 and over is particularly vulnerable to digital exclusion and faces a higher risk of isolation in contexts where technology is increasingly prevalent in public services and daily life. One study specifically investigates the so-called grey divide, a gap among seniors aged 65 and older, whereby Internet usage is heavily imbalanced within this age group. This research suggests the need for greater emphasis on analysing digital support services.

From this perspective, within the framework of the "Digital by Default: Older People, Digital Public Services and Risks of Social Exclusion" project – sector SH7, funded by the Ministry of University and Research (MUR) under the National Recovery and Resilience Plan (NRRP) – Mission 4 "Education and Research" –



Component C2 – Investment 1.1, “Fund for the National Research Program and Projects of Significant National Interest (PRIN),” a study has been initiated to describe the digital support system in two Italian regions, Lombardy and Campania, beginning with the “Network of Digital Facilitation Services.”

This paper documents the initial findings of the research launched specifically in the Campania region, particularly in inner areas – those areas characterized by significant distance from major service centres. It presents digital facilitation experiences for individuals over 65, aimed at mitigating the risk of social exclusion, focusing on a specific project implemented in the Province of Caserta that involved several municipalities in the inner areas. The paper examines experiences that may have significant implications for defining policies supporting active aging, as suggested by the World Health Organisation’s strategy for active and healthy aging.

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11 JUNE 2025 14.30 - 16.30

SESSION 1

ROOM B2.2.5

ID 692 - Fostering Social Connection in Aging Populations: A Cross-Sectional and Experimental Study on Virtual Reality Interventions.

Bárbara Gómez Peña, Universidad de Córdoba

María Álvarez Cantos., Universidad de Córdoba

José Manuel Alcalde Llergo, Università della Tuscia

Alessia Bisio, Universidad de Córdoba

Juri Taborri, Università della Tuscia

Enrique Yeguas Bolívar, Universidad de Córdoba

Pilar Aparicio Martínez., Universidad de Córdoba

Keywords: Older Adults, Virtual Reality, Loneliness, Artificial Intelligence

Older adults often experience social, physical, and psychological deprivation, significantly impacting their well-being. Among these challenges, social isolation is particularly concerning, as it frequently leads to persistent loneliness, which has been associated to cognitive impairment, depression, and poor psychological health. This study assesses the prevalence of loneliness, depression, and social isolation among adults aged 60 and older in Córdoba while identifying individuals at high risk and evaluating the effectiveness of virtual reality (VR) together with artificial intelligence (AI) as an intervention tool.

The study follows a cross-sectional, prospective, and experimental design, organized in two phases. The first phase involved an observational cross-sectional study, in which a self-designed survey was distributed across public locations in Córdoba, yielding a randomly selected sample of 244 participants. The second phase comprised an experimental intervention involving a control group (n=31) and a VR intervention group (n=31). In December (2024), workshops titled “Technology and Health” were conducted at active participation centers and associations to foster social engagement, cognitive stimulation, and emotional well-being through VR. The gender distribution in this phase was predominantly female, with only one in



seven participants being men. All the VR experiences presented during the workshops were designed to create immersive environments that reduce loneliness and encourage social interaction.

To assess the intervention's effectiveness, two validated tools were used: the UCLA Loneliness Scale for perceived loneliness and the Yesavage Geriatric Depression Scale for depressive symptoms. Low-risk participants completed a survey after their first workshop and a follow-up three months later, while high-risk participants, scoring above seven on the UCLA Scale, underwent intensive telephone follow-ups every 7 to 15 days.

The sample represented a diverse socioeconomic background, with annual incomes ranging from €17,000 to €32,000. Most participants were married or widowed, and over 55% were women. Age, gender, marital status, social connections, and socioeconomic background were significantly associated with social isolation and psychological distress ($p < 0.05$). The study revealed high loneliness and depression rates, with lower-income participants reporting greater isolation. Women constituted the majority in both phases.

The VR intervention group showed a significant understanding and usability of technology, particularly AI, with 96.3% reporting extreme satisfaction (5/5 on the Likert scale), 100% recommending the experience, 70.4% rating it extremely educational (10/10), and 74.1% reporting high learning outcomes (10/10). The experimental group, especially those with telephone follow-ups, reported reductions in loneliness and depressive symptoms compared to the control group, highlighting VR's role in improving social and emotional well-being. However, one high-risk participant tragically engaged in self-harm after the workshop, underscoring the severity of loneliness-related distress and the need for immediate intervention and support.

By identifying individuals at risk of unwanted loneliness and evaluating VR-based interventions, this study provides valuable insights into combating social isolation among older adults. The findings suggest that VR and AI can effectively reduce loneliness and improve well-being. Future research should explore the long-term effects of such interventions and develop targeted support systems for high-risk individuals. The results highlight the urgent need for structured intervention programs to enhance the mental health and quality of life of aging populations.

11 JUNE 2025 14.30 - 16.30

SESSION 1

ROOM B2.2.5

ID 586 - Gamifying Aging: Digital Inclusion, Informal Labor, and Ethical Dilemmas in Chinese Older Adults' Use of Money-Earning Apps

Jingwen Gan, *Helsingin yliopisto*

Keywords: older adults, China, gamified application, money, digital inclusion

As digital platforms become more and more integrated into financial and social life, older adults are often seen as passive users or digitally excluded populations. However, their engagement with gamified money-earning apps in China presents a different narrative—one where older adults actively navigate and participate in the digital economy.

This empirical study, based on participant observation and interviews in five Shanghai communities (2023–2024), examines how older adults (aged 60 and above) use money-earning apps (such as Alipay, Pinduoduo) that provide monetary rewards or free goods through gamified and social activities such as mini-games, video watching, friend referrals, and even physical exercise. These apps are not merely sources of entertainment; they become deeply embedded in older adults' daily routines, fulfilling multiple needs including time-passing, financial gain, and social interaction. Through everyday use, older adults redefine intimate relationships, expand social networks, and position themselves as active participants in the digital economy.

Beyond individual engagement, gamified money-earning apps serve as a gateway to digital inclusion. By participating in these platforms, older adults gradually develop digital skills and become more comfortable navigating online financial tools. At the same time, these apps blur the line between leisure, financial



participation, and informal digital labor, embedding older adults into new forms of micro-work through daily tasks, rewards systems, and social networking incentives. This study critically examines the role of gamification in shaping digital labour and economic agency in later life, shedding light on both its opportunities and challenges.

However, this integration of older adults into gamified digital economies also raises ethical concerns. While these apps empower senior users by promoting digital literacy and financial inclusion, they also expose them to manipulative design strategies, such as digital nudging. Many older adults spend significant time completing tasks or making unplanned purchases to earn small money rewards, raising questions about the line between engagement and potential exploitation. This duality underscores the need for age-centred design strategies that prioritize fairness, accessibility, and ethical engagement, aligning with Industry 5.0's vision for human-technology relations.

The Chinese context offers a distinctive lens for understanding these dynamics. The widespread adoption of digital infrastructures such as WeChat and Alipay, and the seamless integration of mobile payment systems into everyday life, create an environment where older adults are increasingly drawn into digital financial participation. This socio-material conditions in China provide a unique framework for understanding the role of technology in later life.

Ultimately, this research contributes to broader discussions on aging, technology, and societal well-being by advocating for inclusive and ethical digital design that truly empowers older adults. It calls for interdisciplinary and international comparisons to develop age-friendly digital strategies that serve broader social good. By centering the Chinese case, this study not only expands global discussions in Science and Technology Studies (STS) but also supplement Western-centric perspectives on digital inclusion, aging, and economic participation in later life.



11 JUNE 2025 17.00 - 19.00

SESSION 2

ROOM B2.2.5

ID 397 - Swedish Cohousing and Assisted Living Technology: What Benefits to Healthy Ageing

Cristiana Di Pietro, Istituto di Ricerca sulla Crescita Economica Sostenibile del Consiglio Nazionale delle Ricerche

Keywords: ageing population, assisted living technology, co-housing, healthy ageing, digital inclusion

Purpose. The starting point of this research is the definition of adequate housing for the elderly, particularly regarding the new model of intentional community for the second half of life (Choi, 2004; Sandstedt & Westin, 2015; Sargisson, 2014; Saunders, 2016). Drawing from the ecological model and environmental gerontology, the present research adds Nussbaum's capability approach perspective to the life environment in "relation with individual's ability to convert (it) into valuable outcomes" (Bronfenbrenner, 1977; Nussbaum, 1997; 2003; 2011). In particular, the paper will analyse potential implications between assisted living technology and the specific housing model addressed to the elderly for fostering opportunities for enabling ageing.

Method. Based on the evidence from the study by Angioni and Musso (2020), a qualitative analysis has been designed, focusing on the Swedish pioneering cases of cohousing (at least ten) which adopt innovative and economically sustainable organisational solutions. Selected cases will be analysed through secondary sources, such as previous studies, reports and documentation available online.

Expected results. The study will reveal recurring aspects which could provide valuable indications not only for the design and management of cohousing facilities, taking in consideration the adoption of specific technology, such as remote surveillance or remote diagnostics, but also for better understanding what kind of advantages, constraints and benefit, the elderly could meet.

Implications. Regardless of the characteristics of the context analysis this study would add some further reflections about cohousing as housing model for healthy ageing, introducing the issue of digital inclusion not only as services and tools present in the housing design but also as services that offer opportunities for a real human development even in the old age. It would provide valuable indications in support of the political interest in better understanding how the cohousing model can be implemented for healthy ageing.

11 JUNE 2025 17.00 - 19.00

SESSION 2

ROOM B2.2.5

ID 508 - Digital Care Futures: AI Ethics and Social Change in an Aging Society

Valerio Prosseda, CyberEthics Lab

Lorena Volpini, CyberEthics Lab

Fátima González Palau, Fundació INTRAS

Keywords: Personalised Care, AI, Digital, Social Impact, Ethics-by-design, UX, Dementia, Prevention, Active Ageing

The rapid aging of European populations has emerged as a critical societal challenge, prompting increased attention to technological innovation through AI and robotics in elder's care. Their development and deployment demand a balanced view considering ethical implications and broader societal impacts.

The COMFORTage project (www.comfortage.eu) aims to develop holistic and integrated healthcare models to promote personalised dementia and frailty prevention and care through AI-based innovations, digital twins (PDTs), virtual assistive technologies and behavioural change applications, addressing the dual need of care provision and active aging. CyberEthics Lab. strengthens the project's ethical foundation by integrating collaborative R&D practices with systematic AI ethics assessments and complemented by the evaluation of the social impact and acceptability of the proposed technology solutions. This aspect focuses on societal dimensions and includes a technology usability and user experience evaluation, by Fundació



INTRAS, to capture clinical outcomes and patient experience.

The shift toward decentralised, technology-assisted healthcare presents opportunities to improve medical outcomes through enhanced early diagnosis, accessibility and elder's engagement in their healthcare journey, enabling remote examinations, virtual consultations and home-based care. The project's pilot studies explore two main areas: the research on risk factors, vulnerabilities, and neuromechanics, along with the personalisation of interventions; the analysis of supportive systems, assisted living technologies, robotics, home sensing, mobile health, and AI-driven data analysis. These efforts aim to enhance independence for older adults while maintaining high standards of care. This transformation introduces critical ethical considerations throughout development and implementation.

An ethics-by-design methodology (ETHAI) addresses fundamental values within AI systems through co-design practices, examining how principles like transparency and fairness can be embedded in technical specifications from early development stages, ensuring AI systems respect user autonomy and privacy at their core. Simultaneously, social impact analysis examines how these values manifest differently when technologies enter real-world contexts, revealing how concepts like autonomy and privacy transform when filtered through social relationships, institutional structures, and cultural norms. Furthermore, Patient-Reported Outcome and Patient-Reported Experience Measures will allow technological interventions adjustments based on user needs.

This approach reveals how technical and social dimensions interact. Economic barriers and digital literacy gaps affect not only access to technology but also shape how ethics principles like non-discrimination and autonomy manifest in practice. Where AI ethics might address algorithmic fairness in decision-making systems, the social impact analysis reveals how these systems may affect social dimensions. For example, healthcare organisations prioritising automation for economic efficiency, may transform both clinical relationships and care delivery. Professionals may find their clinical decision-making authority constrained, while patients could experience a shift away from human-centred care interactions. This may have consequences on accountability regimes, professional judgment and patients' trust.

Ensuring that technological advancement enhances active ageing while preserving essential human relationships in care delivery, poses the need of addressing both technical and social dimensions of innovation.

11 JUNE 2025 17.00 - 19.00

SESSION 2

ROOM B2.2.5

ID 514 - Automation of Everyday Life in an Ageing Society: Lessons from a case study on Self-Cashier Machines in Japan

Mena Mesenhöller, Heinrich-Heine-Universität Düsseldorf

Keywords: demographic change, everyday automation, Social Practice Theory, self-checkout machines, Japan

As ageing societies worldwide face pressing challenges related to workforce shortages, digital inclusion, and technological adaptation, Japan has emerged as a pioneer in the integration of everyday automation technologies in the light of Society 5.0, such as self-chashier machines. Widely implemented across Japanese retail spaces, self-cashier machines represent a microcosm of broader societal and policy debates on the role of technology in an ageing society. While these technologies promise efficiency and convenience, they also raise concerns regarding accessibility, digital literacy, and social isolation, particularly for older adults. The transition from human cashiers to automated systems is thus not merely a technological shift but also a social one, with implications for everyday interactions and community engagement.

This project examines how different generations in Japan engage with self-chashier machines, how manufacturers of these machines navigate technological implementation in light of demographic shifts, and how policymakers balance the needs of older versus younger generations when introducing new technologies. Based on a series of group interviews with users across different generations, as well as expert interviews with industry representatives, and policymakers, this study explores the socio-material implications



of automation in an ageing society.

To analyse these dynamics, this research is grounded in Social Practice Theory, which provides a valuable lens for understanding how technological adoption is embedded in everyday routines, social norms, and material infrastructures. Social Practice Theory moves beyond individual attitudes toward technology and instead examines how practices evolve through the interplay of material objects (self-checkout machines), competencies (digital literacy and adaptation), and meaning (efficiency vs. social interaction). This framework is particularly useful for exploring the generational divide in technology use, policy dilemmas surrounding digital inclusion, and the broader implications of automation in ageing societies. By focusing on practices rather than isolated behaviours or examining solely the technology, Social Practice Theory helps to illuminate how self-checkout machines are not only tools of convenience but also transformative elements shaping the social fabric of everyday life.

Examining Japan as a case study for large-scale everyday automation in an ageing society, this study provides a foundation for policymakers, industry players, and scholars to rethink the social dimensions of everyday technology in a rapidly changing demographic landscape. As Japan faces the critical challenge of balancing intergenerational digital equity and economic pragmatism, this tension is also increasingly relevant to other ageing societies in Europe, which must similarly navigate the intersection of automatization, demographic change, and social needs.

11 JUNE 2025 17.00 - 19.00

SESSION 2

ROOM B2.2.5

ID 545 - Designing for Aging: Exploring Technology, Proximity, and Care for Inclusive Communities

Carla Sedini, Politecnico di Milano

Carolina Nina Bonato, Politecnico di Milano

Keywords: Aging-Friendly Communities, Social Inclusion, Enabling Technology, Smart cities

According to the World Health Organisation (2019), every person should have the opportunity to live a long and healthy life. WHO defines healthy aging as the process of developing and maintaining the functional ability that enables well-being in older age (WHO, 2019). From this perspective, living in environments that support and maintain one's intrinsic capacity and functional ability is key to healthy aging.

Numerous studies agree on the importance of social relationships and social engagement for longevity (Streeter et al., 2022). Those who are part of not only family relationships but also social networks not only feel better but are also better off (IRCCS - Istituto Neurologico Carlo Besta, 2021). The optimum conditions for aging-friendly communities are created at the intersection between individual and environmental pathways (Scharlach, 2016).

In this perspective, a new dimension of care is emerging—not limited to healthcare or individual approaches, private or institutionalized—but as a new existential and social paradigm (The Care Collective, 2020). This paradigm is based on interdependence between people, solidary and egalitarian networks, the practice of mutual support, and the sharing of resources and opportunities. Building communities nurtured by mutual care means constructing processes that technology can foster, trigger, innovate, and even expand.

At a time when the global population is urbanizing and aging in an unprecedented way (UN World Population Prospects, 2024), cities can either exacerbate loneliness and segregation for older people or, conversely, serve as ideal environments for developing innovative, open, and inclusive social networks (Beard & Petitot, 2010). While technological solutions in urban areas support older populations medically and promote their in-home autonomy, how could they also help generate the cornerstones of a caring community?

They could do so first by multiplying informal mutual support opportunities, fostering their expansion, and structuring them into more organized systems. Technologies can also enhance the expansion of commu-



nal public spaces and the sharing of resources (Yeandle et al., 2023), ultimately enabling localized forms of democracy and even scaling them upwards.

To address these issues, this paper will analyse a series of case studies focusing on technology, proximity, care, and aging. These case studies will be evaluated using a positioning matrix to identify four main design opportunity scenarios. Through this analysis, the paper aims to provide actionable insights into creating aging-friendly communities that leverage technology to foster mutual care and social inclusion while enhancing the quality of life for older adults in urban environments.

Ultimately, this research seeks to contribute to the discourse on aging, technology, and community design, offering a pathway toward more inclusive and supportive urban ecosystems.

11 JUNE 2025 17.00 - 19.00

SESSION 2

ROOM B2.2.5

ID 852 - Regulatory and Ethical Considerations of Designing Inclusive Phygital Spaces for Elder Care

Romi Mikulinsky, Aalto-yliopisto

Tehilla Shwartz Altshuler, היטרקומדל ילארשיה וזכמה (The Israel Democracy Institute)

Keywords: speculative design, aging technology, phygital spaces, elderly, ethics

Previous research in Science and Technology Studies has highlighted the growing gap between technological development and policy-making (Berardi et al., 2024; Hameed et al., 2024), particularly regarding technologies for aging populations. While scholars have examined technology adoption among older adults (Berkowsky, Sharit, & Czaja, 2018; Gambo et al., 2023) and the adequacy of technology to aging in place (Braun and Schultz, 2022; Marshall, et al., 2022) less attention has been paid to participatory approaches in designing future phygital spaces - environments where physical and digital realities converge through technologies like smart glasses. These technologies raise critical questions regarding human rights and values, such as privacy, autonomy, freedom, equality, control, and sociability in public spaces.

Our research employs a speculative design methodology to investigate how emerging phygital technologies impact four key interaction types: person-to-person, person-to-space, person-to-reality, Person-to-Platform Interactions (P2P, P2S, P2R, P2PL). Building on Pink's (2022) conceptualization of futures as experiential and contingent rather than predetermined, we developed a participatory board game as our primary research tool. This game facilitates structured interactions between multiple stakeholders - elderly individuals, families, caretakers, technologists, policymakers, and designers - through role-play scenarios addressing ethical challenges in technology adoption.

This case study introduces a newly developed design-driven research methodology that combines multiple approaches to ensure ethical and comprehensive data collection and analysis. First, we conduct participatory design workshops using our custom-developed board game, which introduces participants to near-future fictional scenarios where they must navigate complex trade-offs of technology adoption. Second, we employ the Voros Futures Cone framework to analyse possible, plausible, preferable, and preposterous futures, moving beyond binary techno-utopian or apocalyptic visions. Third, we conduct stakeholder interviews and feedback sessions to gather qualitative data about participants' experiences and insights about the integration of advanced technologies in elder care (be it care robots, agentic AI, or immersive technologies). Finally, we perform a comparative analysis of emerging policy frameworks to contextualize our findings within current regulatory landscapes.

Our results reveal several key findings that contribute to both theoretical understanding and practical application. First, the game-based approach successfully bridges communication gaps between stakeholders, enabling more nuanced discussions about privacy, autonomy, and sociability in phygital spaces. Second, we identified specific friction points between different stakeholders' needs and values, particularly regarding surveillance and agency for elderly individuals and their caretakers. Third, our methodology



effectively exposes blind spots in current policy approaches to aging technology, highlighting areas where regulatory frameworks need adjustment to address emerging challenges in phygital spaces.

These findings contribute to STS discourse by extending Pink and Salazar's (2017) work on anthropologies of the future into the domain of aging technologies. Our research demonstrates how speculative design can serve as a practical tool for democratic technology governance, while also advancing theoretical understanding of how futures are "made, tamed, and transformed" in the context of aging populations and phygital spaces. This approach enables us to consider not only technologies and innovation narratives but also the diverse needs and perceptions of older people, leading to more inclusive and equitable digital futures.

11 JUNE 2025 17.00 - 19.00

SESSION 2

ROOM B2.2.5

ID 282 - City 4.0 and demographic aging: Strategies and innovations for sustainable urban welfare

Greco Fabrizio, Istituto di Ricerca sulla Crescita Economica Sostenibile del Consiglio Nazionale delle Ricerche

Demographic aging represents one of the most pressing challenges for contemporary cities, necessitating a profound transformation of urban welfare policies (Castel, 2011; 2019). The emergence of "City 4.0" - smart, connected, and sustainable cities - offers opportunities to address the complex needs of an evolving population. This study aims to explore the relationship between demographic aging and the development of smart cities, analysing the strategies, innovations, and challenges that may, on the one hand, facilitate the transition toward an inclusive and sustainable urban welfare model while, on the other, reproducing social and territorial inequalities.

Demographic transformation requires a rethinking of traditional urban services to ensure accessibility, security, and well-being for all age groups (Castel, 2021). City 4.0, characterized by the integrated use of advanced technologies such as the Internet of Things (IoT), provides innovative tools for optimizing urban resource management and enhancing quality of life. For instance, smart mobility solutions can ensure accessible and flexible transportation systems for the elderly, while smart devices and telecare services enable health monitoring and promote autonomy among older adults.

It is crucial to emphasize that the urban welfare system of City 4.0 is not limited to technological implementation but necessitates an integrated approach that also considers social, economic, and environmental dimensions. This approach entails the active involvement of the community in the co-design of urban policies, fostering inclusion and participation (Ferraro & Gardini, 2016).

The adoption of smart solutions can also contribute to reducing urban inequalities by ensuring equitable distribution and improved access to services, even in peripheral or less developed areas. However, the digital divide constitutes a significant barrier, particularly for the older segments of the population, who may face exclusion from essential services due to technological, economic, or cognitive limitations. Moreover, the center-periphery structure (Petrillo, 2006; 2013) introduces additional constraints to the development of City 4.0. Central areas tend to benefit from technological investments and advanced infrastructure, whereas peripheral areas, often characterized by lower population density and economic fragility, risk being neglected. This dynamic may exacerbate territorial disparities, leaving underdeveloped areas deprived of digital services, smart mobility solutions, and access to welfare infrastructure (Sassen, 1991; Harvey, 1998).

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13 JUNE 2025 09.00 - 11.00

ROOM B3.4

Panel 5. Quantum social science, reflexivity and STS: Engaging with agential realism and other reals

Convenor:

Robert Braun, Institut für Höhere Studien, Wien

Keywords: One-World World; Reality enactment; Quantum Social Theory; Agential realism

One of the core concerns of STS is to reflect on how specific methods – understood here more broadly than research methods of the social sciences – enact both representations and realities; how technoscience enacts worlds that are appropriate for its routinized practices (Law 2008). This is also reflected in Heisenberg's dictum on quantum theory, that "we have to remember that what we observe is not nature in itself but nature exposed to our method of questioning" (Heisenberg 1958, 58).

Most of social science (and, tacitly, our mundane lifeworld performances) are represented and are enacted as Cartesian/Newtonian real: fixed, particle like entities interact at specific speeds, rhythms; enact spatiotemporally fixed socialities, all of which are observed from the observation deck of the (potentially) all-knowing subject.

Quantum theory (Barad 2007; Wallace 2010; Carroll 2019), applied to the socionatural (Arias- Maldonado 2015) or naturecultural (Barad 2012), challenges Cartesian dualism and Newtonian causality and a determinism on which our imaginary of the social (and physical) world are based (Wendt 2015). This session aims to bring quantum (inspired) ontological sensitivity ((Woolgar and Lezaun 2013) to attend to the "politics of how" (Law and Joks 2019) beyond physics; or put differently: experiment with alternative representations and enactments of the (socionaturally) real.

Quantum social science is an emerging field in the social sciences and in STS, addressing questions in international relations (Fierke and Mackay 2020); economics (Orrell 2018); decision theory and the mind (Wendt 2015); responsible research and innovation (Braun 2024), to name a few. Strangely, there has been little engagement with quantum ontology as a radically reflexive ontopolitical approach in STS.

All ontology, Johanna Oksala (2010) has argued, is "politics that has forgotten itself." This session aims to address transformative forgetting by engaging with alternative ontopolitical sensitivities: what and whose politics has been forgotten, why and for what end, what is the politics of such forgetting and how and what could be remembered, or not, otherwise? We invite contributions that address questions of technoscience or, more broadly, STS with an alternative enactment and method of constituting and instituting reals. We are open to approaches that bring agential realism, quantum social science, indigenous ontologies to call tacit assumptions of a Cartesian Newtonian real into question and address looming ontological questions ('ontology' here understood not as metaphysics but as mundane enactment of reals) of the socionatural or naturecultural otherwise.

13 JUNE 2025 09.00 - 11.00

ROOM B3.4

ID 187 - AI and the ambiguity of the pharmakon. Re-imagining onto-epistemological approaches through quantum social theory

Laura Zanotti, Virginia Tech, United States

Keywords: Quantum social theory, ethics, artificial Intelligence, ontologies, methodologies

Analytical frameworks that portray humans as the master of a world that is causally simple, amenable to be understood through mechanical models and that can be governed by planning rationalities are inadequate to understand and address AI. Isabel Stenger notes the aversion of the Western philosophical tradition to uncertainty and ambiguity, an aversion that started with Platonism's pushback against the Sophists. Stenger argues we still live in Platonic times. AI challenges this quest for certainty. AI embodies



the ambiguity of the pharmakon, which has been defined by Isabel Stenger as a drug that "can mutate into its opposite, depending on the dose, the circumstances, or the context, it is a drug whose action provides no guarantee, defines no fixed point of reference that would allow us to recognize and understand its effects with some reassurance."

AI cannot be addressed as an "object" that can be separated and disentangled from our way of life. It is embedded with an increasing number of aspects of our existence, with outcomes that are inevitably unstable and ambiguous. AI is designed by humans, but in turn, it contributes to shaping the way humans live. AI is also rapidly changing and evolving in its capabilities and fields of application. Newtonian onto-epistemologies, abstract normativity, and the quest for control are not apt to analyse, navigate, and govern its complexities. To engage with AI, we need an ontological and epistemological shift away from frameworks relying on substantialist assumptions, mechanistic causal models, and abstract universal ethical principles.

The recent "relationality turn" in political science and international studies offers insightful conceptual tools in this regard. In embracing deep relationality and uncertainty quantum social science invites analysts to think outside the constraints of Newtonian linear causality, the distinction of subject-object, and mechanical models for how social interactions may be understood. Quantum social theory proposes a worldview that challenges the assumption of separability at the foundation of methodological individualism. It embraces non-linear relations of causality, focuses on change instead of immutable regularities, and acknowledges the need for contextual assessments in policy-making and ethical decisions.

In this paper, I rely on what I have called elsewhere an ethos of practice and on Barad's conceptualization of the performative effects of apparatuses to argue for an alternative onto-methodology for addressing AI. Instead of asking whether AI is good or bad, we need to explore how it is constituted as an ecology of practice, how it relates to other ecologies of practice, and what kind of distributive outcomes it produces in its intra-actions within the different phenomena with which it is differentially entangled.

13 JUNE 2025 09.00 - 11.00

ROOM B3.4

ID 222 - Through the Lens of Quantum Ecology: Holographic Bodies and Inconsistent Agents

Stefano Calzati, Technische Universiteit Delft

Keywords: quantum ecology, quantum information technologies, agency, body, epistemology

Building on works connecting quantum theory to cultural (Barad 2007) and social (Wendt 2015) realms, in their book Calzati and de Kerckhove (2024) identify three ecologies: linguistic, digital, and quantum. Through an intra- and inter-ecological analysis inscribed along the axis connecting oral communication, writing systems, and data technologies, the authors outline a framework that helps better understand our (technologized) contemporaneity and navigate the impact of quantum information technologies (QITs). Hence, the quantum ecology is conceptualized as both an onto-epistemological framework – based on key principles and phenomena of quantum physics – and a technological paradigm – pivoting around QITs – which will redefine "world-sensing", alongside and in contrast with the other ecologies.

Here I further expand on Calzati and de Kerckhove's work in two complementary ways which directly tie to the idea of "technoscience for good" through the recognition of alternative ontopolitical sensitivities. To do so, I will discuss a fourth ecology – of the body – to which the authors refer when speaking of "embodiment", but do not systematize.

As the inescapable ecology of all living beings, the body is, at once, compass and root of experience (Frank et al 2024). This means, referring to the authors' terminology, that the body is an organic "information-processing dispositif" (cf. Bateson, 2000). From this perspective, it is the whole concept of meaning to get reconfigured as not much a semantic referent, but an always-in-the-making process of sensing/valuing the world: "in a way," Atmanspacher (2020) writes, "the experience of meaning can thus be understood as a ('sixth') sense modality for 'perceiving' psychophysical correlations." This, in turn, triggers a redefinition



of the body too, not much as a monad, but as a holographic instantiation that encapsulates and refracts the collective, reworking biological, cultural, and artificial boundaries.

On the one hand, this opens the door to a discussion on (human and more-than-human) agency beyond objectivism to accommodate, instead, an autopoietic (cf. Kauffman, 2019) dispositif-dependent framing for which the quantum ecology can prove fruitful. Agency, accordingly, emerges and is enacted as a decomposed, yet unitary, dimension – a dimension that, while being whole, can host internal inconsistency, both intra-ecologically as well as inter-ecologically. The self as a privileged "point-of-being" (de Kerckhove & de Almeida 2014) gets defused, diffused, and transfixed, demanding, first, the recognition of ecology-dependent onto-epistemological pluralities and, second, an exercise of responsibility and balance toward such pluralities.

On the other hand, through pervasive computing humans are "enveloping" (Floridi 2019) complex reality altogether into a rational-efficient scenario. In so doing, however, they impose on themselves such behavioural constraints that these make eventually explode humans' agential inconsistencies beyond the "rational subject". Effects such as electromagnetic sensitivity can be regarded as psychophysical responses to the engineering of capillary "observership" (Hertog 2023) into today's all-encompassing networks and infrastructures. Likely, this kind of sensitivities will multiply alongside the consolidation of QITs, as forms of diffraction in the sociocultural realm of the onto-epistemological complementarity between position and momentum, i.e., one's own identification (as tracking) and one's own movement (as becoming).

13 JUNE 2025 09.00 - 11.00

ROOM B3.4

ID 363 - Quantum Ontology and STS: A Methodological Analysis

Martina Zanetti, *Scuola Superiore Sant'Anna, Pisa*

Keywords: Quantum ontology, STS methodology, by analogy, really, agential realism

In recent years, the field of quantum social sciences and humanities has been expanding more and more (Voelkner and Zanotti, 2022, 1). Nevertheless, Braun observes that interactions with quantum ontology as an ontopolitical method have been limited in the context of STS (Braun, STS panel proposal, 2025).

Here, it is asserted that, before considering quantum physics in relation to quantum social sciences and humanities – specifically STS –, it is necessary to conduct a particular methodological analysis to determine how STS and other disciplines that study real-world objects are impacted by quantum mechanics. Bottom of Form More precisely, analysing whether using quantum ontology 'by analogy' or 'really' (O'Brien, 2016) is considered. It is further shown how the proposed analysis connects to the debate around whether quantum physics concerns only the micro-world or is also valid for the macro-world. In support of the latter, an analysis is presented of De Freitas' position, for whom '[a]ccording to Barad, the existence of radically different scales of being (the quantum or the galactic) does not limit quantum insights into the everyday life of humans. Contrary to the usual way we approach this topic, she emphasizes that there are not two domains (the microscopic and the macroscopic) with two different ontological principles. Thus, she claims that quantum ontology is directly (and not simply analogically) relevant to everyday matters' (De Freitas, 2017, 3). Together with this, as to the 'by analogy' perspective, works such as those by Haven and Khrennikov are examined. Issues raised by the authors, like the assertion that their 'statistical approach does not assume that quantum physical effects are really part of the social world' (O'Brien, 2016, 621), are considered. In this regard, Slaton's viewpoint – namely that '[q]uantum physics will be applied throughout this chapter as a metaphor that can offer insights, hypotheses, and alternative explanations for political phenomena that have been studied since ancient Greece. While I am intrigued by the work of those who apply quantum theory more literally, as a social science theorist (not a physicist), I feel more comfortable using this new information as an instrument to help me approach the study of participatory democracy without the constraints of a science seeking predictability and determinism' – is also analysed (Slaton in Becker, 1991, 42). As for taking quantum physics into account 'really', Barad's argument is examined. Specif-



ically, their position that 'applying quantum physics to the social world by drawing analogies between tiny particles and people' would correspond to an oversimplified misapplication of both theory and practice is taken into account (De Freitas, 2017, 3; Barad, 2012a, 17). It is additionally seen how the reason why analogies between the two spheres are avoided is that Barad does not believe that isolated realms of reality exist at all (Ibid.). It is also investigated how considering humans as 'walking wave functions' can be further associated with this approach (Der Derian and Wendt, 2022, 15).

13 JUNE 2025 09.00 - 11.00**ROOM B3.4**

ID 436 - Entangled realities: A case for reimagining past and present of agriculture

Arnab Chakraborty, Institut für Höhere Studien, Wien

Keywords: Agricultural innovation, Entangled realities, Lyseology, Re-peasantization, Food systems

With the discovery of archaeological sites bearing first signs of domesticated wheat in the region dubbed as the 'Fertile Crescent', popular historians have linked emergence of civilizations to agricultural surplus (Diamond, 2005; Harari, 2015). This to them is the 'natural' process of subsistence intensification under suitable natural conditions. They also caution that agrarian landscapes come with exploitative social institutions such as private property, surplus accumulation, inequality, and colonialism. Given this linear path dependent trajectory of human history, to sustain the global human population (predicted to be 9 billion strong by 2050) the predominantly imagined future of food is to improve upon these agricultural principles and endure its maladaptive social and environmental externalities (Grunwald, 2024). However, it has been argued that this narrative is constructed on cherry-picked archeological evidence, fitted around ideas of social theorists such as John Locke and Rousseau, and often used as the ethical basis for colonial capture of indigenous lands (Graeber & Wengrow, 2022). It is also the basis for modern agricultural science to promote their innovations as solutions to a lack of productivity or resource efficiency- an approach termed as "lyseology" within critical innovation systems research (Braun, 2024, p.2). This lyseology has been applied in the colonial (Pouchepadass, 1995), as well as post-war agricultural research and policies (Kumar, 2016). Even though the critiques of modern capitalist food regimes have called for epistemic shifts in agricultural knowledge, with inclusion of indigenous modes of understanding the food system (McMichael, 2009) or democratizing local decision making (Ody & Shattuck, 2023), they in general do not question this lyseology. By looking at agriculture as the entanglement of nature-culture (Barad, 2012) frees us from the linear understanding of agriculture as a natural process forming the structure for exploitative socio-ecological systems developed by human actors. This stance allows us to study the 'intra-active' processes of biotic and abiotic stressors that affect food production, consumption practices, nutritional cycles mediated by waste and excreta, as well as the money-flows that are carried out within the supply chain. This paper uses this reading of agriculture to highlight how different political engagements for re-peasantization tries to resist techno-optimistic lyseology of agricultural science and shows the way out of linear narratives of agriculture and society.

13 JUNE 2025 09.00 - 11.00**ROOM B3.4**

ID 703 - Quantum Metaphysics and the Ontological Turn

Richard Randell, Masaryk University

Keywords: Anthropocene, apparatuses, political ontology

The "ontological turn" is not a unidirectional turn but a plurality of turns. One has been a turn towards developing alternative ontologies of the (ostensibly singular) world that "we all,"—all-of-us, human and more than human—inhabit. Whatever the differences in substantive details, these are traditional ontologies in that claims regarding what "reality," "Being," "the real" might be, are arrived at through metaphysical



reasoning.

Another thread within this turn has been a turn away from metaphysics to examining how "reality," "Being," "the real" are constituted and reproduced. No longer is there one world out-there which it is the task of metaphysics to somehow get right in its ontological details. Rather there are many worlds, or, said ontologically, many ontologies. Examples are ontologies that do not distinguish between a world out-there ("nature") and a subject in-here, amongst which are Zen and Tibetan Buddhism; or indigenous ontologies that do not distinguish between humans and animals, or consider what we call "animals" to be humans too, or consider land, nature, as something they belong to rather than something they can own. That we have reports of these other worlds, other ontologies, raises the question for the occidentals amongst us of whether we can in some existential sense do more than simply write about alternative ontologies.

Edmund Husserl in *The Crisis of European Sciences and Transcendental Phenomenology* wrote: "the total phenomenological attitude and the epochē belonging to it are destined in essence to effect, at first, a complete personal transformation, comparable in the beginning to a religious conversion." Martin Heidegger after reading a book on Zen Buddhism by D. T. Suzuki, is reported to have said: "If I understand this man [Suzuki] correctly, this is what I have always tried to say in all of my writings." Timothy Leary, in *The Politics of Ecstasy*, wrote that after ingesting sacred mushrooms for the first time, he felt like he had woken up from a "deep ontological sleep." Leary's onetime colleague, Richard Alpert, said while reflecting on his time in the Department of Social Relations at Harvard University, that: "We used to believe that if something couldn't be measured it wasn't real. As you can imagine, we lived in a very puny universe."

Non-realist quantum ontologies similarly point to alternative worlds. Equally important, they have created an ontological space that is located simultaneously within and outside the Newtonian-Cartesian ontology that has expanded across much of the planet, from which location several questions can be asked: What is that world? What is it like to live in that world? How and by whom and by what was this ontology constituted? Answers to these questions require attending to ontopower, the politics of ontology: the classification and naming of binaries, of entities and of non-entities, signifieds and signifiers, the real and the unreal, true and false. This is the political ontology of what has been named "the Anthropocene." This paper examines how this ontocratic order is constituted and reproduced within the technoscientific apparatuses of *Anthropos*.



11 JUNE 2025 14.30 - 16.30**ROOM B2.1.16**

Panel 6. Constructing, Maintaining, and Caring for Technoscientific Heritage: Exploring Sociomateriality in Museums, Collecting, and Beyond

Convenors:

Roberta Spada, Politecnico di Milano

Stefano Crabu, Università di Padova

Keywords: technoscientific heritage; museum collections; care; maintenance and repair; historical artefacts

The (public) shaping of technoscience has primarily been studied in relation to media discourses, laboratory practices, science policymaking, and organised public engagement, as well as grassroots technoscientific activism. However, it also occurs through practices of maintenance, repair, curation, and preservation of material and immaterial traces from various science and technology domains, forming what is commonly labelled as "technoscientific heritage". While there is no univocally agreed-upon definition of technoscientific heritage, it can generally be understood as the product of sociomaterial practices sustained by institutions, communities, and individuals (such as museums, libraries, archives, collectors, and associations) that collect, protect, and valorise technical objects or intangible scientific achievements that are seen as foundational to the history and identity of a social group, community, people, or society.

Notably the making of technoscientific heritage has been at the centre of disciplines like Museum Studies, Anthropology of Material Culture, and Cultural Studies, but it has strangely been overlooked by STS scholars. This panel aims to bring together multidisciplinary STS research to explore how heritage-making occurs through various, often hidden practices—including maintenance, repair, and care for material and immaterial objects—by employing an analytical sensitivity toward "the work that goes into preserving technical and physical orders" (Russell and Vinsel, 2018, p. 7). Drawing from the maintenance and repair turn and from feminist STS perspectives on care (Law and Lin, 2022; Puig de la Bellacasa, 2017), we call for attention to acts of care and maintenance towards traces of technoscientific pasts and potential futures qua technoscientific heritage.

Hence, we ask: What challenges arise when preserving technoscientific objects compared to other kinds of heritage objects? How do technoscientific objects challenge or fit into traditional heritage categories, such as uniqueness, rarity, beauty, or economic value? What are the sociocultural implications of considering mass-produced, widely diffused, or aesthetically unpleasant objects as part of technoscientific heritage? How can the notion of "care" allow to explore the process of making technoscientific heritage, and what shapes does such care take in relation to objects and stories enacted by objects? How do museum communities and practitioners navigate caring for both technoscientific collections and the broader communities engaged with these artifacts?

Starting from these open questions, we encourage scholars and heritage practitioners to submit theoretically-, empirically-, and methodologically-oriented papers on:

- Museums, archives, and libraries as sociomaterial places where technoscience is configured and reconfigured;
- Collecting and curating technoscience in different circumstances, from institutional settings to grassroots contexts;
- Conservation and restoration of technoscientific heritage;
- Preservation and restoration of crafts, knowledges, and intangible technoscientific heritage;
- Difficult questions and actions while taking care of technoscientific collections;
- Monumentalising technoscience in private and public spaces



11 JUNE 2025 14.30 - 16.30

ROOM B2.116

ID 185 - Curating Scientific Heritage: The Sociomaterial Memory of the International Festival of Scientific-Didactic Films of Padua

Davide Ludovisi, Università degli Studi di Padova (University of Padua)

Keywords: technoscientific heritage, scientific documentaries, archival care, sociomateriality, festivals

For over a century, non-fiction film production has shaped public perceptions of science and facilitated the transmission of scientific knowledge, forming an integral part of technoscientific heritage. This paper examines the role of scientific documentaries as cultural heritage through the case study of the Padua Scientific-Didactic Film Festival (Rassegna del film scientifico-didattico, 1956–1975). This festival not only embodied the educational ethos of its era but also left a legacy preserved in the University of Padua archives, where extensive documentation illuminates the sociomaterial practices of memory-making.

By analysing archival materials - including correspondence, organisational records - but also testimonies, this study - part of a PhD research - explores how the festival functioned as a "boundary object," bridging academia and the broader public during a period of significant socio-cultural transformation. The archives reveal that the scientific documentaries of the time emphasized academic rigor and utility, catering to specialized audiences. Over time, however, their legacy has been reinterpreted through contemporary festivals, which employ immersive narratives to engage broader, non-expert audiences.

Adopting an STS framework, this research interrogates curatorial practices that sustain and reinterpret technoscientific heritage. It emphasizes how the University of Padua's archival work represents acts of care and repair, preserving not only physical artifacts but also the symbolic and narrative dimensions of technoscientific memory. Such practices underscore the challenges of maintaining fragile heritage, where informational "gaps" complicate reconstruction and reinterpretation.

This work illustrates how archives act as sites of "memory reanimation," connecting historical practices with present and future narratives. It argues that curatorship is not merely a technical endeavour but a cultural and political process involving institutions, communities, and the negotiation of which stories are highlighted and which risk marginalization.

In this context, scientific documentaries and their associated festivals emerge as sociomaterial entities deeply intertwined with archival practices. Films are not simply "objects" to be preserved but "living stories" requiring ongoing negotiation between past and present. This analysis contributes to broader debates on the epistemological and political challenges of curating technoscientific heritage and the evolving narratives of audiovisual science communication.

11 JUNE 2025 14.30 - 16.30

ROOM B2.116

ID 531 - From Legacy to Future: The Socio-Technical Care of Dundee's Videogame Heritage

José David Gómez-Urrego, Abertay University

Stefano De Paoli, Abertay University

Keywords: Video games, Heritage, futures

This presentation explores the dynamic interplay of artifacts, stakeholders, and infrastructures within Dundee's video games cluster and the challenges arising from the maintenance/superseding of its heritage. By using an expanded notion of videogames (Sköld, 2018) encompassing the cultural and social aspects of videogames, we examine the socio-technical entanglements that have shaped the cluster over time and discuss how current actors imagine, research, negotiate, maintain, reframe and in some cases ultimately try to overgrow the city's rich videogame heritage. Based on 43 interviews conducted with actors of the cluster and other relevant informants, the presentation discusses how a diversity of stakeholders in the



cluster, including developers, educators, students, collectives, indie studios and policymakers, navigate a landscape marked by uncertainty, shifting regional and global dynamics, and local institutional transformations by drawing on their own ingenuity and multiple practices and perceptions around heritage. The presentation digs into how these manifold actors have diverse ways of framing and preserving Dundee's videogames heritage in the present (Eklund et al. 2019; Guay-Bélanger, 2022), with consequences for their own work, and multiple ways of imagining and projecting the community's future in relation to this heritage. We focus on efforts of maintenance and care including research practices delving into the industry's past in the city (Denis & Pontille, 2015). Some of the themes explored are the challenges in configuring videogames as cultural heritage in the Scottish context, and how do actors balance collaborative innovation, leveraging and actualizing Dundee's sociotechnical heritage, and sustaining a business during an industry-wide critical time.

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11 JUNE 2025 14.30 - 16.30

ROOM B2.116

ID 582 - Symbol, political tool, failed innovation: the strange case of the Torlonia telescope at the Osservatorio del Campidoglio

Tiziana Macaluso, *Inaf-Osservatorio astronomico di Roma*

Marco Faccini, *Inaf-Osservatorio astronomico di Roma*

Giangiuseppe Gandolfi, *Inaf-Osservatorio astronomico di Roma*

Keywords: Observatory Heritage Engagement Museum

How could a scientific instrument that never collected data become the main actor in the development of the Astronomy Cabinet at the Sapienza University in Rome? We will recount the story of how this telescope, donated by Prince Alessandro Torlonia to Accademia dei Lincei, played a key role in the creation of the Campidoglio Observatory.

The telescope was restored for display and handling at the exhibition *La scienza di Roma. Passato, presente e futuro di una città*. It was selected for this exhibition because it symbolized the goal of the event: to tell the story of scientific ideas and their societal impact through the scientists who worked in Rome and the discoveries made here, with an approach of integrating science into society (Charles B. Fenster, 2023).

The preservation of the telescope focused on restoring the structural continuity between its wooden and metal elements, aiming to stabilize its condition and slow deterioration. This was achieved through careful evaluation and the implementation of minimum invasive interventions. The phenomenology of the degradation caused by the materials and unsuitable environmental conditions was also studied. To ensure better conservation over time, a new display arrangement was proposed for the Observatory, considering controlled thermo-hygrometric and lighting conditions appropriate for this polymaterial object.

The telescope's history begins as a result of several unrelated facts and actually it is more an experimental and edutainment experience than an astronomical research activity.

In the early 19th century, engineers began exploring the creation of large and solid objective mirrors. A



Piedmontese surveyor, Alberto Gatti, studied the possibility of making mirrors from polished stone and, in 1826, presented a memorandum to the Secretariat of State in Rome, concluding that mirrors could be made by grinding nero marble.

In 1801, the Accademia dei Nuovi Lincei was reconstituted and has always played a central role in connecting scientists, passionate scholars, and the Papal State. The Lincei were tasked with evaluating Gatti's memorandum. Feliciano Scarpellini, Lincei's Perpetual Secretary, had built the instruments for the Scientific Cabinet of Sapienza. He was entrusted with the upper floor of the Tower of Niccolò V in Campidoglio to build an observatory.

In 1824, with the encyclical *Quod Divina Sapiencia*, Pope Leone XII started a reform for the Universities, Practical Astronomy becoming a mandatory course. Initially, the lessons were conducted using Scarpellini's instruments in private observatories. Practical astronomy has always attracted patrons to support the cause of science in Rome.

In 1827, Alessandro Torlonia sponsored the first experiments with Gatti's black marble mirrors at the Accademia dei Lincei and in the newly established Campidoglio Observatory. Angelo Luswergh was commissioned to build the telescope, which was equipped with Gatti's primary mirror. Initially, the telescope was placed in the Academy's rooms to test it with terrestrial observations. The early results appeared promising, so the Prince donated it to Scarpellini for installation on the Campidoglio Observatory to test it on the sky. Unfortunately, the results from sky observations were disappointing, but the telescope was kept on the terrace and used for educational purposes.

11 JUNE 2025 14.30 - 16.30

ROOM B2.116

ID 594 - Evidence in Scale: Models as Witnesses of Technoscientific and Cultural Heritage

Panagiotis Pouloupoulos, Deutsches Museum München

Keywords: models, steam engine, Boulton & Watt, technology transfer, industrial espionage, piracy, provenance, authenticity

Although models have been largely overlooked in scholarly research and museum exhibitions, they have played a significant role in developing and communicating science and technology. For example, models have been traditionally used for testing new ideas and designs, for the training of apprentices, or for advertising and marketing purposes. As platforms for experimentation and innovation, models have thus helped to bridge the gap between the mind and the hand, between theory and practice.

It is this aspect of revealing a novel concept or process 'in the making' that makes historical models so fascinating, since their study can provide new evidence to the motivations, knowledge, and skills that their makers had, as well as to the challenges and problems that they faced. This applies especially to models that are connected to famous inventors and manufacturers, and which, like other artefacts, have been frequently used to shape public views on scientific and technological history and, occasionally, to support myths and legends.

One such case concerns models of steam engines attributed to the Boulton & Watt workshop and therefore carrying the aura of the prominent inventor James Watt. Even though there are several steam engine models in museums that have been catalogued and displayed for years as genuine 'Boulton & Watt' objects, none of them bears a visible signature. In addition, for most of these models there is little written evidence in business, financial or legal documents (such as inventories, bills, accounts, contracts, patents, etc.) that could prove any direct connection to or authorisation by Boulton & Watt. Moreover, the diverse characteristics of these models raise further questions concerning their provenance and authenticity, suggesting they might have been products of industrial espionage or piracy.

Focusing on representative models attributed to Boulton & Watt or their associates in the *Deutsches*



Museum (Munich), the *Technisches Museum* (Vienna), and the *Science Museum* (London), this paper will examine the often complex issues regarding the attribution, dating and authentication of technoscientific artefacts. By presenting, analysing and comparing the technical and material features of these models, the paper will identify similarities and differences that can be helpful in reconstructing the objects' biography. The paper will also investigate these models in the context of technology transfer from Britain to continental Europe during the late eighteenth and early nineteenth centuries, when many engineers travelled to Birmingham and other industrial sites to document and copy the steam engines built by Boulton & Watt. Finally, the paper will discuss how and why such objects, despite – or perhaps because of – their ambiguous origins should be included in exhibitions as valuable witnesses of technoscientific and cultural heritage.

11 JUNE 2025 14.30 - 16.30

ROOM B2.116

ID 841 - A Fading Picture. The Struggles of Institutionalizing Photographic Technological Heritage in Italy

Costanza Paolillo, New York University - Università IULM

Keywords: Photographic Industry, Ferrania Film Museum, Corporate Museums, Public History

In Italy, photography as a practice with a multifaceted media nature has long struggled to gain proper institutional recognition. Unlike other visual and artistic disciplines, its status has remained ambiguous, oscillating between technical craft, industrial production, and artistic expression. It was only in the last four decades that museums fully dedicated to photography began to emerge, yet these institutions have largely framed photography within the paradigm of art museums, prioritizing aesthetic and authorial aspects over technological and material histories. This limited perspective has contributed to the neglect of photographic technological heritage, further exacerbated by the near-total disappearance of Italy's once-thriving photo industry. While the decline of the photochemical industry is a global phenomenon, major companies such as Kodak and Agfa have actively worked to preserve their legacy and historical archives, ensuring that their technological contributions remain accessible. In contrast, Italy has largely failed to safeguard its photographic industrial memory, leading to a rapid dispersion of its material heritage and a lack of institutional awareness regarding its significance.

This paper examines the systemic exclusion of photographic technology from Italy's heritage initiatives by analysing three key factors: the dependence of past preservation efforts on private sponsorship, the lack of interest in technological heritage within public institutions overseeing photography, and the scarcity of strategic collaborations with research institutions, such as universities, with projects specifically addressing photographic technological heritage.

Focusing on the Ferrania Film Museum in Cairo Montenotte (SV) as a key memory collector for the local community that revolved around the plant for a century, this paper explores its role in preserving the knowledge and lived experiences of its workers, producers, and consumers. Through a comparative analysis with the *Museo di Fotografia Contemporanea* in Cinisello Balsamo and the *Museo Nazionale Alinari della Fotografia* in Florence, it contrasts different institutional trajectories, highlighting how chronic underfunding, shifting priorities, and the absence of long-term heritage policies have led to stagnation or failure. In this landscape, the study also situates the *Museo della Scienza e della Tecnologia* in Milan, which holds a significant but largely unrecognized collection of photographic technological artifacts, illustrating how photographic material culture is often overshadowed within broader audiovisual collections.

This paper argues that only a structured collaboration between museums, archives, policymakers, and research institutions can ensure the preservation and recognition of Italy's photographic technological heritage. By analysing past failures and structural gaps, it proposes strategies to integrate photographic technology into national heritage policies, not only as historical artifacts but as active sites of research, public engagement, and innovation, as in the case of the Ferrania Film Museum. Without this shift, a crucial chapter of Italy's industrial and media history risks fading into obscurity, lost to institutional inertia and neglect.



12 JUNE 2025 09.00 - 11.00

ROOM B3.2

Panel 7. Who Cares About AI? Navigating the challenges of AI in Health Practices

Convenors:

Veronica Moretti, Università di Bologna

Francesco Miele, Università di Trieste

Keywords: Artificial Intelligence (AI), Care Practices, Human-Machine Interaction, Vulnerability of technology

Over recent years, Artificial Intelligence (AI) has rapidly become a buzzword circulating throughout society, permeating various social spheres and attracting both material and symbolic resources. This panel seeks to shed light on the intricate relationship between AI and care, defined, in the well-known terms of Tronto and Fisher (1993), as "a species of activity that includes everything we do to maintain, contain, and repair our 'world' so that we can live in it as well as possible."

The relationship between care and AI is at least twofold. First, AI technologies have been developed and deployed to assist or even replace human actors in care practices that target various groups identified as 'people in need,' such as non-autonomous older adults, patients with chronic conditions, or those with other vulnerabilities (Miele and Giardullo, 2024). This includes robotics programmed for surgical procedures or cognitive stimulation for individuals experiencing cognitive decline, as well as virtual companions designed to provide moral support and empathize with individuals whose needs might not otherwise be considered problematic by society. The introduction of AI into a field historically associated with empathy, emotion, and affect highlights the need to examine, on one hand, the quality of interactions between human and machine bodies and, on the other, the consequent shifts in the geography of responsibilities within AI-supported care practices. Second, AI technologies, like other machines, require ongoing care to ensure their repair and maintenance. As previously noted, maintenance and repair are deeply embedded within a logic of care, grounded in the understanding that even groundbreaking, innovative machines are vulnerable to decay (Denis et al., 2015). This vulnerability can manifest in healthcare organisations as well as in other work settings when AI systems fail to perform as expected, conflict with other technologies, or act in ways deemed unsafe (e.g., suggesting erroneous decisions) or unethical (e.g., failing to protect private data). Examining the care directed toward AI, given the opacity that characterizes its procedures and decision-making processes, necessitates an in-depth look at the maintenance and repair practices enacted by professional communities. These professionals, drawing on codified knowledge, work to understand the fragility of AI systems and take care of their artificial bodies.

The session is intended to promote reflection on the various dimensions of the AI-care relationship. We invite both empirical and theoretical contributions that explore how AI technologies are reshaping care practices, the implications for human interaction, and the broader societal consequences. The following areas and perspectives of analysis will be privileged:

- The impact of AI technologies on caregiving practices for vulnerable populations;
- Ethical considerations surrounding AI in care;
- Quality of human-machine interactions and their effects on emotional support and trust;
- Maintenance and repair practices for AI systems in healthcare settings;
- Vulnerability of AI technologies and their implications for care delivery;
- Empirical experiences and personal narratives from caregivers and patients using AI;
- Future directions for AI in care, focusing on emerging technologies and societal implications;
- Comparative analysis of traditional care practices versus AI-supported care methods.



12 JUNE 2025 09.00 - 11.00

ROOM B3.2

ID 140 - Empowering Self-Care: Exploring Use to Co-Design an AI-powered Virtual Coach for People living with Parkinson.

Sylvie Grosjean, University of Ottawa

Keywords: AI-powered self-care technology, Parkinson Disease, Co-design, Usage Diary Study, Self-care practices

Self-care in Parkinson's Disease (PD) is a key care strategy for people living with PD that provides confidence and knowledge about managing their disease. Self-care refers to the activities that patients undertake to manage their condition as part of their everyday life that is not implemented by a healthcare professional. There is evidence indicating that health technologies are promising enablers of self-care in PD. They offer the opportunity for patients to collect and track relevant information and obtain personalized support and advice on living with PD. While researchers have identified the need for such technologies to adapt to the unique care needs and changing conditions of each individual with PD, research is needed to develop self-care technologies that are more personalized and help individuals manage these changes. Furthermore, technologies frequently fail to support self-care due to a lack of attention to the complex relationships between technology and individuals within their social, cultural, and economic contexts during the design process. We posit that self-care technologies have the potential to support people with PD in their daily self-care processes by facilitating lifestyle changes or the overall management of mundane issues (e.g., cooking or pursuing social activities to maintain mental well-being). To do so, we need to design technologies that are interactive (allowing users to have access to personalized care resources), immediate (increasing user interest in and exposure to system-based messages), and adaptive (intelligent learning systems that adapt to user needs and preferences over time).

The purpose of this communication is to explore how a usage diary study of a virtual coach (eCARE-PD) could inform the design process of an AI-powered self-care technology. eCARE-PD has been designed to assist patients in managing their condition by providing automated or manual tracking, informative resources and practical self-care tips. This qualitative study was designed to learn how patients (n=20) interact with eCARE-PD (during 3 months) and integrate it into their daily routines and self-care practices. Depending on the level of personalization and user experience, the attractiveness (and effectiveness) of this tool may vary. We found that some content was more applicable to patients in the early stages of the disease, and it was suggested that more tailored information be made available for individuals at different stages of the disease. Patients expressed a desire for a virtual coach to help them actively manage the many aspects of living with the disease, including its inherent unpredictability and variability. PD presents a broad spectrum of symptoms and the progression varies from person to person. This diversity makes it difficult for self-care technologies to offer one-size-fits-all solutions. Such technologies must be designed to continuously adapt to an individual's evolving condition. Based on the results of this study, we will explore a possible solution using artificial intelligence to provide personalized support based on patient data. The development of a Conversational Recommender System specialized in PD will be discussed, with particular attention to the potential role of LLMs (large language models) in this process.

12 JUNE 2025 09.00 - 11.00

ROOM B3.2

ID 148 - Automating dementia care training: The socio-technical design of an e-learning AI-powered chatbot

Riccardo Pronzato, Università di Bologna

Keywords: caregiving, dementia, artificial intelligence, co-design, ethnography

In the last decade, there has been a growing interest in the development and deployment of AI-based system in healthcare. These technologies are designed to either support or replace human figures, to



streamline diagnosis, treatment and monitoring processes, and, ultimately, to facilitate automation in decision-making, therapy and care (see Miele and Giardullo, 2024). Thus, it emerged the need to investigate how AI systems are designed and used in practice (Watson and Wozniak-O'Connor, 2024).

Given this scenario, this contribution investigates the development of an e-learning AI-powered chatbot designed for formal and informal caregivers of patients with dementia, thus focusing on the socio-technical production and enactment of AI-based technologies in healthcare.

Specifically, this study analyses the co-design process underlying the production of the aforementioned AI-based chatbot. In recent years, co-design has emerged as an institutionalised participatory approach to engage diverse stakeholders in producing eHealth technologies and adapting them to users' environments and conditions (Noorbergen et al., 2021; Talevski et al., 2023). Whereas co-design is frequently presented as a participatory and inclusive practice, critical technology studies have highlighted that the production and implementation of a technological artifact is a complex socio-technical assemblage rather than a linear procedure (Seaver, 2019; Schwennesen, 2019). Indeed, technological production is always intertwined with power asymmetries, cultural values, social narratives, inequalities and relationships involving both human and non-human elements.

Within this framework, this contribution aims to examine how co-design unfolds in practice. To do so, it draws on a multisited ethnography (Marcus, 1995; Seaver, 2017). The goal is to scrutinise the co-design process of an e-learning chatbot directed at dementia caregivers from the data collection phase—where caregivers' needs are gathered by the research team—to the implementation phase conducted by a private company that was contracted to design the platform. Tracing the chatbot's development throughout different phases of the process will allow to better understand the different human and non-human actors involved and how various figures, i.e., researchers, tech workers, patients, caregivers, physicians contribute to the enactment of the technological artifact.

In this sense, this contribution builds on Seaver's (2017) ethnographical approach to algorithms and on the following research endeavours drawing on his work (Bonini and Gandini, 2019; Kotras, 2020; Pronzato, 2023), with the aim to examine AI-based systems "in practice," thereby addressing the issue of context by looking at "the work practices that surround algorithmic technologies" (Christin, 2017: 11).

Findings will shed light on how the e-learning AI-powered chatbot directed at dementia caregivers is enacted by different activities and negotiations, showing the complexities involved in development and implementation of this artifact.

The project is part of a broader interdisciplinary collaboration aimed at designing an e-learning platform aimed at formal and informal caregivers of people with dementia (project AGE-IT, PNRR PEB "Age-It", Next Generation EU).

12 JUNE 2025 09.00 - 11.00

ROOM B3.2

ID 253 - What if care robots need care? An analysis of vulnerabilities, maintenance and repair

Victoria Kontrus, VICESSE Research GmbH

Roger Von Laufenberg, VICESSE Research GmbH

Keywords: care robots, artificial intelligence, vulnerability, maintenance, long-term care

AI applications seem to multiply by the second and pervade all domains of life. Against the backdrop of an ageing population, fueled by virulent techno-solutionism surrounding the "care crisis", older adults and the care sector have become a profitable market for AI-based technologies. As a result of this "silver economy", a wide array of AI applications can nowadays be found in long-term care (LTC) settings, ranging from administrative tasks like documentation or shift planning to pain recognition, fall detection and robotics.

While it is most often LTC residents who vulnerability and care needs are ascribed to, our contribution



seeks to draw attention to the many vulnerabilities and care needs of care robots, which often remain obscured. Care robots are complex technologies entangled in supply chains and interconnected with elaborate infrastructures. This makes them highly vulnerable and accordingly, they require considerable amounts of care in the form of maintenance and repair. Our contribution thus seeks to make visible the vulnerabilities of care robots through the care practices that cater to them. We examine how this care work is distributed and coordinated across a diverse network of actors and analyse the implications which result for those involved in care.

Our contribution draws on an empirical study set in Austria, which explores two care robots for LTC settings: Pepper and Paro. Pepper is a humanoid robot with a variety of AI-based functions, including navigation, facial recognition and natural language processing and was designed to entertain LTC residents with puzzles, games and gymnastics. Paro is a fluffy robot in the shape of a baby seal equipped with algorithmic features to recognize speech and adapt its behaviour. Our multi-perspective case study includes qualitative interviews with LTC staff, residents, and technology developers as well as participant observation in an LTC facility.

Firstly, our findings reveal the manifold vulnerabilities of the two robots. These range from fragile hardware such as broken limbs to software failures, which may lead to both minor disruptions as well as total breakdowns of service. Secondly, we found that both robots are recipients and beneficiaries of a wide variety of care practices targeted at mitigating vulnerability and preventing or restoring harm. In both cases, the care workers play a paramount role as "maintainers-users" (Denis, 2017, p. 6). However, as the two robots have different vulnerabilities and needs, the care practices differ between them. Each robot mobilizes its own distinct network of human and non-human actors, including care staff of LTC facilities, software developers, product distributors and hardware manufacturers, but also keys, lists, blankets and closets. Thirdly, the ascribed vulnerability of the robots heavily shapes whether and how the robots are used. Finally, we conclude that the care work required by care robots fundamentally impacts care workers and their role. While according to their job description, LTC staff are supposed to tend to humans and their needs, care robots place them in a delicate balancing act, navigating both human and non-human care needs.

12 JUNE 2025 09.00 - 11.00

ROOM B3.2

ID 320 - From AI Promises to Care Practices: Differing Expectations on Integrating Predictive Models in Telecare

Lorenzo Carta, Università di Trieste

Keywords: Artificial Intelligence, Expectations, Care Practice, Elderly Care, Gerontechnology

AI is increasingly promoted by companies and public healthcare institutions as an effective tool to support vulnerable populations, particularly in elderly care. Promissory discourses around technology and aging often frame machine learning (ML) systems as a cost-effective solution for reducing care expenses while addressing issues like loneliness and fall prevention through personalized care. This is done following an increasing datafication of older people's bodies and daily activities. While AI is increasingly proposed as a solution for the "care crisis" posed by an aging population, there is limited understanding of how these societal and organisational expectations shape the design and implementation of specific AI-based assistive technologies. In particular, on how actors envision changes in pre-existing care practices and sociomaterial configurations.

To address this issue, this study examines an Italian company's attempt to integrate predictive models into an existing telecare service, which serves both public healthcare institutions and private clients. The models aim to predict fall risks while using synthetic data processing to anonymize sensitive information. Through semi-structured interviews with managers and operational staff, complemented by participant mapping, the case study reveals tensions between differing visions for the application of predictive ML systems and the complexities of integrating such technologies into a service already in operation.



Preliminary findings reveal tensions between two distinct roles of the predictive system. First, it serves as a strategic asset in the company's data-driven ambition to position itself as a central and innovative actor in the healthcare ecosystem. Second, it serves as a technological response to fall risk, which—based on the company's experience and public institutions' perspectives—is recognized as one of the primary vulnerabilities among elderly people due to the frequency and the severity of consequences in terms of assistance and quality of life.

Regarding expectations about changes in care practices and the integration of predictive models, two key aspects emerged from the interviews. The first relates to the data collection phase, which requires expansion through a structured questionnaire and the potential integration of sensors. This could conflict with the affective and trust-based relationship between telecare operators and users. Secondly, the analysis reveals how different interviewees assign conflicting roles to the ML system, particularly regarding response protocols for risk alerts. These divergent interpretations expose uncertainties about how the system could reshape the pre-existing "geography of responsibility" of telecare practices.

12 JUNE 2025 09.00 - 11.00

ROOM B3.2

ID 331 - Technogeographies of care: how digital technologies and AI are reshaping dementia care in residential and home settings

Ludovica Rubini, Università di Trieste

Martina Consoloni, Università di Bologna

Francesco Miele, Università di Trieste

Veronica Moretti, Università di Bologna

Andrea Di Leo, Università di Bologna

Keywords: digital technologies and AI, dementia care, technogeographies of care, algorithmic work, algorithmic accountability

Dementia is a condition characterized by the progressive decline of cognitive functions, often caused by neurodegenerative diseases, which significantly affects the quality of life for older individuals and their caregivers. Despite its growing prevalence, welfare systems struggle to address emerging health needs, while family networks face increasing fragility. In this context, digital technologies—especially those based on artificial intelligence (AI)—have been proposed as solutions that combine accessibility to high-quality care with welfare cost containment. However, these technologies raise significant issues, such as ethical concerns, discrepancies between intended and actual use, and the reconfiguration of the relationship between caregivers and those they care for.

This contribution presents preliminary findings from the Prin-Pnrr project ANTICIPATE (Artificial Intelligence and Dementia Care in Practice). Based on a theoretical framework combining Science & Technology Studies, Organisational Studies, and the Sociology of Health, the project examines the role of "intelligent machines" in reshaping dementia care practices in residential and home-based settings. The research employs a mixed-method approach, including mapping digital technologies and AI applications for dementia care, a national survey, semi-structured interviews with informal caregivers, ethnographic studies in nursing homes, and co-design workshops with caregivers and designers.

To explore how dementia care is reshaped in different environments, we use the concept of "technogeographies of care," emphasizing the importance of space in reconfiguring care practices. This involves examining changes in two distinct settings: residential care homes and private residences. Additionally, we analyse how technologies designed for surveillance transform caregiver-caretaker relationships, giving rise to new practices.

First, we illustrate how the introduction of a telemonitoring AI-based system in a nursing home during night shifts is influenced by the ward's physical layout and the need to support the single caregiver on duty. This system assists healthcare professionals in tasks like monitoring health and preventing falls,



potentially creating a conflict between the 'human' practical knowledge of the staff and the 'artificial' practical knowledge of the system. Simultaneously, staff engage in "algorithmic work" to support the proper functioning of the system alongside caregiving duties. This new configuration also changes the interaction with people with dementia (PWD), altering the rhythms of care and affecting their autonomy of movement within the ward.

Similarly, in home-based care, the use of location-tracking devices to monitor PWD movements create new "geographies of responsibility", redistributing caregiving burdens across people, places, and devices. These technologies enable remote monitoring, offering safety and autonomy for both parties. However, they also reshape the spatial dynamics of care by embedding responsibility within the technological infrastructure and altering the ways in which caregivers interact with the care environment. Caregivers engage with "algorithmic accountability", interpreting alerts and making decisions based on data, which transforms caregiving practices and dynamics.

These findings highlight the complex entanglement between technologies, spaces, and care relationships. By reshaping caregiving dynamics, AI and digital tools challenge traditional practices and demand a critical understanding of their ethical and relational implications.

12 JUNE 2025 09.00 - 11.00

ROOM B3.2

ID 622 - From 'speaking for' to 'speaking with': The conceptualization of trust in the practices of in silico medicine

Zita Van Horenbeeck, Katholieke Universiteit Leuven

Elisa Lievevrouw, Katholieke Universiteit Leuven

Ine Van Hoyweghen, Katholieke Universiteit Leuven

Keywords: trust, in silico medicine, societal challenges, patient and public involvement

In silico medicine is an emerging field within computational medicine that integrates computer models for the prediction, diagnosis and management of diseases. In silico medicine is gaining traction in the scientific domain for its potential to reduce time and costs compared to for example traditional clinical trials and enable more personalized care. In silico medicine includes but at the same time extends artificial intelligence (AI) by integrating both data-driven and knowledge-driven approaches. In addressing the societal challenges of in silico medicine, trust evolved into a central yet contested topic in the in silico medicine community. Within this community, trust is often defined as 'credibility established through a collection of evidence for a specific context of use.' According to Science & Technology Studies (STS), such a scientific conceptualization not only frames trust as something objective, indisputable, and absolute, but also reflects deficit thinking, assuming distrust to be a consequence of a lack of public understanding and knowledge, rather than stemming from the uncertainties inherent to science (Porter, 1995; Wynne, 2006). Such trust conceptualizations therefore have shaped how and why public and patient involvement (PPI) is organized today, often in a top-down approach, adopting a 'speaking for' mindset with no attempt for genuine dialogue between stakeholders. Moreover, this framing externalizes the responsibility for trust-building from the scientific community onto the engaged publics.

Combining insights from STS with empirical research based on observations during meetings, symposiums, and collaboration with in silico researchers, this paper documents the various trust conceptualizations in the in silico medicine scientific community, and their relation to the ways different publics get engaged in in silico medicine. From this, this paper critically reflects on the dominant framing of trust as something that can and should be secured solely through validation and uncertainty quantification. Such top-down trust conceptualizations can risk reducing PPI to a procedural exercise aimed at persuading publics of the technology's robustness and objectivity, rather than creating the spaces for meaningful exchanges that drive in silico research in line with societal needs.



12 JUNE 2025 09.00 - 11.00

ROOM B3.2

ID 672 - Does healthcare technology using AI pose exceptional ethical questions?

Noa Cohen, Libera Università Maria Santissima Assunta

Keywords: Healthcare technology, Epistemic pollution, AI over-exceptionalism, Medical ethics

While the ongoing debate surrounding the introduction of AI into healthcare practices raises crucial issues regarding human rights protection and maintaining standards of patient care, it must also acknowledge that some of the topics addressed have long been debated within the context of prevalent bioethical, legal and regulatory practices. Normative bases, rights of patients and the duties of physicians associated with caring for patient wellbeing may be challenged by emerging technology, however ethical discourse must insist on relevant and evidence-based claims when advancing the notion of novel risks. Instead, the prevailing discourse exemplifies a current tendency to view some common practices as posing novel ethical challenges when involving the use of AI, overlooking substantial previous work done in the field. Meanwhile, these discussions leave unclear in which fundamental way, theoretically or empirically, the introduction of AI based technology demands a separate debate.

In the effort for attaining public trust, funds and attention, the question of resource allocation becomes invaluable. Cultivating and supporting redundant debates creates a type of discourse bubbles (Gilbert et al., 2021), which do not promote applicable solutions, and may instead lead to misdirected resources and research efforts (Hansson, 2020). Furthermore, the accumulation of irrelevant information undermines scientific discussions (Forlini, 2023) and promotes distrust in scientific experts and knowledge. Notably, such debates are often perpetuated by those in position of epistemic authority such as decision makers and academic scholars (Levy, 2021). In this recent book, Neil Levy shows how types of unfounded information can constitute "epistemic pollution" and underly the current environment of epistemic degradation, which makes caring for one's health significantly more difficult (Levy, 2018). Within today's healthcare culture, which shifts more responsibility for decision-making towards the individual patient, this could result in suboptimal care.

Drawing a parallel with speculative ethics, this talk will address the roots of AI "over-exceptionalism" as based in contemporary information practices and describe some potential negative implications. Notwithstanding, the talk will also present how this discourse may inadvertently offer an opportunity to confront longstanding issues in medical ethics. Primarily, critically engaging established practices and norms implicating human wellbeing may have positive implications by uprooting deeply seated biases and uncovering blind spots. In the case of clinical care, longstanding and evolving issues of discrimination, literacy, capacity and epistemic injustice need attention as they continue to inflict harm on vulnerable populations, while the additional complexity and opacity of AI threatens to exacerbate these harms by increasing inequalities (Reddy et al., 2020). Accordingly, alongside the crucial task of maintaining an academic discourse which is aligned with professional standards and public interests, it is useful to encourage the utilization of the current rise in public interest and funding invested in AI ethics as an opportunity for promoting awareness and incentivizing action to confront existing social and epistemic issues in healthcare.



Panel 8. Emerging Technologies: Negotiation and Transformation

Convenors:

Suania Acampa, Università di Napoli, Federico II

Biagio Aragona, Università di Napoli, Federico II

Francesco Amato, Università di Napoli, Federico II

Keywords: Emerging Technologies, Methodological Challenges, Public Interest, Sociotechnical Systems

The growth of emerging technologies (ET) such as Artificial Intelligence (AI), High- Performance Computing (HPC) and Quantum Tech (QT) raises crucial questions about their social implications. These technologies are not only shaped but are also profoundly shaped by social, political, and economic dynamics. Science and Technology Studies (STS) and Critical Algorithm Studies (CAS) have highlighted how the sociotechnical construction of ET is based on an intertwined and complex web of technical and social apparatuses in continuous (co)-evolution, where different agencies play a fundamental role. Adopting research strategies that try to stabilize these phenomena is essential to analyse the processes of negotiation and interaction that take place between human and non-human actors, as this makes them accessible to empirical investigation.

This session aims to open a space for reflection in which researchers from various disciplines can examine ET through a sociotechnical and sociodigital (Halford and Southerton, 2023) perspective, highlighting the negotiation, appropriation and adaptation processes that characterize their development and implementation. This type of research can be essential for understanding the inequalities and ethical challenges arising from the adoption of ET in specific domains (i.e. healthcare, labour, etc.).

Methods such as ethnographic studies in technological development contexts, discourse analysis to deconstruct innovation narratives, and case studies on the daily use of technologies have proven to be valuable tools for this investigation, but further methods that tackle the intertwine between the social and the technical, and that take the materiality of technology seriously, are needed.

The session aims to stimulate the STS community to reflect on the ways in which it is possible to investigate and intervene in emerging technologies' innovation processes, promoting a debate on how these research practices can transform ET into tools of emancipation and wellbeing for society.

The panel invites contributions that explore the social implications of ET and examine their implementation in domains of public interest such as health, education, work, mobility, and security. It also welcomes epistemological and empirical contributions that investigate research strategies and methods.



ID 196 - AI systems as experimental technologies: emergent risks and uncertainty

Giacomo Zanotti, Politecnico di Milano

Viola Schiaffonati, Politecnico di Milano

Keywords: AI, Experimental Technologies, Uncertainty, Risk

Technologies have been defined as experimental "if there is only limited operational experience with them, so that social benefits and risks cannot, or at least not straightforwardly, be assessed on basis of experience" (van de Poel 2016, 669), and the different degrees of uncertainty concerning their social effects can be reduced only after their actual introduction into society. This difficulty is well exemplified by the so-called control dilemma elaborated in (Collingridge 1980). According to it, the social effects of radically innovative technologies are highly uncertain in their early phases of development. However, when these technologies are well developed at later stages, they might be so embedded into societies that it can be difficult to avoid their negative effects or even to stop them. Different strategies to deal with the control dilemma have been elaborated within the ethics of technology. One possibility is to try to anticipate negative effects at the design stage. Another one is to promote an incremental approach, namely the gradual introduction of experimental technologies in their contexts of use, such that their emerging negative effects can be monitored and, in case, mitigated.

The notion of experimental technologies has been proven useful also when applied to Artificial Intelligence (AI), and in particular to AI-related risks (Zanotti et al. 2024). Yet the strategies to deal with the control dilemma and emerging risks in the case of AI technologies appear problematic and deserve a careful analysis. Anticipation is indeed extremely difficult with AI technologies, which are characterized by high levels of complexity in both their design and the interaction within their contexts of use. At the same time, a tension in incremental approaches emerges. On the one hand, while controlled and well circumscribed testing environments allow us to meticulously monitor and possibly mitigate potentially emerging risks, they may not be an epistemologically reliable ground for evaluating the risks stemming from the large-scale use of AI systems. On the other hand, experimenting AI systems at larger scales is ethically challenging, for it may imply exposing a considerable number of people to hardly predictable risks. After analysing the reasons why AI technologies may exhibit specific characteristics compared to other experimental technologies, this work will elaborate on the notion of experimental technologies from an philosophical perspective, conceiving of it in terms of uncertainty. Moreover, it will evaluate possible new epistemological and ethical frameworks for dealing with those AI-related risks that can be dealt with neither the traditional risk mitigation tools (e.g., cost-benefit analysis) nor the usual strategies for addressing the control dilemma (e.g., Value-Sensitive Design, ethical incrementalism).

References:

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11 JUNE 2025 14.30 - 16.30

SESSION 1

ROOM B2.2.15

ID 244 - Digital ID: Systems: The Genesis of Data Harm

Silvia Masiero, Universitetet i Oslo

Keywords: Digital ID, infrastructure, data harm, digital welfare, platforms

Digital identity schemes convert human beings into machine-readable data, which are amenable to be administered and analysed for better service provision. At the same time, critiques have impinged on the undue exclusions produced through digital identity systems, where entitlements of vital importance – including food, cash, assistance to refugees – have been denied to people due to the inability to authenticate digitally. More problematic points emerge with the production of informational injustices, where people are not put in the position to meaningfully enquire the use of their data through digital ID and with design injustice, where unfair practices are scripted in the body of the designed technology. As powerfully summarised by the Centre for Human Rights and Global Justice (CHRGJ), while evidence of benefits from digital identity schemes is limited and scattered, evidence of harm is substantial.

In such critical perspectives, however, a point remains silent. It deals with the enabling conditions of harm produced through digital ID, conditions that verify when the events generative of digital identity harm take place. Asking what makes digital identity harm possible in the first place is important for two reasons: first, it makes it possible to reflect on the genesis of harm, and on the ways it is produced on the individual. Second, by mapping the same genesis, it makes it possible to counter the emergence of such harm, enabling the possibility to imagine fairer models of ID, which actively work against the production of injustice.

In this paper I introduce the concept of data harm as enabler of the harm developed and enacted through digital ID. I first define data harm as harm produced, sustained and enacted on people through the means of datafication. I then position data harm in the novel literature that sees data as an independent object of research, and derive three routes – misrepresentation, erasure and interoperability – through which data harm is perpetrated. Each route shows a distinctive, complementary aspect of data harm production, and it is argued that each is crucial to understand in order to form the comprehensive picture needed for data harm to be tackled.

11 JUNE 2025 14.30 - 16.30

SESSION 1

ROOM B2.2.15

ID 459 - Big Model Good? Investigating how sociotechnical imaginaries about digital twins are told, sold, and operationalised in conservation contexts

Lucy Maun, University College London

Keywords: Digital twins, conservation, sociotechnical imaginaries, emerging technologies

Digital twin technologies are a group of emerging technologies that have emerged out of manufacturing and engineering industries, designed to link an object, product, or system – the 'physical twin' – with a virtual 'digital twin' – an identical, mutually-affecting representation that updates in real time. In the last five years however, digital twins are starting to be applied in conservation contexts as a novel technology that promises to transform the industry by 'saving' threatened species and landscapes through digitisation; both by creating a digital replica for posterity, and by offering insights into changing conditions and how to manage resources. However, the stated and promoted aims of digital twin projects are often different from what these projects actually do – conservation is used as a justification to gain funding and awareness, whilst insights from the models are used for purposes that contradict conservation aims. Additionally, digital twins of the natural environment can never truly be mutually-affecting, undermining their status as 'digital twins'. Rather than being just 'big models', digital twins for conservation comprise a complex interrelation between sociopolitical factors, climate-impacted landscapes, digital infrastructures, data generation and appropriation, and idealised (though as yet unrealised) future benefits. With little critical work having been conducted on the topic thus far, this research investigates the impacts, efficacy, and utility



of applying digital twins in novel conservation contexts. This project uses sociotechnical imaginaries and responsible innovation as theoretical frameworks, to explore the narratives that are being constructed and how these are affecting the hype, impacts, and development of the technology. Through considering the Destination Earth project, other digital twins of the oceans, and the digital twin of threatened Pacific Island nation Tuvalu, this research investigates the continual processes of negotiation and transformation that drives these projects, and the ensuing social and environmental impacts that result from them. It aims to move past the hype to untangle the complex socio-political tensions and examine the realities of applying a technology designed for urban infrastructures to the natural world.

11 JUNE 2025 14.30 - 16.30

SESSION 1

ROOM B2.2.15

ID 471 - Investigating Responsible AI in practice: the concept of boundaries

Pierluigi Masai, Università degli Studi di Trieste

Keywords: sociotechnical systems, responsibility, research design, boundaries, AI governance

The governance of Artificial Intelligence (AI) systems is a relevant topic given their applications in a wide range of contexts: from academic research, healthcare, and entertainment to law enforcement, the military, and the insurance industry. Studying the management of emerging technologies such as AI systems can be very hard though, since they are sociotechnical systems, which is to say that their functioning cannot be addressed without considering the social actors involved. As a matter of fact, the development of an AI system is, in principle, a lengthy and complex process that involves numerous parties: sponsors, designers, developers, technicians, legal experts, policymakers, and users. Consequently, it can be difficult even from a theoretical perspective to deal with the theme of responsibility, let alone to research it in practice. The question arises: how to effectively investigate the innovation processes related to AI systems? Even more: how to highlight a responsible use of AI systems?

Adopting an STS perspective can be useful to properly study all the elements involved in such a landscape. The key is to first define a theoretical framework capable of identifying where to focus the attention.

Especially fruitful can be the concept of boundaries to characterize those spaces where the interactions between this heterogeneous set of actors occur. Boundaries are sites where bridges spanning different disciplines, organisations, ecc. emerge to shape relationships and interactions, but also sites for demarcation where division of sociotechnical labour takes place.

The presentation outlines an interpretive framework aimed at examining how Responsible AI is configured in the context of a large, multinational financial company, highlighting three boundaries that seem important for studying the forms of de facto responsibility of AI within an organisational context: internal to the company, between the company and regulators, and among the company and AI developers. The former refers to an intra-organisational level of analysis, the latter two concern both public policies and regulation, and developers. These three areas of attention are articulated either on the discursive or practical level.

Such a framework is used in a currently ongoing project that aims to investigate how the theme of responsibility is embedded in the practices and discourses around AI systems. The project performs qualitative research and its example will show how STS concepts can help design researches on emerging technologies overcoming many methodological challenges.



11 JUNE 2025 14.30 - 16.30

SESSION 1

ROOM B2.2.15

ID 542 - Sustainability and the Development of Urban Digital Twin.

Mattia De Angelis, Università di Napoli Federico II

Keywords: Digital Twin, urban governance, sustainability

Current technological development and socioeconomic and environmental challenges have led national and supranational public institutions to a growing interest in implementing technologies to manage and develop government practices. One of the widespread paradigms for developing governance practices, in this case of urban settings, is sustainability, which is interconnected with the need for data acquisition and the development of new and increasingly sophisticated analysis techniques. One of the technologies attracting institutional actors' attention is the Digital Twin.

This study intends to understand the relationship between Digital Twin and sustainability through the scientific literature produced on the topic, the analysis of European projects (funded through Horizon Europe, Horizon 2020) and the study of two cases of implementation of these technologies to understand what the main topics are considered of the research, from the actors involved in the implementation and development, coming to the analysis two cases of application. It proceeds through studies and technological developments in the field of social sciences. As a connection is developing between Digital Twins applied to urban contexts and the sustainability paradigm, consider that when referring to concepts related to sustainability, we are not only talking about aspects related to environmental issues but also social, economic and cultural ones; this is precisely where the need and relevance of the contribution made by the social sciences arises. Since the subsidy of these technologies is intended to achieve an informed management model through data flows, setting sustainability as a goal both in development and as an end is relevant to understanding how this actor intervenes and is applied within governance processes.

11 JUNE 2025 14.30 - 16.30

SESSION 1

ROOM B2.2.15

ID 623 - "Will A.I. Ruin the Planet or Save the Planet?": An STS Approach To the Connection Between A.I. and Climate Challenge

Elli Danae Vartziotis, Εθνικό και Καποδιστριακό Πανεπιστήμιο Αθηνών (National and Kapodistrian University of Athens)

Aristotle Tympas, Εθνικό και Καποδιστριακό Πανεπιστήμιο Αθηνών (National and Kapodistrian University of Athens)

Tina Vartziotis, National Technical University of Athens (Εθνικό Μετσόβιο Πολυτεχνείο)

Ippolyti Dellatolas, Massachusetts Institute of Technology

Keywords: AI, Climate Change, Media, STS

Artificial Intelligence (A.I.) is frequently celebrated as a revolutionary tool for addressing environmental issues by both the scientific community and the media. Building on prior research on analysing A.I. narratives in leading scientific journals (Nature, Science), we will present research that focuses on mainstream media sources (The Guardian, The New York Times, Der Spiegel) in order to explore how A.I.'s role in environmental sustainability is portrayed beyond academic discourse. By examining how AI is framed as both a potential environmental savior and a source of ecological harm, our research sought to critically engage with the binary narratives that dominate public and scientific discourse. Using an STS methodology, we sought to retrieve similarities and differences in how artificial intelligence is depicted in scientific and journalistic contexts. Our research, therefore, seeks to usher in understanding how these narratives influence the public's understanding of A.I.'s ability to address environmental issues. To this end, our presentation will focus on the socio-technical imaginaries of these narratives, as they are overwhelmed by contradictions between critical attitudes and technological optimism.



11 JUNE 2025 14.30 - 16.30

SESSION 1

ROOM B2.2.15

ID 665 - Let people decide – making and negotiating technology with and for the people by employing Citizen jury as a tool

Ana Pop Stefanija, Vrije Universiteit Brussel

Rob Heyman, Vrije Universiteit Brussel

Keywords: citizen jury, participatory methods, experimental ethics, future imagining

The last decade has seen a tendency towards techno-solutionism – with the advancement of digital and AI technologies, the idea that deeply societal issues can and should be solved with technology becomes predominant. While emerging technologies (ET) can indeed solve many issues, benefiting from their full potential requires careful threading. One important aspect of this careful approach is building the technology for the people with the people themselves. This is especially important when the envisioned consequences of the deployment of the very technology introduce serious harms for the people affected. One such case is the introduction of autonomous decision-making agents (AI proxies) to make the complex decision of who should be prioritized (as a household) to receive energy in times of energy crisis and brownouts.

With this presentation we would like to elaborate and critically discuss one innovative manner of actively including citizens in the processes of ET design and development. We build our case on insights collected through participatory research that uses Citizen jury as a method to investigate, probe, and intervene in a technology-in-the-making, and captures the negotiations and tradeoffs taking place between what is desirable and necessary, between the public interest and the individual, and between the societal and the technological. Organizing three 8hrs jury sessions with a representative sample of Brussels' residents illustrate the delicate interplay and balance between these negotiations. To probe into the potential future of automated and autonomous technology making life-impacting decisions, we inquired how our jurors envision this decision-making interaction, the guiding principles, and the redlines that must not be crossed, in a human-machine-society interaction of this kind.

Citizen juries are well-established and codified way of soliciting insights from citizens for complex issues that involve value judgements, trade-offs underpinned by values-based dilemmas, affecting different people in different ways and scales. Despite this, they remain under-used in the innovative ET processes. Using speculative fiction and experimental AI Ethics, among other tools, we adapted the strict format of citizen jury to fit the specifics of the envisioned ET. AI technologies are abstract, complex, and not easy to grasp. Using the tool of future scenarios, where the jurors had to write a Utopian or Dystopian story, we solicited valuable insights about the values, the imaginaries, the needs and requirements of the jurors as individuals and as members of a community. The affordances of GenAI for visualising the stories helped in making these speculative future scenarios more tangible, and hence closer to the participants. Our interventions in the codified format of Citizen jury contributed in "making the future predictable/imaginable" and the technology graspable, thus helping our jurors to form informed opinions regarding the potential harms, advantages, and implications of use, serving as the basis for the (future) interventions regarding the technology- in-the-making.

We will critically discuss the possibilities, affordances, but also the shortcomings and constraints, of using Citizen Jury as a research practice and method to imagine, negotiate, and intervene in ETs, especially ones that hold the potential to be transformed into tools for equity and solidarity.



ID 239 - The Making of a Communitarian Quantum Ecology: Ideas for a Republican Governance for Quantum Information Technologies

Luca Possati, Universiteit Twente

Stefano Calzati, Technische Universiteit Delft

Keywords: Quantum information technologies, quantum ecology, governance, ethics, republican approach

Among emerging technologies, quantum information technologies (QITs) – e.g., quantum computers, quantum communication, quantum networks – are expected to bring profound disruptions in our societies, insofar as they will constitute the key enabling technologies for other services and applications (Timmers, 2023). In this regard, it is crucial to explore, since today, QITs' ethical, legal, social, and policy implications (ELSPI; cf. Kop, 2021; de Jong, 2022), even if such an exploration might fuel a "quantum hype" (Smith III, 2020). This is especially relevant because discourses and expectations on tech innovation contribute to shape those same scenarios they envision (van Lente, 2012) requiring forms of responsible research for QITs (Coenen & Grunwald, 2017). At stake are, above all, questions concerning the kind of QITs we want, for which purposes, how to shape both, and the nature of this we. In other words, an issue of collaborative governance (Micheli et al., 2020).

While regulation on QITs risks being entrapped into a "Collingridge dilemma" (cf. Genus & Stirling, 2018), a "precautionary approach" remains advisable given the duality of QITs as both an unprecedented opportunity and a serious threat (Taylor, 2020). Normative proposals for QITs' governance already exist (Perrier, 2022; 2025). However, these rest on a top-down path-dependent approach which risks reinforcing today's multipolar scenario (Winseck, 2017), triggering the geopoliticization and siloing of QITs (Taddeo et al. 2024; Shelley-Egan & Vermaas, 2025). Hence, it is necessary to avoid such a trend as it could black box QITs and expose them to co-optation by individual interests of countries or private companies.

To contrast this, we advocate for an alternative communitarian standpoint for the development, implementation, and use of QITs, whereby communitarian etymologically denotes a bond among people based on mutual deficiency and collective necessity (Calzati & de Kerckhove, 2024). Put differently, QITs are part of a technological ecology in the making where non/normative factors, diverse non/institutional actors, and sociotechnical processes are all codependent. So, how can we operationalize this insight from the perspective of collaborative governance?

The idea we propose is to look at republican approaches to the digital transformation (Susskind 2022; Hoeksema, 2023; Calzati & van Loenen, 2023; 2025), seeking to foster a digital polity within/through which mechanisms for guaranteeing power distribution across actors, mutual accountability via checks and balances, and forms of collegial decision and control are systemically devised. Calzati and de Kerckhove (2024) already mention the idea of a "quantum republic" which should take inspiration from nuclear non-proliferation treaties and envision a two-tier model of QITs' governance, whereby principles (and their supervision) are global, while their implementation is ecosystemic, across scales, sectors, and contexts. However, the two authors do not provide further specifications.

Here we build on that, intersecting research on digital republicanism and works in ethics and governance of technology (OECD, 2019; Calzati, 2023; Possati, 2024) towards the design of a communitarian model of QITs' governance. This brings us to identify interdependent sets of principles, bodies, and processes proper to the quantum republic.



11 JUNE 2025 17.00 - 19.00

SESSION 2

ROOM B2.2.15

ID 266 - From Odesa to Orbit City: Popular Culture and Media Narratives in the Emerging UK Future Flight Innovation Ecosystem

Will Mason-wilkes, University of Birmingham

Keywords: advanced air mobility, drones, popular culture and media narratives, innovation ecosystem

Within the UK, an innovation ecosystem is currently emerging around a cluster of novel civilian aviation technologies (cargo-carrying drones, passenger carrying electric vertical-take-off-and-landing (eVTOL) aircraft, and sustainably fuelled conventional small aircraft) that are being developed under the rubric of the government-industry joint funded ISCF/UKRI Future Flight Challenge. As with other emerging technologies, popular culture and media representations of these, or analogous technologies, both contemporary and historical, play an important role in shaping public attitudes towards these 'Advanced Air Mobility' (AAM) technologies. Often overlooked, however, is the concurrent role that these broader cultural and media representations and narratives play in shaping the imaginaries which exist within the innovation ecosystem, which in turn influence the functionality, design and positioning of AAM.

Reporting on findings from qualitative exploration within this emerging ecosystem, carried out as part of a wider programme of social science research, dialogue and engagement work led by the University of Birmingham that has been embedded within the Future Flight Challenge upstream of the technologies' emergence, this paper will discuss key popular cultural and media narratives that are mobilised within the AAM innovation ecosystem, how they are drawn on and function, and to what effect. From the widespread news coverage of the use of drones in military contexts, particularly the conflict in Ukraine, to key science fiction touch points such as Star Wars, The Fifth Element, Blade Runner or The Jetsons, popular cultural and media narratives play a key role in how innovators make sense of, and make sensible, these emerging technologies and their potential use cases.

11 JUNE 2025 17.00 - 19.00

SESSION 2

ROOM B2.2.15

ID 285 - Power and the ethics of innovating: discursive injustice in the context of new and emerging technologies

Benedict Lane, Technische Universiteit Delft

Keywords: Epistemic injustice, Discursive injustice, Emerging technologies, Technology assessment, Hermeneutic technology assessment

This paper starts from the claim that modes of technology assessment based on either the consequences of a technology (e.g., Brey, 2012) or the moral properties of the technology itself (e.g., Winner, 1980; Latour, 1992) are not suitable for moral assessment of new and emerging technologies (Swierstra & Rip, 2007). Such technologies, I argue, are at such an early stage in their development that there are no clear outcomes or moral qualities there to be assessed, and there is little realistic hope of accurately anticipating them in advance. Rather, the most morally salient features of such technologies are the processes by which they are coming into being – specifically, the form of the discourses that are giving meaning to these technologies (Grunwald, 2020), and the dynamics of power operative in those discourses. I develop a theoretical framework for assessing such dynamics of power, drawing on and synthesising several existing philosophical accounts of who has the power to do what in a particular discourse, namely: Fricker's account of epistemic injustice (2007) and Anderson's institutional extension of it (2012); Langton's and Hornsby's accounts of illocutionary silencing (Langton, 1993; Hornsby, 1995; Hornsby & Langton, 1998); and Lewis's notion of the "conversational score" as determining the acceptable conversational "moves" available to participants in a discourse at a particular moment (1979). I argue that the development of 21st century new and emerging technologies embody a particular kind of discursive injustice (cf. Kukla, 2014): those set to be most affected by a new technology are systematically disempowered to contribute



to discourses surrounding its development in ways that are in their interests, including offering their own "visions" for the future development of the technology in question (e.g., Ferrari & Marin, 2014). In other words, the majority of stakeholders in 21st century new and emerging technologies are discursively objectified – the resulting technologies are things that simply happen to them; technology is something they are subjected to. As an illustrative example, I appeal to the form of the discourses surrounding the development of quantum technologies (Possati, 2024): the power to shape the development of these technologies rests in the hands of a unrepresentative elite, while – for a variety of institutional, cultural, and linguistic reasons – the majority of stakeholders are systemically disempowered to participate in the relevant discourses. This situation, however, is not unique to quantum technology, and has persisted due to a failure of power-holding institutional actors to learn the lessons of previous controversies around previous emerging technologies (Rayner, 2004). The paper ends with an optimistic exploration of how the discourses that are giving shape to 21st century new and emerging technologies can be made to discursively empower those with a stake in their development.

11 JUNE 2025 17.00 - 19.00

SESSION 2

ROOM B2.2.15

ID 492 - Open source science as strategic process to shape an emerging technology

Mary F.E. Ebeling, Drexel University

Francesca Borghi, Università degli Studi di Milano Statale

Keywords: Open source technology, neuromorphic computing, emerging technology

As an emerging technological field, neuromorphic computing and engineering is a design method that implements computing hardware and software systems that mimic how the biological system, specifically the brain, functions. In particular, the neuromorphic approach allows for the implementation of highly efficient information processing strategies in hardware systems, beyond von Neumann architecture. In this context, self-assembled materials, which show nonlinear electrical behaviour and memristive effects, are promising candidates for the effective implementation of data processing devices based on redundant and adaptive networks (Borghi et al. 2024; Vahl et al. 2024). Some scientists in this emerging field contend that the emerging field of neuromorphic computing could effectively address some of the significant problems associated with the widespread scale-up of computing systems used for AI, such as the massive drain on energy resources required to operate server farms.

As an emerging technology to scale into an established market presents several technosocial challenges. University-based teams developing neuromorphic computing hardware encounter high entry barriers to the established global chip market, primarily due to technical drawbacks and open problems—such as unstable electrical behaviour, intrinsic stochastic fluctuations, or the integration of advanced and scalable analog-digital architectures. In the face of these technical challenges, some are turning to an open collaborative model, such as open-source software and open science models, to transfer the technology from bench-level to a scalable application. Open source technology development can encourage collaboration between teams, and increased motivation among the project developers (Di Tullio and Staples 2013). Open source technology development, conceived more as a service than a product, promises more democratic inclusion of expertise from teams developing the technology, and as a result, more robust design (Bottarelli 2024). Yet, open science projects often reflect the technosocial and political commitments of the participants, shaping how the device or technological object is translated into the logics of late capital (C. Kelty 2014; C. M. Kelty 2008; Currie, Kelty, and Murillo 2013; Dunbar-Hester 2020; Levin and Leonelli 2017).

Through a collaboration between an ethnographer and a physicist, in this paper we examine two cases of open-source, open science collaboration in the emerging technological field of neuromorphic computing hardware design. Through comparing an established device maker that used an open-source development model to enter the AI computer chip market with a university-based start-up in the early development stages of a neuromorphic computing device, we examine the sociopolitical negotiations that participants contend with, and the cultural paradigmatic shifts shaping the field, as they take bench-level discoveries to fit into globalized, late-capital markets in AI and computer chips.

11 JUNE 2025 17.00 - 19.00

SESSION 2

ROOM B2.2.15

ID 532 - "Quantum Technology Development in India: Analysing the Promise and Reality in Addressing Societal Needs"

Nidhi Singh, Indo-U.S. Science and Technology Forum

Keywords: Emerging Quantum Technology, Responsible innovation framework, sustainable development

The paper examines the status and development of quantum technologies in India, emphasizing their potential to address country-specific challenges in sectors like healthcare, agriculture, finance, defense, and space. The study utilizes a secondary research approach covering the last ten years, leveraging the SCOPUS database for publication analysis, along with a review of National Quantum Mission (NQM) progress reports and the National Science & Technology Management Information System (NSTMIS) digital repository to analyse government-funded research projects. A total of 4,390 research articles on quantum technologies were examined to evaluate India's contributions in comparison to global efforts. The findings indicate that India ranks 12th in quantum research output and has developed a growing research ecosystem through initiatives such as the National Quantum Mission (NQM), the Quantum-Enabled Science & Technology program, and strategic collaborations with leading institutions, including the Indian Institutes of Technology, the Indian Institute of Science, and the Tata Institute of Fundamental Research. The paper argues that while India has made progress, challenges remain, including high costs, limited expertise, infrastructure constraints and non alignment of research with national priorities. It calls for interdisciplinary collaboration, public-private partnerships, and policy interventions to accelerate quantum innovation. The National Quantum Mission's hub-and-spoke model is discussed as a framework to drive quantum research capabilities across computing, communication, sensing, and materials. The paper contributes by exploring the socio-technical dimensions of quantum technology, including governance structures, institutional frameworks, and the role of international partnerships in shaping India's research ecosystem. It highlights the importance of responsible research frameworks to ensure sustainable technological development, equitable access and need specific research outcomes to quantum advancements. Strategic government interventions, steady funding, and deliberate innovation policies are imperative. Drawing on the innovation experiences of the United States the study calls for tailored policy instruments to foster a robust and dynamic innovation ecosystem for Quantum Technolgy Development in India.

11 JUNE 2025 17.00 - 19.00

SESSION 2

ROOM B2.2.15

ID 632 - Negotiating Sustainable Futures: A Socio-technical Analysis of 6G Development in Europe

Margot Bezzi, CyberEthics Lab

Lucas Pereira Carwile, CyberEthics Lab

Katrina Petersen, Public Safety Communication Europe

Keywords: socio-technical systems, emerging technologies, 6G, value-based technologies, social acceptance, technological governance, sustainability, innovation narratives

6G is the sixth generation of mobile communication networks, currently in the specification phase. This integrated communications system represents a complex interdependence of infrastructure, enabling technologies, services, and applications. At the technological level, it will introduce disruptive innovations including native artificial intelligence, semantic communications, network of senses, and new spectrum technologies. These advances represent a strategic asset with profound societal implications, reshaping both communication capabilities and the global economic landscape. With 6G on the horizon, nations and corporations vie for dominance in this next-generation technology, particularly in the US-China tech rivalry.

As Europe positions itself in the global race for 6G leadership, the European telecommunications industry seeks to recover global competitiveness and technological sovereignty, caught between market pressures



and EU sustainability imperatives that demand the simultaneous creation of economic, environmental, and social value.

Our research is conducted through '6GSociety', an EU-funded project in the Smart Networks and Services (SNS) field, which examines societal dimensions of 6G development and bridges diverse stakeholder perspectives. The study combines analysis of industry vision documents and grey literature with participatory observation of technology development processes within the 6G Industrial Association and the SNS projects' community.

In this context, friction points have emerged between industry priorities, regulatory and institutional requirements, societal concerns, and environmental commitments, requiring careful negotiation and trade-offs. Tensions manifest especially in three domains: performance versus sustainability goals, social acceptance versus technical advancement, and traditional business metrics versus value-based indicators. Our findings highlight the industry's challenge in reconciling performance-driven business models with societal and environmental value creation. The industry adoption of the Key Value Indicators (KVI) approach helps to identify critical moments in the technological development process where value systems influence technical decisions.

Our work contributes to Science and Technology Studies by mapping how 6G development is shaped through negotiations across international competition pressures, societal acceptance issues, and environmental concerns.

We propose new methodological approaches that bridge technical and social sciences, offering frameworks to analyse value trade-offs in technology development. This research advances the understanding of socio-technical systems while providing practical guidance for industry stakeholders to align emerging technologies with societal needs and sustainability goals, without compromising competitiveness.



13 JUNE 2025 09.00 - 11.00**ROOM B2.1.1**

Panel 9. Affective Technopolitics of Genocide

Convenors:

Stephen Hughes, University College London

Hania Tayara, University College London

Keywords: affect, activism, technopolitics, war

Genocide, as defined by the United Nations (UN), means "acts committed with intent to destroy, in whole or in part, a national, ethnical, racial or religious group". The genocidal acts included within the UN definition such as "killing [...] causing serious bodily or mental harm [...] conditions of life calculated to bring about its physical destruction" are of interest to STS scholars when they are facilitated by or directly achieved through technoscientific means.

The organisers of this panel are interested in gathering together scholars who want to explore how science and technology are being used to commit genocidal acts in various contexts. The language of affective technopolitics is chosen to focus attention to the catastrophic physical and psychological effects that technoscientifically-enabled genocidal acts have on the targets of those acts and the powerful emotional impact of these acts across the world ranging from despair, horror, and fear to courage, hope, and solidarity. We are also interested in exploring the lack of affect – indifference, denial, and apathy.

The organisers are interested in STS perspectives on the affective technopolitics of genocide. For example, what are the affective impacts of using drones to make loud buzzing sounds to remind people they are occupied/in constant danger? What emotional effect does it have when everyday technologies like pagers are used in mass-killings? How do people feel when learning that decisions to kill have been decided by algorithms? How can technological resistance like the use of eSIMs to maintain secure and reliable communication, access medical resources, and provide patient care produce hope and solidarity? What emotional investments are encouraged or discouraged when genocide is "livestreamed"? What role does social media play in creating and strengthening relationships of care and opposition to genocide? We are interested in broader commentary on the role of STS in navigating these issues.

13 JUNE 2025 09.00 - 11.00**ROOM B2.1.1**

ID 299 - "Speculative Gen AI: Redefining Reality, Power, and Violence"

Donatella Della Ratta, John Cabot University

Keywords: Generative AI, violence, Palestine

This talk critically explores the aesthetics, ethics, and politics of speculative generative AI within the framework of synthetic realism, a visual paradigm where AI-generated images fabricate hyper-realistic yet entirely fictional realities. Drawing on Heather Dewey-Hagborg's concept of "generative representation" (2018), the discussion examines how these synthetic visuals—detached from indexical and empirical references—gain legitimacy through established traditions of representation rooted in Western visual culture. These images occupy a liminal space between the plausible and the factual, challenging conventional notions of authorship, representation, and truth.

The talk raises critical questions about the implications of speculative generative AI: What does it mean to imagine and build futures through synthetic imagery? How do such visuals destabilize established understandings of representation and reality? What ethical dilemmas arise when these technologies are deployed in politically charged contexts? By bridging theoretical and ethical perspectives, the talk interrogates how generative AI reshapes narratives of power, visibility, and erasure in contemporary media landscapes. A key focus is the potential for speculative imagery to become "operational" in warfare and violence, drawing on concepts introduced by Harun Farocki (2004) and expanded by Jussi Parikka (2023).



The analysis includes government-sanctioned AI-generated media, such as "Gaza 2035," an Israeli-made visual projection of a hyper-modern, Gulf-style Gaza that erases Palestinian cultural heritage and, symbolically, Palestinians themselves from a vision of the region's future. Another example is Turkish-produced AI-powered videos that imagine future genocide memorials honoring Palestinian victims, portraying future generations questioning the inaction of their ancestors in stopping the indiscriminate violence beginning in October 2023.

By situating these speculative images within the broader context of their operational roles in mobilizing public sentiment and enabling sophisticated forms of violence, this talk contributes to ongoing debates on the ethics and aesthetics of AI-generated media. It urges a rethinking of authorship, creativity, and the implications of synthetic visualities as tools of speculative world-making that navigate the blurred boundaries between creation and destruction.

13 JUNE 2025 09.00 - 11.00

ROOM B2.1.1

ID 375 - Deconstructing the New Age of Digital and Technological Apartheid and Genocide

Hania Tayara, University College London

Keywords: Genocide, affective AI, military technology, Palestine, settler colonialism

Is the development of a technology shaped by its social and political environment or vice versa or both (Winner, 1977)? Can a technology be political as an object within itself (Winner, 1980)? How can technology be racist? Can racism be embedded within the design? Can racism be automated (Benjamin, 2019)? These are some of the questions this work asks about Israel's infamous military and AI surveillance technologies.

Israel's genocidal assault on Gaza has often been described as "the first ever live-streamed genocide". However, in mainstream media, Israel is referred to as the "startup nation", viewed as a leader in cutting edge technology and innovation. This narrative erases the settler colonial nature of the state and the violence inflicted by Israel on the indigenous Palestinian population using these very same technologies. One stark example of conflicting science communication narratives is the Israeli pager attack in Lebanon, where Israel was hailed for its technological prowess, with news outlets and experts using words like "audacious" and "extraordinary" to describe what can be legally classified as a terrorist attack.

Beyond science communication, this research considers how some of these violent technologies are used as an affective means of inflicting terror on Palestinians. For example, the use of the Zinanah. This is the word Palestinians use to refer to an Israeli drone that flies over citizens in Gaza making a buzzing sound, having the purpose of creating fear of an ever-looming Israeli attack. These technologies are classified as biopolitical techno-borders: technologies used and developed by Israel to control Palestinian bodies and enforce separation.

13 JUNE 2025 09.00 - 11.00

ROOM B2.1.1

ID 611 - Sonic Resistance on Three Wavelengths

Tom Western, University College London

Keywords: sound, resistance, radio, liberation, anticolonial

Within the sensory assault of genocide, sound carries particular resonance. The constant buzzing of drones or zinanah (Tayara 2024) overhead; the perfidious use of loudspeakers – itself a war crime – playing the sounds of babies crying to lure people out into sniper fire; the sonic desecration of religious buildings, with mosque sound systems used by IOF soldiers to sing and to play EDM. Genocide has a soundtrack. Long part of imperial militaristic violence, such uses of sonic infrastructures constitute an intensification of what Nadera Shalhoub-Kevorkian (2017) calls the "occupation of the senses" under settler colonialism, which, as



part of genocidal violence, become an obliteration of the senses, as well as of land and of life itself.

This paper listens to this sonic obliteration, but it also listens to three forms of sonic resistance. It, first, tunes into the work of the Sonic Liberation Front and of collective radio projects sounding out the Palestinian struggle and linking it to forms of anticolonial resistance elsewhere. Second, it places these practices into technopolitical history, hearing how radio – or what Edwin Hill Jr (2013) calls "le poste colonial" – played a central role in anti/colonial soundscapes: at once a relay point of imperial structures of governance and subject formation, and a space for developing solidarities and emergent modes of resistance. And third, it recounts a collaborative "Mediterradio" project produced by the author with friends, gathering recordings from Alexandria, Nablus, Damascus, and Athens, and hearing Eastern Mediterranean relations as a feedback loop in which forms of struggle are in constant circulation.

In so doing, the paper seeks to hear how sonic infrastructures are turned into affective technopolitics of genocide, but also turned against them. And how radio wavelengths in particular – borrowing from Fanon – become a means of combatting colonial occupation, and "believing in the liberation" (1959: 97).

13 JUNE 2025 09.00 - 11.00

ROOM B2.11

ID 864 - Weaponising apparently harmless portable objects: Street level categorizations of trust in post 'Pagers Attack' Lebanon

Tobias B. Back, Forsvarsakademiet

Keywords: Trust-in-technology, hybrid warfare, mass-killings, ethnomethodology

Trust-in-technology typically emerges through routine usage and familiarity. However, the September 2024 'Pagers Attack' in Lebanon and Syria was a stark reminder that this apparent trustworthiness can be weaponised in hybrid warfare operations, as the mundane ubiquity of pagers and walkie-talkies transformed them into potent vectors for attack. According to the Protocol on Mines, Booby-Traps and Other Devices of the Convention on Certain Conventional Weapons, "It is prohibited to use booby-traps or other devices in the form of apparently harmless portable objects which are specifically designed and constructed to contain explosive material." Yet, just how such seeming harmlessness is produced and recognised in practice remains un-specified. Drawing on media interviews conducted in the immediate aftermath of the attacks, we analyse the local emergence, formation, and enactment of new social-moral practices of engaging with technology at street level. We ask: what ascriptions of trust or trustworthiness are explicated in and as civilians' own, locally occasioned technology-contexted activities? Through an ethnomethodological treatment of post-attack statements, we explore the affective impact of technological mass-killings. Our findings demonstrate how these impacts extended beyond the immediate targets, creating a spillover effect of distrust from generic to a range of personal electronic devices, and moreover how Lebanese society's members engaged in a collective re-assessment and categorisation of 'apparently harmless portable objects' to navigate this new, however momentary, landscape of trust and/in technology. Additionally, we explore how the attacks spurred new forms of technological resistance and solidarity as people developed alternative communication strategies to maintain connection and hope.



Panel 10. Searching for the Metaverse: Mapping and disentangling the imaginaries of VR-MR

Convenors:

Paolo Bory, Politecnico di Milano

Stefano Bory, Università di Napoli, Federico II

Gianluigi Negro, Università degli Studi di Siena

Keywords: Metaverse; Imaginaries; Narratives of VR/MR; History of VR/MR; Politics of VR/MR

After gaining momentum in 2021 with Mark Zuckerberg's letter announcing META, the idea of the metaverse as an interconnected and interoperable system has been replaced by different trends in technological development and market strategies involving multiple human and non-human actors, applications, sociotechnical cultures, and a vast array of potential uses and "misuses" of emerging Virtual and Mixed Reality technologies (VR/MR).

From the original vision of a large, interoperable metaverse, we are now witnessing a stage of interpretative flexibility in which the final goals and alleged uses of VR/MR are constantly challenged, discussed, and renegotiated by various actors at both global and national levels. For instance, the Chinese Three-Year Action Plan for the Innovative Development of the Metaverse Industry (2023-2025) and the EU Initiatives on Virtual Worlds sharply contrast with the original concept of the metaverse as portrayed by META, offering a concrete alternative imaginary of VR- MR. Meanwhile, META itself is shifting its narrative and strategy, broadening the types of devices and environments that future users might buy and inhabit.

Simultaneously, the proliferation of devices and projects developed by companies and institutional actors contributes to a new form of "balkanization" of VR-MR environments, creating a complex and fragmented archipelago of "reality media" that parallels the ongoing competition among companies, states, and relevant groups in the digital market.

In line with the diverse and non-networked dimensions of contemporary imaginaries of the metaverse, this panel aims to gather researchers from various disciplines and geographical areas to discuss the narratives, social practices, and emerging uses and misuses surrounding past and current VR/MR technologies. To disentangle the imaginaries of VR/MR, we invite submissions addressing (but not limited to) the following topics:

- The relationships between past and current narratives of VR-MR at global and national levels;
- Practices and design of usable spaces in VR-MR, focusing on the logic of interoperability and cooperation among tech-makers and users of VR-MR artefacts and environments;
- Recurring tropes, fiction/non-fiction narratives, and the sociotechnical construction of VR/MR applications, devices, and environments;
- Empirical and ethnographic research in situated VR/MR environments and communities;
- Struggles, conflicts, and or cooperation between the visions and expectations of corporations, companies, institutions, and user communities;
- VR/MR imaginaries/narratives and marginalized groups or communities;
- Forms of resistance to VR/MR as tools of surveillance and control.

In addition to standard academic presentations, we invite submissions presenting artistic and ongoing projects and representations of metaversal-VR/MR technologies, narratives, and futures, as well as examples and experiences of co-production of VR/MR technologies, applications, and environments involving diverse actors such as online communities, startups, grassroots movements, civic organisations, and NGOs.



ID 431 - Beyond definitions: How news media are approaching the metaverse

Laura Amigo, Università della Svizzera italiana

Nathalie Pignard-Cheynel, Université de Neuchâtel

Keywords: metaverse, news media, experimentations, digital journalism, gaming platforms

Although there is no comprehensive and generalized consensus on what the metaverse is (Park and Kim, 2022; Dolata & Schwabe, 2023), industry leaders and professionals initially expected it to be the next technological revolution (Harley, 2022). This aligns with a growing interest in virtual worlds, driven by the momentum of digital technology adoption during the confinements associated with the Covid-19 pandemic, which accelerated the acceptance of digital interactions (Dolata & Schwabe, 2023; Anderson & Ranie, 2022). In journalism, the metaverse was seen as a potential trend, creating new challenges and opportunities for news media to connect, entertain and inform audiences (Newman, 2022). Moreover, the news sector was being urged to adapt in light of this technological potentiality, prompting calls for empirical work on the implementation of metaverse-related technologies (Crespo Pereira et al., 2023; Dolata & Schwabe, 2023). Addressing this call, this paper is based on an exploratory study conducted for the Media Innovation Initiative in Switzerland. It examines how news organisations in Europe and abroad approach the so-called metaverse.

The study is based on an inventory of initiatives publicly framed as metaverse-related, specifically those taking place in persistent virtual spaces, launched by news media, journalist associations, and news agencies between 2020 and 2023 at the international level. Initiatives were identified through web and social media searches in multiple languages. We then developed an inductive typology based on their key characteristics. Additionally, we conducted nine semi-structured interviews with European experts and media professionals to explore the challenges and future prospects of news media concerning the metaverse. Interviews transcripts were analysed using inductive thematic analysis (Braun & Clarke, 2012).

Results show that media experimentations primarily take place on gaming platforms, which are seen as key drivers of metaverse development, and offer an opportunity to connect with (young) audiences. News organisations explore the social dimension of these platforms by creating virtual spaces and organizing events, with shared emotional experiences being considered key. To a lesser extent, news media explore immersive narrative formats, that allow audiences to experience journalistic content. However, news organisation's approach to the metaverse is characterized caution and a wait-and-see attitude. Furthermore, they move forward without always having a clearly defined strategy for investing in the metaverse. This mainly stems from uncertainties regarding the return on investment in these spaces, especially at a time of economic difficulties for the sector.

More broadly, these experiments renew with questions that have arisen with previous digital innovations, in particular social media, and for which news organisations are still looking for answers. This prudent investment through metaverse-related initiatives also suggests a will to develop greater autonomy from big tech companies. This study contributes to the broader discussion on the imaginaries of the metaverse, highlighting journalism's role in shaping and contesting its future development.



ID 281 - Making virtual environments for exposure therapy in the field of mental health.

Céline Borelle, *SENSE-Lab Orange*

Elsa Forner, *Ecole des hautes études en sciences sociales*

Keywords: virtual reality, exposure therapy, mental health, expertise, scripts

Virtual reality exposure therapy (VRET) has been developing in the field of mental health since the mid-1990s. Exposure is one of the techniques commonly used in cognitive and behavioural therapies to treat anxiety, phobias, addictions, or post-traumatic stress disorder. It consists in repeatedly and progressively placing a person in a problematic situation. This strategy is adopted to modify emotions through desensitization, re-equip thoughts by learning cognitive strategies and reconfigure behavioural reactions through training. TERV consists in transposing into the virtual realm situational scenarios usually carried out in vivo or in the imaginary world.

To support this transposition, it is necessary to bring together technical and medical expertise. More precisely, we are interested in this encounter as it takes place to produce virtual exposure "scripts" (Akrich, 1987). After identifying the different frameworks in which medical and technical expertise meet (person-border, interdisciplinary collaboration as part of an academic research project, market attachment of one expertise to the other as part of a start-up), we will focus on the case of CareVR, a start-up currently dominating the market for virtual reality applications in the service of mental health in France.

We rely on an observational survey (10 days in an addictology department of a Parisian hospital routinely using TERV) and interviews (N=32) with various players: CareVR employees; researchers in psychology, psychiatry, addictology or virtual reality who are or have been involved in an academic research project and/or in setting up a clinical study in partnership with CareVR, and some of whom have set up a start-up; clinicians who use a virtual reality solution marketed by CareVR, in hospital or private practice settings.

First, we will analyse the conditions under which virtual exposure scripts are produced by CareVR, which was created from technical expertise with the aim of adding medical expertise. We will then look at the content of the scripts, identifying areas of friction between expertises.

Several works emphasize that the design of virtual reality solutions gives rise to friction between different expertises on ways of representing reality (Brandt, 2013; Suchman, 2016; Messeri, 2024). In these works, one issue structures the tensions in a central way: how do actors think about virtual simulation, according to what criteria of resemblance to the real (verisimilitude of situations, graphic beauty) and with regard to what purposes (entertaining, making empathetic, training, caring)? We'd like to explore this question using the case of the making of virtual environments for exposure therapy.

We intend to unfold the questioning of actors around what needs to be simulated to stimulate what, by articulating the issues of realism, verisimilitude and effectiveness. We will attempt to identify three issues. 1. How does the question of the social enter into discussions between actors to produce plausible situations? 2. How is the importance of realism relativized in discussions between actors to design virtual environments? 3. How does the question of therapists' control over the virtual situation arise in the co-production of scripts?



12 JUNE 2025 09.00 - 11.00

SESSION 1

ROOM B2.11

ID 338 - Observing virtual worlds: ecosystems, cases and skills

Philip Boucher, European Commission

Keywords: virtual worlds, EU policy, digital skills and competences, industrial ecosystems

Virtual worlds (VWs) are poised to have a significant impact on their users' interactions with each other and the increasingly blended digital and physical spaces they inhabit. In 2023 The European Commission (EC) organised a European Citizens' Panel on VWs, and followed up with a communication – 'An EU initiative on Web 4.0 and VWs' – which sets out a strategy for shaping the development of VWs to reflect EU values, principles and fundamental rights. Meanwhile, several other EU digital policies such as the General Data Protection Regulation (GDPR), Digital Services Act (DSA) and Digital Markets Act (DMA) already apply to those aspects of VWs that fall under EU jurisdiction. The present project was recently launched with the aim of observing the emergence of VWs in this context. It has three key objectives. First, to analyse VW activities and their distribution across industrial ecosystems to better understand the positioning of European actors within the global picture. Second, to identify and systematically analyse a wide range of use cases of VWs to build a picture of technical, social, legal, ethics and sectoral issues that are faced. And third, to examine VWs through the lens of digital skills and competences, to understand which skills are in demand and how they correspond to training initiatives. The presentation will set out the latest findings.

12 JUNE 2025 09.00 - 11.00

SESSION 1

ROOM B2.11

ID 337 - Reading the Imaginary of the Metaverse through Chinese Academic Discourse

Tonio Savina, Università di Siena

Gianluigi Negro, Università di Siena

Paolo Bory, Politecnico di Milano

Keywords: Metaverse, China, Imaginary, Academic discourse

In 2023, the Chinese government formalized its willingness to develop the Metaverse, approving a Three-year Action Plan with the aim of encouraging private companies to invest and make China globally competitive in this sector. However, the Chinese government's interest in this new technology had already emerged in previous years, as local municipalities undertook virtual reality development projects, such as the Beijing Urban Sub-Center Metaverse Innovation Development Action Plan 2022–2024 (北京城市副中心元宇宙创新发展行动计划2022–2024年), to be implemented in the Tongzhou district, and the Shanghai Action Plan for Cultivating a New Track of 'Metaverse' 2022–2025 (上海市培育“元宇宙”新赛道行动方案2022–2025年).

Meanwhile, an intellectual debate was taking shape, involving scholars and experts eager to evaluate both the potential and risks associated with a Chinese Metaverse. This debate was supported by the establishment of Metaverse laboratories, such as the Qinghua University Metaverse Lab (清华大学元宇宙文化实验室) in Beijing and the Joint Research Institute of Metaverse and Virtual-Real Interaction (元宇宙与虚实交互联合研究院) at Fudan University in Shanghai, which aimed to organize events open to the business sector and produce scientific reports.

As a result, an academic discourse surrounding the Metaverse emerged, giving rise to an imaginary composed of an intricate web of symbols and references, both political and cultural. This imaginary is socially constructed around the complexity and diversity of opinions about the Metaverse, which, on the one hand, is portrayed as a potential driver of economic growth, a tool for bolstering national identity, and a means to shape global governance standards, while, on the other hand, it is seen as a potential threat to political stability, as it could act as a gateway to ideas and values that deviate from the "orthodox" framework promoted by the state.



To unveil such dual imaginary, this study relies on an analysis of Chinese academic literature, carrying on a qualitative analysis of the recurring tropes and idiomatic formulas within these texts. The study aims to uncover the defining features of the Chinese imaginary surrounding the Metaverse as reflected in narratives that follow a twofold trajectory: on the one hand, the Metaverse as a space of freedom and positive social evolution, with the potential to benefit Chinese society and strengthen the nation; on the other, the metaverse as a space of social regression, necessitating centralized control to prevent the ideological invasion of Western values.

12 JUNE 2025 09.00 - 11.00

SESSION 1

ROOM B2.11

ID 723 - MetaJust: Shaping Justice in the Metaverse

Michela Trinchese, Consiglio Nazionale delle Ricerche

Giampiero Lupo, Consiglio Nazionale delle Ricerche

Keywords: Justice, Metaverse, PA, Italy

The intersection of immersive reality, new digital devices, and emerging technologies in the Metaverse transforms economic, social, and legal systems, raising crucial questions about digital governance and justice. This paper presents insights from the MetaJust project, which investigates the role of technologies such as extended reality (XR), blockchain, and AI in proposing solutions for the digitalisation of public and justice services.

Within the framework of datafication (Dijck, 2019) and immersive technologies, the project analyses the social dynamics in the Metaverse and their impact on public and judicial services. It explores how integrating advanced technologies is redefining the boundaries between physical and digital realities, creating new forms of social experience and interaction. These processes will be examined through the implementation of a digitised public service based on Metaverse technology, specifically the development of a virtual court that replicates a real courtroom. This virtual court can be used for mock hearings, training legal professionals, and testing processes related to the "virtualisation" of public and judicial services.

Additionally, the study will explore the ethical and legal implications of using Metaverse technologies, focusing on digital data management, the influence of big tech companies, and the redefinition of digital identity through avatars. In line with theories on digital infrastructure (Planting et al., 2018) and algorithmic governance (Pasquale, 2015), this contribution opens a critical reflection on how the evolution of the Metaverse might impact existing inequalities and foster more horizontal relationships, offering a fresh perspective on the future of digital justice. This intervention invites a deep consideration of how legal and social systems can adapt and innovate to meet the challenges posed by these emerging technologies.



12 JUNE 2025 11.30 - 13.00 **SESSION 2** **ROOM B2.1.1**

ID 470 - VTubers: Streaming Identity and Performing Authenticity through the Avatar

Grae Bowen, New York University

Chris Hesselbein, Politecnico di Milano

Keywords: Live streaming, avatar, VTubing, self-representation, virtual performance

VTubers (also known as 'virtual YouTubers') are a widely popular category of live streamers, entertainers, and content creators on digital platforms who use virtual avatars rather than their physical appearances to represent themselves to online audiences. Real-time motion capture software and technology are used to capture the streamer's bodily movements and facial expressions, which are rendered onto two- or three-dimensional and often highly animated models or avatars. Originating in East Asia in the 2010s, generally on YouTube, VTubers have also become increasingly popular on other digital platforms, such as Twitch, X, Niconico, and Bilibili. Subsequently, specialized professional agencies and commercial partnerships as well as large fan communities have emerged around such virtual celebrities.

VTubers can be seen as an important predecessor and current competitor to the rise of AI-generated personae on digital platforms as well as AI chatbots. However, an important distinction is that VTubers are openly presented and widely understood to be more-or-less direct mediations of human(s), even if the human-behind-the-avatar may remain anonymous or indeed employ AI. Moreover, VTubers not only appear to succeed at emulating the sincerity and authenticity that is generally seen as driving the popularity of 'fleshtubers' (i.e., semi- or non-anonymized live streamers), but they do so through the creation of imaginative, playful, and even fantastical identities as well as entire life narratives. What is more, the large fandom communities that emerge around popular VTubers demonstrate a deep and multilayered complexity in terms of their understanding of authentic and inauthentic performances, knowledge of the streamer and the self as viewer, and expressions of identity and identification. As such, they present an interesting case for examining how sociality and machinic or virtual representation are currently co-constructed in digital spaces.

The use of virtual avatars, by human live streamers rather than AI, gives rise to several important questions, particularly about self-representation, performativity, and authenticity and their variable elaboration through digital practice, experimentation, and play. Although virtual avatars and the anonymity and forms of privacy they enable – not to mention the conscious construction of self-referential 'fictional' identities and 'life' details or 'lore' – might seem to preclude the establishment of authenticity, emotional engagement, and social connection with followers, the actual practices of VTubers and their popularity indicate quite the opposite. Indeed, this particular example of Internet culture offers one possible way of examining the emergence of networked communities and their respective conceptualisations of forms of (in)justice and 'the good'.

This paper analyses three specific case studies of prominent VTubers and their fandoms that, we argue, can be taken to represent an overview of the various socio-technical infrastructures, processes, issues, and negotiations found in the VTuber community as well as its sociality, complexity, and diversity. In doing so, we draw from literature in STS, media studies, and disability studies in order to discuss how these affective digital spaces and personae can foster as well as problematize identity formation and community making, and offer one potential route for virtual sociality.



12 JUNE 2025 11.30 - 13.00

SESSION 2

ROOM B2.1.1

ID 381 - Leveraging Metaverses for Cultural Heritage Dissemination: Exploring MR Technologies and Youth Media Practices

Julián De La Fuente Prieto, Universidad de Alcalá

Keywords: Metaverses, Cultural Heritage, Youth Practices, Emergent Design, Mixed Reality (MR)

This proposal explores the potential of metaverses for the dissemination of Cultural Heritage, leveraging emerging Mixed Reality (MR) technologies to create immersive and interactive experiences that bring cultural narratives and artifacts to life. The study examines the emergent design of metaverses, tracing their evolution from conception to current state (De la Fuente, 2022), and analyses platforms popular among young people, such as TikTok, Google Arts & Culture, Twitch, and Minecraft, to understand their interfaces and narrative dimensions. By focusing on the narrative potential of metaverses as metaleptic interfaces (Ryan, 2014), the research highlights how these environments can communicate actions between real and virtual worlds, enhancing the preservation and engagement with cultural heritage. The analysis includes the application of augmented reality filters on social media, the use of lifelogging technologies for real-time interaction, and the representation of cultural content in mirror worlds. Additionally, the study discusses the creation of virtual worlds in platforms like Minecraft, emphasizing the importance of user-generated content and community engagement. The research employs a qualitative methodology (Hammersley, 2022), combining emergent design and digital anthropology to analyse youth practices and the sociotechnical construction of MR environments. The findings suggest that metaverses offer a unique opportunity to blend real and virtual elements, creating a continuum that enhances the accessibility and interactivity of cultural heritage. By fostering collaboration and creativity, metaverses can serve as powerful tools for cultural dissemination, allowing diverse actors, including online communities, startups, and civic organisations, to co-produce and share cultural narratives. This proposal aims to contribute to the ongoing discourse on the role of MR in cultural heritage, providing a comprehensive analysis of the potential and limitations of these technologies in creating inclusive and engaging cultural experiences.

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12 JUNE 2025 11.30 - 13.00

SESSION 2

ROOM B2.1.1

ID 293 - Worlding the Metaverse: A Comparative Study of Metaverse Creators and Users in Italy

Fabio Iapaolo, Politecnico di Milano

Marcus Pingitore, Università di Napoli Federico II

Keywords: Worlding, Metaverse, Italy, Creators, Users

In a recent promotional video, Mark Zuckerberg describes the metaverse as "an embodied internet where you're in the experience, not just looking at it". Framed this way, the Metaverse (with a capital M) emerges not merely as a digital extension of social life but as an explicit act of world-making—an engineered space that, in Zuckerberg's terms, requires its own "norm setting" to govern interaction. While Meta's ambition for a universal metaverse reflects aspirations of planetary scope, its realisation remains uncertain, hindered by cultural and technical bottlenecks. Yet, despite premature declarations of its demise, the metaverse is far from dead. What we are witnessing, instead, is the proliferation of metaverses in the plural—a constellation of localised experiments that, rather than converging into a singular paradigm, diverge in form, purpose, and scale.



Against the grain of Meta's singularising vision, our study shifts focus to the Italian context, where these synthetic worlds are actively reconfigured through the situated practices, discourses, and aspirations of local users and creators. Drawing on empirical material—including in-depth interviews and participatory observations—this research expands existing critical scholarship, which has largely focused on dominant actors such as Apple and Meta. Through a comparative, case-based approach, we examine the frictions, overlaps, and divergences that emerge as Italian users and creators co-produce metaverses on their own terms, shaping a fragmented landscape where competing models of digital sociality take form. In doing so, they do not merely engage with metaverses as predefined technological constructs but reimagine the very terms of their existence—as material and speculative spaces that invite all sorts of socio-political projections.

12 JUNE 2025 11.30 - 13.00**SESSION 2****ROOM B2.11**

ID 658 - Demonstrating “The Metaverse”? A Multi-sited Video Ethnography

Philippe Sormani, Zürcher Hochschule der Künste

Alexandra Pittiglio, Ecole Polytechnique Fédérale de Lausanne

Keywords: Metaverse, mixed reality, video demonstrations, technology testing, social plausibility

What is “The Metaverse”? In his recent book, and after two chapters of introductory qualifications, technology journalist Michael Ball defines it as follows: “Here, then, is what I mean when I write about the the Metaverse: ‘A massively scaled and interoperable network of real-time rendered 3D virtual worlds that can be experienced synchronously and persistently by an effectively unlimited number of users with an individual sense of presence, and with continuity of data, such as identity, history, entitlements, objects, communications, and payments’” (Ball 2022:29; emphasis in original). In turn, this paper draws on a multi-sited video ethnography of how different teams in a range of interdisciplinary projects – spanning mixed reality-performance research, critical disability-interface testing, and augmented reality-construction robotics – engage in and position their technological demonstrations with respect to “the metaverse,” respectively its all-encompassing definition (see also Meta 2021). In particular, the paper describes, compares, and reflects on how the teams in question use video demonstrations to make the case for the prototypical technologies they develop, as “metaverse” contributions and/or critiques thereof, and how these video demonstrations enhance the social plausibility of the shown technologies – in short, as “diegetic prototypes” (Kirby 2010). Taken together, the investigated cases bring to bear the renewed STS interest in technology testing and demonstrating (e.g., Marres & Stark 2020; Rosental 2021; Sormani 2023) on current research in “virtual reality” at large (Carter & Egliston 2024), while probing the “sociotechnical imaginaries” (Kim & Jasanoff 2015) that such research enables and, at times, challenges.



13 JUNE 2025 09.00 - 11.00

ROOM B2.2.15

Panel 11. Critical Hype Studies: Towards a Collaborative and Unified Approach

Convenors:

Vassilis Galanos, University of Stirling

Andreu Belsunces, Universitat Oberta de Catalunya

Keywords: expectations, history of technology, hype studies, imaginaries, interdisciplinarity, technology assessment

The field of hype studies is ever-growing, but what remains a challenge is its absence of a unified approach. During last year's 45/EASST conference, we called to leverage collective experiences, to cocreatively build foundational structures and establish an STS-rooted, but outer-disciplinary, field of critical hype studies.

This panel will target a twofold aim: (1) firstly, we want present our current progress as a collective of researchers focusing on critical hype studies as part of our introductory presentation; (2) secondly, we aim to invite new contributions explore dynamic transformations, implications, and theoretical underpinnings of hype.

We, thus, invite researchers and scholars interested in problematising the complexities of hype as a multi-dimensional phenomenon that operates at sociotechnical, epistemic, psychological, transmedial, and environmental levels. We are particularly interested in insights into the intentional production of hype as a media and persuasion strategy or the unintentional emergence of hype driven by, or influencing, material, political and economic factors, as well as psychological, affective, and embodied ones. We welcome contributions that are not limited in the examination of the performative capacities of hype but we are also intrigued by its causal and historical origins, its stabilisation, management and abandonment.

We are equally interested in case studies that chart hype narratives: abandoned hypes, troughs of disillusionment, and cases of incremental, unhyped progress of technology. We wish to explore and problematise deterministic narratives about hype cycles, the social and psychological processes engendering hype, and the consequent effects on both innovation and public perception.

Further, and in alignment with the theme of STS Italia 2025, we are committed to explore aspects of hype that have been revealed as nascent tendencies during our research, such as responsible hype or the mobilisation of hype for socially beneficial purposes. We are therefore interested in treatments of hype as boundary object, not only as a force of alienation, but also as motivational force, with heightened focus on the empowerment of marginalised social groups while attentive to capitalist processes of co-optation and appropriation of critical voices for profitable gain. In this regard, we are interested in investigations regarding responsible hype or hype assessment.

Scholars with a background in STS and innovation studies, particularly those engaged in studies of expectations, expertise and experience, fictions, deep transitions, and imaginaries, are especially invited. Contributions from media studies, design studies, philosophy, cybernetics, phenomenology, and psychoanalysis are also highly welcome, as we weave together multiple threads to formulate a comprehensive understanding of hype phenomena.



13 JUNE 2025 09.00 - 11.00

ROOM B2.2.15

ID 136 - "Strong Opinions, Weakly Held": Hype as a part of Speculative Finance in Silicon Valley

Michelle Venetucci, Yale University

Keywords: Ideology, Technology Studies, Silicon Valley, Venture Capital, Hype

Critical analyses of Silicon Valley often focus on the problem of ideology, deconstructing techno-utopian claims in an effort to address the harmful outcomes of corporate technology projects. As this focus on ideology can locate the problem within individuals and their beliefs, this paper instead directs analytic attention to the structural conditions through which these publicly circulating narratives are produced, exploring how centering analysis around institutionalized contexts can change our understanding of what drives industry behaviours. Using empirical examples from ethnographic research conducted in Silicon Valley between 2022 and 2024, I show how hyped claims are cultivated as a way to take action within the uncertainty of venture capital's speculative financial models, representing weakly held beliefs that are subject to change in the face of shifting investor interest and market conditions. Given that the companies constituting "Big Tech" were all structured by venture capital from early stages, this article starts with two seed-stage startups in the crypto and AI spaces, showing how founders frequently changed their narrative claims as they searched for a fit between their product strategy and a growth-oriented market that fits into shifting investor hype cycles. I then follow a third startup as they raised what is called a Series A round of funding, showing how investors made financial decisions based on a revenue chart that indicated product-market fit in a growth-oriented market. These examples demonstrate how industry actors at every level pivot around capital in order to survive, directed by structural conditions of speculative finance rather than ideologies about techno-utopian futures. For scholars who may hope to positively affect society with critical analysis, this article highlights the importance of engaging with the constraints felt by so-called powerful actors in untangling how power structures continue to be reproduced in the face of critical inquiry.

13 JUNE 2025 09.00 - 11.00

ROOM B2.2.15

ID 550 - Beyond anti-intellectual bullshit: Can we do hype responsibly?

Danielle Shanley, Universiteit Maastricht

Darian Meacham, Universiteit Maastricht

Keywords: hype, bullshit, anti-intellectualism, responsible innovation, technology ethics

Hype isn't just the steam that drives technological innovation; it's also the fog that clouds our collective judgment. From blockchain evangelists to AI utopians, the machinery of tech discourse runs on a steady supply of exaggerated claims, vague promises, and selective truths. Or, as Harry Frankfurt would call it: bullshit. That is to say, talk that prioritizes persuasion over accuracy. In an era of increasing anti-intellectualism, where scepticism of expertise is worn as a badge of honour and critical voices are dismissed as obstacles to progress, technological hype is not merely tolerated, but widely embraced. In the first part of this paper, we interrogate the uneasy alliance between hype, bullshit, and anti-intellectualism, tracing how this relationship shapes the stories we tell about innovation—and what those stories leave out. We explain how when taken together, these forces create a perfect storm, where new technologies are oversold, underexamined, and misunderstood by the very publics they claim to serve. In examining the dynamics between these forces, we reveal how tech hype distorts public understanding of technological capabilities and consequences by 1) using oversimplified metaphors and analogies (e.g., "AI as your personal assistant") that obscure the reality of technical limitations, ethical risks, or systemic impacts; 2) marketing hyped technologies as solutions to complex social, economic, or political problems, while sidelining critical discussions about feasibility, ethical concerns, or unintended consequences; 3) exacerbating existing inequalities, while downplaying expert critiques that highlight these issues, and finally; 4) co-opting the lan-



guage and symbols of intellectual authority (e.g., scientific terminology) in order to gain legitimacy, while simultaneously promoting a distrust of expertise through the rejection of critical analysis.

Drawing upon our experience as practitioners of technology ethics, working in and around responsible innovation, we end by reflecting upon whether such a thing as responsible hype could ever be possible. We reflect upon the challenges involved in doing responsible innovation, from trying to weave together different interdisciplinary perspectives, to championing transparency and fostering public engagement. Despite these challenges, we see imagining a framework for responsible hype as an aspirational exercise that enables us to consider how we might foster innovation, without losing sight of its limits, risks, and realities.

13 JUNE 2025 09.00 - 11.00

ROOM B2.2.15

ID 590 - The Hype of Risk: Unpacking the Social Construction of Cybersecurity in Norway

Olga Usachova, Norges teknisk-naturvitenskapelige universitet

Keywords: cybersecurity, Norway, governance, risk

Cybersecurity has emerged as a dominant concern in contemporary Norwegian society, shaped by a complex interplay of the current geopolitical situation, technological developments, policy initiatives, and media narratives. The increasing securitization of digital infrastructure has been driven by a heightened focus on cyber threats from state and non-state actors, particularly in light of Norway's strategic role in NATO and its dependence on digitalized public and private services. This paper explores how cybersecurity is framed within Norwegian public discourse, focusing on the role of hype in shaping risk perceptions and governance strategies.

Based on a critical discourse analysis of governmental reports, including Risiko (NSM, 2014-2024) and national cybersecurity strategies, this study examines how cybersecurity threats are constructed through political rhetoric, expert claims, and media representations. Norway's cybersecurity discourse has been increasingly characterized by references to "hybrid threats" and "cyber warfare," often amplifying uncertainties about digital vulnerabilities. The analysis of key policy documents, expert reports, and public debates traces how uncertainty and fear have been mobilized over the last decade to justify specific interventions in cybersecurity governance.

This paper also investigates the implications of cybersecurity hype, including its effects on resource allocation and regulatory frameworks. The growing alignment of Norway's cybersecurity policies with international security concerns, particularly those of the EU and NATO, has led to increased public and private sector spending on cybersecurity measures, while simultaneously shaping narratives about national resilience and technological sovereignty (Cavelty, 2018). By situating cybersecurity within broader Science and Technology Studies (STS) discussions on sociotechnical imaginaries and the politics of expertise, this study critically analyses perceived threats in Norway's digital landscape.

Through this analysis, the paper contributes to ongoing debates on cybersecurity governance, emphasizing the need for a more reflexive and evidence-based approach to digital security policy in Norway.

References:

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13 JUNE 2025 09.00 - 11.00**ROOM B2.2.15**

ID 610 - Hype at work: Exploring the role of technological expectations in the reshaping of work

Robbie James, University of Bristol

Keywords: Expectations, Future of Work, Sociodigital futures, Fourth Industrial Revolution

Some of the most hyped technologies are those that are claimed to boost work productivity. The widespread notion of the fourth industrial revolution, for example, tells us that the future of work is one in which technologies like AI will augment the capabilities of workers, and the most successful firms will be those that can tap the potential of this coming era. For such imagined futures to take performative effect, a range of actors will need to be mobilised towards their realisation; not just investors, technologists and policymakers but more diffuse groups like businesses and employees. A simple analytic model of the coordinating power of expectations might take these latter groups as the 'societal level', for whom the question is one of acceptance and adoption of the technologies that have already emerged as successful. However, could it be argued that such an analytic division reproduces a weak form of technological determinism? What are the opportunities to investigate the reshaping of work in a way that challenges the dominant model of stepping-stone inventions which simply ripple through society? How can critical hype research expand who is described as an active agent and demystify the power relations—material and discursive—enacted in processes of sociotechnical change? In this presentation, I will explore what it means to empirically investigate the role of expectations with a 'flat' approach across multiple sites in and around work. I will expand on the analytic and methodological approaches that might be useful to critical hype scholars in tracing the performative role of expectations in the transformation of work processes.

13 JUNE 2025 09.00 - 11.00**ROOM B2.2.15**

ID 788 - Spacerelated Worlds of Labour within Socio-technical Change

Teresa Hoefgen, Fachhochschule Frankfurt am Main

Keywords: hype studies, new work, office real estate, socio-technical change, decentralization, facility management

The discourse on "New Work" has gained significant traction in academic, managerial, and public debates, particularly during the COVID-19 pandemic. The pandemic acted as a catalyst, accelerating existing trends toward mobile and decentralized work, often framed as an inevitable and desirable evolution of labour practices in accordance with the new spirit of capitalism. The space-related transformation was accompanied by speculative expectations regarding the future of the office, with imaginaries of flexible, technology-driven, and worker-centric environments shaping investment and regulatory decisions. However, recent data from the German real estate market suggest a dramatic downturn: by early 2024, transaction volumes in the office sector had plummeted by approximately 76%, with rising vacancy rates indicating structural disruptions rather than a smooth transition to "better" work environments.

This paper critically examines the "New Work" phenomenon through the lens of hype studies, interrogating its socio-economic consequences for the office building sector. Was the widespread adoption of remote and hybrid work modes truly a revolutionary shift, or did it contribute to a speculative bubble driven by media and managerial narratives? Drawing on Ulrich Dolata's framework of socio-technical fields and insights from spatial sociology, this study explores how the neo-material and regulatory landscapes of office work have been reshaped by the interplay of digitalization, building technologies, and shifting labour imaginaries.

Empirically, the study builds on auto-ethnographic explorations of decentralized office environments, illustrated through a potential case study of a publicly accessible, privately owned office complex. Using Schütz's concept of *Lebenswelt* to understand the world of labour, I argue for shifting the research fo-



cus toward examining interaction patterns between facility management and office space users rather than remain in analyses of operational organisation groups. In doing so, this research seeks to uncover how health, productivity, and infrastructural governance are negotiated in light of ongoing socio-technical changes. This perspective contributes to the broader discussion on the performative power of hype in shaping expectations, policies, and material investments in work environments.

The contribution will engage with key themes of Critical Hype Studies, and will discuss:

- An office on my own: The performativity of hype – How did the "New Work" narrative construct expectations and shape economic decisions in the office sector?
- The measuring of nothing: Abandoned hypes and disillusionment – Is the downturn in office real estate a symptom of a burst bubble, and what remains of the hype once initial enthusiasm fades?
- My habits and my routines: Socio-technical transformations beyond the hype – How do shifts in infrastructure, technology, and workplace governance persist beyond speculative expectations?
- Revisioning regulation patterns: The intersection of hype, labour, and space – In what ways does the regulation of health and productivity adapt (or fail to adapt) to decentralized office environments?
- Finding a way out: Responsible hype and its co-optation – Can narratives around "good" workspaces be mobilized for equitable and sustainable transformations, or do they primarily serve market-driven logics?

By situating "New Work" within a critical hype framework, this study not only historicizes and contextualizes the phenomenon but also offers insights into its neo-material and regulatory consequences in the built environment.

13 JUNE 2025 09.00 - 11.00

ROOM B2.2.15

ID 836 - Not just a ride on the hype train: how machine learning researchers and practitioners navigate AI hype

Oksana Dorofeeva, Aarhus Universitet

Keywords: hype studies, AI/ML, symbolic boundaries, interpretive approaches

The emerging field of hype studies signified hype set out to comprehend hype as a complex phenomenon that unfolds through a multitude of practices and interactions. This presentation contributes to this line of research by considering the interpretive dimension of hype and the implications of actors' conceiving of phenomena around them as hyped.

Developments in machine learning since the 2010s have fuelled the latest 'AI summer', with artificial intelligence being as hyped as ever. Based on interviews with 43 academic and industry professionals who train ML models, I explore how technology hype is navigated by those working with the technology in question. My interlocutors are aware of the current valorisation of AI and AI/ML research; many of them also use words like 'hype' and 'buzzword' to describe the field. For them, hype can have positive or negative effects, but the hype itself is not necessarily problematic. However, boundaries can be drawn against those who 'overhype' AI and ML/AI research, both inside and outside the field. This pattern of boundary drawing suggests that it is anchored in a latent 'true' value that ML specialists ascribe to AI/ML and to which they implicitly compare (over)hyped representations of AI/ML.

Moreover, I focus on the ML researchers' and practitioners' relationship with the buzz(word) 'AI' to investigate the role buzzwords play in the self-identity and self-presentation of professionals in proximity to a hyped technology. The narratives of my interviewees present a coexistence of utilising the term and problematising it, a dynamic that is intertwined with their recognition of AI as a buzzword and the hype around the technology it signifies. The use of the term 'AI' is linked to the pragmatic use of its affordances, and I explore what ML specialists think AI can 'do' for them in different contexts. At the same time, ML specialists do not fully de-problematised 'AI' – either as the new definition of their work or as a useful but empty



signifier – as reflected in the boundary work they do that invokes the notion.

My analysis of the ML specialists' hype narratives reveals the complexity of actors' relationships with AI hype, which goes beyond the binaries of hyping and buying into the hype, hyping up or hyping down. Moreover, this presentation highlights the interplay between the ways in which ML researchers and practitioners make sense of AI hype dynamics and the other meanings ascribed to their work. On a theoretical level, this analysis contributes to the formation of a synergistic conceptual framework in hype studies by considering the role buzzwords can play within hype.

13 JUNE 2025 09.00 - 11.00

ROOM B2.2.15

ID 850 - Looking into AI Hypes: AI Professionals' Reflections on Hype & Problematizing the Hype Abundance

Jason Kalathas, University College Dublin

Keywords: AI Hype, AI/ML Professionals, Hypecycles, Politics of Technology

From the early-day Internet, social media networking sites & digital platforms, up to cryptocurrencies and lately Artificial Intelligence (AI), hype cycles abound today and constitute central cultural, social, and economic devices that steer towards potential directions of emerging technologies. Interestingly, hype cycles seem to occur by a plethora of social actors that act with different and degrees of power: leading figures of tech companies announcing the newest products in corporate events, media and journalistic coverages exalting the ingenuity and effectiveness of different chatbots, or social media influencers reviewing novel products and devices.

In all their non-symmetrical and differing iterations, hype discourse aims to meet a dual purpose: first, the creation of an enchanting portrayal, the initial description of what the most recent tech novelty is or will be like; in a sense, it seems to operate as expert voices talking from the front and future of cutting-edge technologies, sharing insider insights with the publics. Second, hype discourse actively seeks to catch the public's eye, kickstart discussions and increase engagement with the hyped object. Although acting within different socio-technical, economical, cultural contexts, hype cycles seem to perform by extolling tech innovation as a promise realising the optimisation and amelioration of the quality of life, an enticing opportunity for economic investment and wealth growth, or more connection that equals more pleasure on a psychological level. An interesting and possibly overwhelming amount of hyped discourse is ample today, with different hype actors attempting to out-perform their competitors and out-give hype content in an arms race to capture the public attention.

This proposal seeks to contribute to this panel in two ways: First, it seeks to offer empirical findings related to critical hype studies by focusing on the contemporary hypes around AI chatbots and competing language models. Drawing from research interviews with AI/ML professionals in the tech industry and academia from AI-hubs in different European cities, this contribution aims to shed light on if and in what ways hype cycles around the evolution of AI permeate the expert professionals that contribute to their development. In this regard, it aims to connect how workers consume and perceive hype content, if and how they critically assess it, and how they reflect on it.

Second, this proposal speculates that there is an abundance of hype around AI products and aims to interrogate this over-accumulation of hype phenomena and critically problematise their occurrence. Why so much hype? What are the cultural, social, psychological, and economic objectives of hype discourses? And what does this over-performance and over-supply of hype phenomena signify? Is this a hype arms race, with competitors jolting to capture more space in a rivalrous attention economy? Or is this a hype excess, operating as a symbolic reaffirmation of power, as if participating in a modern Potlach ceremony?

Reflecting on these, this contribution espouses a unifying and critical approach, seeking to highlight the interplay of hype cycles with the politics of technology, the political economy of technology and corporate business models, as well as with the construction of user needs.



Panel 12. Coloniality, Technoscience, and the Margins: Spatial and Conceptual Topologies of Power

Convenors:

Alessandro Mongili, Università di Padova

Amit Prasad, Georgia Tech

Nil Uzun, Rheinisch-Westfälische Technische Hochschule Aachen

Alexandra Hofmänner, Universität Basel

Keywords: Coloniality, Margins, Technoscience, Topology

This panel examines the intersections of coloniality, technoscience, and the margins, conceptualizing margins not only as spatial peripheries but also as sites of epistemic exclusion. Margins, both geographical and conceptual, are constituted through historical and ongoing processes of power that are often entangled with coloniality but remain hidden within the normative order of institutions as well as disciplines. Technoscience plays a central role in shaping these dynamics, both in disrupting and in rearticulating the marginalization, particularly those pertaining to coloniality. The panel emphasizes the complicity of different "centers" in making and remaking of margins, while also recognizing the dynamic nature of margins as spaces of negotiation and resistance.

Coloniality refers to the legacies of colonialism in shaping global power relations, knowledge production, and technoscientific practices. In the context of technoscience, this framework highlights how dominant knowledge systems, with roots in colonial and imperial history, marginalize epistemologies that disrupt the dominant discourses. These margins are produced through technoscientific practices that define what counts as valid knowledge or expertise (including the norms of knowledge production), reinforcing hierarchies and marginalization of certain knowledges and practices. Margins are active spaces of hybridization where a range of actors engage with, resist, and transform dominant technoscientific practices, often creating alternative epistemologies and practices. Topology, in this context, refers to the fluid, uneven, and shifting nature of power relations, where margins and centers are not fixed locations but their boundaries are contested, constantly renegotiated, and reshaped by technoscientific practices. Margins are not simply distant or subordinate spaces; they are integral to the constitution of the center itself, as the center defines its dominance in relation to the margins.

This panel will explore how technoscience has contributed to the making of margins. From colonial-era scientific practices that excluded indigenous knowledge to contemporary technologies like data governance that perpetuate inequalities, technoscience continues to reproduce spatial and conceptual margins. The panel will also explore how marginalized communities actively engage with technoscientific knowledge, contesting the center's hegemony and creating new forms of knowledge. By reflecting on the conceptual toolkit of STS, the panel will also explore the issue of incommensurability of knowledge systems and the difficulties of hybridizing dominant and marginalized technoscientific practices. More broadly, this panel invites critical reflection on the complicity of dominant technoscientific frameworks in producing and maintaining margins. At the same time, it highlights the agency of the marginalized in resisting these impositions, creating a dynamic, albeit hierarchical and exclusionary, interplay between centers and margins.

Key Questions:

- How does technoscience contribute to the construction of spatial and conceptual center(s) and margins?
- What role does coloniality play in shaping the relationship between the center(s) and the margins?
- How can a topological approach help us understand the constitution of margins and the possibilities for epistemic resistance, while highlighting epistemic violence and erasures?

By addressing these questions, the panel aims to deepen our understanding of how colonial power structures and technoscientific practices intersect in the production of center(s) and margins, both spatial and conceptual.



12 JUNE 2025 11.30 - 13.00

SESSION 1

ROOM B2.1.16

ID 245 - Agency on the Peripheries: Case Studies of Grassroots Innovation in the Global South

Regina Sipos, Technische Universität München

Keywords: grassroots innovation, epistemic contributions, postcolonial computing

This paper addresses three critical research gaps related to grassroots innovation, with a specific focus on how marginalized communities actively engage with technoscientific knowledge, challenge dominant paradigms, and create new forms of knowledge. It illustrates findings through five brief ethnographic vignettes that explore the activities of Indonesian grassroots innovator collectives.

The first research gap lies in the lack of attention given to the diversity, situatedness, and heterogeneity of grassroots communities. Unlike large-scale movements, grassroots initiatives are often small-scale, localized, and context-specific. These nuances are frequently overlooked in academic research, which tends to prioritize uniform, large-scale solutions (e.g., Smith et al., 2017). Within these spaces, practitioners utilize tools and methods to address localized challenges, producing innovations that reflect the diversity of their contexts (Lindtner & Lin, 2017). The second gap concerns the invisibility of intrinsic design processes within grassroots innovation. While innovative capabilities increasingly shift toward the periphery, the design processes underpinning grassroots innovation often remain hidden. This is particularly relevant in the Global South, where grassroots approaches often operate "beneath the radar" of academia and industry, producing valuable but underexplored insights (Smith et al., 2017). The third research gap involves the exclusion of non-canonical knowledge from the academic sphere, particularly critical and socio-technical knowledge that challenges dominant paradigms. Marginalized communities often produce knowledge that reveals uncomfortable truths about societal injustices and structural inequalities. This paper seeks to document and integrate these critical knowledge practices into the academic discourse, highlighting the contributions of grassroots innovators in the Global South. By uncovering knowledge that would not exist without the practices of marginalized groups, this paper aims to address epistemic exclusions and expand the boundaries of what is considered valuable knowledge.

These three research gaps will be explored through the lens of postcolonial computing. The paper will present five ethnographic vignettes, which are used to study how social change arises from conflict, using a description of a social situation (vignette), followed by analysis and theorization (Hohn et al. 2020). The vignettes illustrate the plurality of relevant grassroots approaches and the many sociotechnical issues collectives attempt to solve in Indonesia: a decolonial mapping project, the revival of vernacular technologies to create belonging, the combination of rapid prototyping tools and traditional crafts, biohacking for safe drinking water and a postcolonial-collaborative hackathon during the pandemic. These vignettes thus show how people "on the periphery", marginalized by hegemonic infrastructures (Ehn et al. 2014), collectively create and build upon locally relevant knowledge while actively engaging with technology.

12 JUNE 2025 11.30 - 13.00

SESSION 1

ROOM B2.1.16

ID 745 - From Kitchen to Laboratory: the Socio-Technical Transformations of Pizza

Manuel Battigaglia, Università degli Studi di Padova

Keywords: Modernization, Standardization, Actor-Network-Theory (ANT), Food Studies

The academic discourse on culinary modernization is often polarized between two opposing viewpoints: one emphasizing social dynamics and the other prioritizing material factors. This dichotomous framing limits a holistic understanding of the ongoing transformations in culinary practices and other related domains. Consequently, modernization is either viewed as the product of cultural choices made by a select group of individuals or, within a technologically deterministic framework, as an inevitable outcome of



technological advancement beyond human control.

This study employs a Science and Technology Studies (STS) perspective, drawing particularly on Actor-Network Theory (ANT) and Star's ecological approach, to reintegrate agency across human and non-human actors. By doing so, it explores how the interaction between social and material elements shapes the emergence and perpetuation of dominant knowledge systems while marginalizing alternative culinary practices and expertise. Through an analysis of the interplay between social and technological dimensions in food preparation, this research critically examines both the content and the implications of culinary modernization.

Focusing on the sociotechnical differences between traditional and modern approaches to cooking, this study uses pizza-making as a case study. Thirteen semi-structured interviews were conducted with pizza makers—who self-identified as either traditionalists or contemporary practitioners—as well as with a flour producer in Crotone, a city where pizzerias play a significant role both economically and gastronomically. Data collection and analysis followed the methodological principles of grounded theory, allowing participants to articulate their own conceptual frameworks rather than imposing preconceived theoretical models.

The findings reveal that traditional pizza makers primarily rely on tacit knowledge and artisanal techniques transmitted through generations, whereas their contemporary counterparts employ academically informed knowledge and intellectualized practices. These differences are particularly evident in the use of recipes, which contribute to distinct economic models of repetition and definitional frameworks. Traditional recipes are predominantly sensory-driven and adaptable, while contemporary recipes exhibit a high degree of textual inscription and standardization. Traditional pizzas exhibit plurality, as their production process allows for variation, resulting in a broad spectrum of possible outcomes. In contrast, modern pizzas adhere to a singular form, produced through standardized processes that ensure uniformity across iterations.

This study underscores that the modernization of culinary practices is neither solely directed by cultural elites nor dictated exclusively by technological imperatives. Instead, it emerges from intricate sociomaterial transformations. The culinary field exemplifies how modernization constitutes a complex sociotechnical assemblage that increasingly prioritizes standardized labour processes. While such standardization enhances global scalability and consistency, it also entails a reduction in diversity and flexibility. A critical understanding of these standardization processes is essential to safeguarding the richness of sociomaterial culinary practices, which face the risk of homogenization under the expansion of so-called modern cuisine.

12 JUNE 2025 11.30 - 13.00

SESSION 1

ROOM B2.1.16

ID 416 - Weaving MAPS: historiographical perspectives on writing postcolonial histories of the colonial hospital

Joseph Aaron Joe, Johns Hopkins University

Keywords: colonial hospitals, history and architecture, postcolonial technoscience, anthropology and affect, Philippines and Southeast Asia

In this historiographic essay, I explore how we can write about the postcolonial history of colonial hospitals. To approach this question, I use the Philippine General Hospital (PGH) as a starting point to situate the 'colonial hospital' in the broader and often separate historiographies of the 'modern hospital' and of the postcolonial history of science, technology, and medicine in Southeast Asia. Established by the American colonial government in 1907, the PGH is a pavilion-style, public general hospital that operates in tandem with a laboratory and a medical school. Currently, the PGH is regarded as the largest modern government tertiary hospital in the Philippines. Framing hospitals as technoscientific assemblages, this colonial medical infrastructure is a critical site of knowledge production, subject formation, and socio-material relations among colonized, colonizing, and postcolonial actors. Histories of the 'modern hospital' have



largely focused on management and less on the changing architecture and social processes that shape it as a built environment. While the current historical corpus holds valuable discourse on the complex and reciprocal influence of medical and architectural ideas on hospital design, these histories are concentrated on the 'Western centers' of innovative design and often employ Whiggish narratives of medicine and architecture's mutual advancement. Emerging lenses of post-colonialism and affect theory, however, allow us to interrogate hospital institutions as artefacts of Western medicine, projects of modernity, and affective infrastructures of colonial sentiment thrust on the 'peripheral colonies'. The second historiographic stream traces the formation of more critical and agential postcolonial histories of science, technology, and medicine in Southeast Asia.

While critical studies of hospitals have produced some compelling analyses of colonial governance through biopolitical regimes, colonial hospitals persist as fertile ground for revealing 'autonomous' histories and new subjectivities in Southeast Asia's postcolonial reconfigurations. Looking into the postcolonial history of hospitals, particularly through the lens of architecture and space, may reveal alternative historical narratives of scientific nationalism and medical syncretism. Constructive discourse on epistemological and methodological approaches to STS in the region also provide potential directions for writing postcolonial histories of colonial hospitals, suggesting more engagement with anthropological methods. By weaving the two historiographic streams, I carve a methodological path that crosses history and ethnography, while proposing an analytical lens that combines material culture, affect, and postcolonial studies, which I call MAPS. Entwining historical analyses of architecture with ethnographic approaches to affective space may uncover histories rendered invisible in archives that reproduce monolithic narratives of the hospital's role in Western colonial projects of modernity and in postcolonial nation-building in Southeast Asia.

12 JUNE 2025 11.30 - 13.00

SESSION 1

ROOM B2.1.16

ID 344 - Assessing ML Travelling Models

Diletta Huyskes, Università degli Studi di Milano Statale

Maria Sapignoli, Università degli Studi di Milano Statale

Giuseppe Primiero, Università degli Studi di Milano Statale

Keywords: machine learning, technoscience, decoloniality, technological translation, socio-technical systems

The design and deployment of artificial intelligence (AI) are based on Western implicit cultural assumptions and worldviews which perpetuate solutionist, one-size-fits-all approaches and systems of oppression when uncritically applied across contexts (Birhane 2020; Gabriel 2020; Milan & Treré 2024; Østerskov Gammelgaard et al. 2023). While these systems often reflect universalistic ambitions and are celebrated for their ability to generalize, AI actually operates based on the peculiarities of data and models. Machine learning (ML) systems generalize by discovering correlations that depend heavily on the context described by the data they have learned from, and the purpose and design choices under which the models are constructed. These values and assumptions, rooted in the socio-political, economic, and cultural contexts of their creators, fundamentally shape the functionalities and decision-making processes in AI systems (Grey & Witt 2021; Suresh 2021).

When these systems are transferred across geographies and repurposed for tasks without critical adaptation, they risk reinforcing global inequities, erasing local specificities, and perpetuating punitive logics and hegemonic norms. This paper discusses how cultural values, positionality, and socio-cultural contexts deeply influence technological systems, highlighting the risks of transferring AI models across tasks and geographies without meaningful "translation" (Lu & Qiu 2023). Building on a socio-technical approach, we apply the concept of travelling technologies (cfr. Rottemburg 2002) to machine learning (ML), proposing a framework for designing models that are aligned with both context and purpose.

Central for the framework are the concepts of "context" as a dynamic set of situational conditions that are created in a specific socio-cultural environment (Bronfenbrenner 2009); and "purpose" as the intended and unintended aims of a system and the broader project in which it is embedded. Through these two axes, we



develop a framework that delineates four scenarios of technological travel, distinguishing them based on how contexts and tasks are transposed across sites, and which technical elements of the ontology of ML systems (Manganini, Primiero, Termine 2024) they imply in the redesign and reconfiguration of systems.

Finally, this paper explores how such a framework can serve as a tool for tracing epistemic and material consequences of technological displacement, where technoscientific infrastructures are often imposed without meaningful negotiation (Hongladarom & Bandasak 2023). By critically interrogating how technologies travel - both spatially and conceptually - this work contributes to ongoing debates on coloniality and technoscience, advocating for considering the conditions of more just and situated approaches to AI.



ID 248 - Race at the Margins: Tracing Colonial Legacies in African Microbiome Science

Marta Scaglioni, Università Ca' Foscari, Venezia

Keywords: microbiome science, race, Africa, post-colonial

This presentation examines how race is mobilized in human microbiome science through research conducted in two African contexts. Based on multi-sited ethnographic fieldwork in Tunisian and Ethiopian university laboratories (2023-2024) and in-depth interviews with Western scientists analysing African microbiome data, I investigate how racial thinking shapes contemporary scientific practices in Africa. Recent computational advances have transformed microbiome research, enabling in situ study of microbial communities within human bodies and large-scale data analysis linking microbes to human health. Within this emerging field, African populations have become targets for Western researchers seeking high microbial diversity and "lost" bacterial species supposedly eliminated by modern medical practices. This scientific gaze often constructs African bodies as pre-modern and unchanging, revealing persistent post-colonial perspectives in contemporary research.

These scientific endeavours occur within deeply asymmetrical power relations. As South African researchers have demonstrated, most African microbiome studies emerge from unequal collaborations where Western scientists hold primary authorship positions, and funding flows predominantly from Western institutions like the NIH, Gates Foundation, and European Union (Allali et al. 2021). To understand these dynamics of scientific extraction, I propose a theoretical framework examining the articulation between post-colonial centers and peripheries.

My analysis first traces continuities between contemporary microbiome science and colonial microbiology, which served imperial agendas by implementing what anthropologist Didier Fassin (2001) terms biopolitics equating "clean" with "good" for non-Western bodies. Under the civilizing mission, these disciplines aimed to sanitize colonies while using them as laboratories where practices could be tested before implementation in European capitals (Lock and Nguyen 2010). Building on this historical foundation, I argue for an Africa-centred perspective that connects global systems of knowledge production with local contexts. Finally, I complicate traditional center-periphery dynamics by examining how African scientists strategically mobilize essentialized biological categories like "Tunisian" or "Ethiopian" microbiomes to secure funding and resources. This framework reveals race as both a technology of scientific extraction and a site of negotiation, demonstrating how margins can reshape center-periphery relationships in unexpected ways.

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ID 695 - Public sector digitalization as a transnational phenomenon: How international knowledge-sharing forums reproduce power relations as new digital frontiers

Tobias Pedersen, IT-Universitetet i København

Keywords: Transnational Digitalization, Expertise, Knowledge Sharing, Power Inequalities

Public sector digitalization is often understood as a national concept, but is increasingly becoming a collaborative and transnational undertaking through international events and fora meant to facilitate knowledge-sharing between nations. However, digital governance conventions and practices often do not travel seamlessly between widely different cultural settings (Dawes and Gharawi 2018; Tsing 2005; Callon 1984). Instead, fundamental issues of power, culture and social transformations are at stake. The infrastructural practices of digital transformation have an unacknowledged "revolutionary, politically driven character" (Alston 2019), that have the potential to reconfigure and transform social worlds (Irani 2015). In this regard, a select few internationally acknowledged "front runners" of digital governance have the potential to effectively standardize how expertise, knowledge and practice of the digital state is acknowledged, valued and validated across contextual and cultural divides. Denmark, a Nordic welfare state, has widely been recognized as one of most digitalized country in the world (OECD 2024), and is increasingly engaged in maintaining its role as a digital front runner to an international audience through various international knowledge-sharing events and forums. One of these knowledge-sharing networks is a ministerial forum called 'Digital Nations'. Digital Nations comprises 10 nations from widely different cultural and geographical contexts around the world with the purpose of establishing a shared collaborative forefront for digital government and tackling contemporary technological and social issues (Digital Nations, n.d.)

From initial conversations at the Danish Ministry for Digitalization, it became apparent that although Denmark had an appetite for learning from other nations through mutual knowledge-sharing in Digital Nations, there was a strong sentiment that since Denmark was far ahead in terms of digitalization, there was simply nothing to learn from other member nations, especially lesser developed ones. This article argues that normative statements such as these become inherently exclusionary and reproduce existing power dynamics, as they set the stage for how knowledge and expertise are valued and legitimized by only a select few digital front runners in otherwise collaborative knowledge-sharing networks. Forums such as digital nations come to inhabit and reconstruct power inequalities between developed and lesser developed countries, where narratives of exceptionalism, contestation and renegotiation flourish and potentially standardize digital governance across large cultural divides.

Through a series of interviews and ethnographic encounters with digital experts in Denmark, this article will explore how the knowledge-sharing forum 'Digital Nations' perhaps inadvertently reproduce existing power relations, facilitating dominating exceptionalist narratives of what constitutes expertise and best practice of digital governance across cultural divides, effectively establishing a center of power and margins; a so-called new digital frontier. This article seeks to contribute to discussions around transnational digitalization as global power relations and how nations leverage public digitalization as forms of expertise to facilitate international governance through the entrenchment of soft-power dynamics (Nye 2008) in knowledge sharing encounters.



13 JUNE 2025 09.00 - 11.00

SESSION 2

ROOM B2.1.16

ID 726 - Colonial Denialism and the Anthropologising of the Irish

Barra O'Donnabhain, University College Cork

Keywords: Race, physical anthropology, Ireland, prisons

In 18th and 19th century Europe, shifting topologies of power saw traditional modes of social control replaced by the new agencies of rationalism, science, and medicine within the framework of extractive capitalism. Anthropology, bridging the social, physical and medical, was an important element in the emergence of more subtle forms of power than overt domination and became a key instrument of Empire. Ireland presented late 19th century physical anthropology with a conundrum: a white (or were they?) population in Europe that did not fit with the self-image of Western European elites.

This paper considers three episodes of physical anthropological research on the Irish: *Beddoe's Index of Nigrescence* (1870); *Galton's Dublin Anthropological Laboratory* (1891-1901); and *The Harvard Anthropological Mission to Ireland* (1932-1936). Each was an effort to answer the question posed in an 1882 publication: *What Science Is Saying About Ireland*. In all three cases, the results of studies that were dressed up as objective scientific research recapitulated 19th century colonialist concepts of Ireland and the Irish. Beddoe drew conclusions about the Africanoid nature of the Irish. The Dublin Anthropological Laboratory (DAL) drew conclusions about the shrewdness of the natives (as distinct from intelligent) and their propensity to violence. The Harvard Mission drew conclusions that repeated earlier narratives about the racial primitivism of some of the population, while also promoting a racialised understanding of the sectarian divide in Ireland.

The ways in which the Irish were imagined in physical anthropology speaks to the role of technoscience in colonial denialism. Supposedly objective approaches to the study of human variation were deeply imbricated with the operation of colonial power. The results of this flawed scientific research informed public policy in a manner that further enabled the colonial administration of the island. This was particularly the case with the development of the modern prison system once transportation to the colonies ceased in the 1850s. The resulting 'Irish System' of incarceration and forced labour was understood to be so effective that it was promoted internationally, particularly at the first international penitentiary congresses of the 1870s, and influenced the development of prison systems in two of the new polities of the 1870s: the Kingdom of Italy and the German Empire.

These developments incorporated the racialised perspectives that were inherent in the 'Irish System' and that were confirmed by the 'science' of Beddoe, the DAL, and the Harvard Mission. The last of these was directed by Earnest Hooton and with his work on racial profiling of criminals, these diverse strands come together, with an ideology of whiteness and white supremacy hiding in plain sight. This paper argues that 19th and 20th century research questions about *What Science Is Saying About Ireland* played an important role in the development of nuanced understandings of whiteness and Otherness, the consequences of which remain with us today.

13 JUNE 2025 09.00 - 11.00

SESSION 2

ROOM B2.1.16

ID 384 - Mapping Decolonizing: Wageningen University & Research

Esha Shah, Wageningen University & Research

Aletia Shaw, University of Sheffield

Keywords: decoloniality, history of University, history of student movement

This paper responds to the widespread demands made globally to decolonize Northern higher education institutions through a series of student-led campaigns – *'Rhodes Must Fall'*, *'Why is my curriculum so white?'*, *'Why I don't have black professors'*, #LiberateMyDegree – which has now turned into a widespread call inviting metropolitan, Global North universities to develop the *'vital task of historical self-understand-*



ing". It closely engages with the internal debates on decolonizing within Wageningen University in the Netherlands, which for a long time, after its was established in 1876, trained experts to work in the colonies.

The paper engages with the processes of decolonizing in the history of International Land and Water Management (ILWM) Study program since the 1970s in response to a series of actions, protests, events, demands and debates loosely understood as forming Wageningen Student Movement (WSM) that although emerged in the backdrop of the student movements of Europe of 1968, but peaked in the 1980s, and lasted for more than a decade. Usually understood as left-wing, anti-authoritarian, anti-imperialist, and feminist, these collection of self-organised student groups debated what could count as socially relevant, problem-based education and demanded curricula, pedagogical and institutional change. Eventually it contributed significantly to a new world view and vision for the ILWM program.

WSM demanded the inclusion of socio-political questions to formerly technical courses, thereby opening up new ways of engaging with Third World societies and challenging hierarchies of knowledge. Discourses of emancipation and liberation of the Third World, together with the 'socio-technical turn', informed and motivated students to demand reframing of the International Land and Water Management (ILMW) program towards a pedagogy for training 'ethical engineers'.

This paper examines Wageningen student movement by using "biography as history" methodology to show how "affective networks" enabled radical changes in the curricula and pedagogic practices and, at the same time, albeit unintentionally, created spaces of solidarity within which concepts of race, gender, and colonial histories remained low-key and even absent. By engaging with the "collective biographical narratives" of students who played a key role in the movement, we examine how this era-defining chapter in the history of the ILWM study program is remembered. How were the affective networks of solidarity created and sustained? Who then were included or excluded from these networks? Which stories might be 'left out' of these narratives, and why? And how these affective networks precipitated in determining the contours of change that lasted a long time?

We argue that the demands made through these affective networks radically transformed the formerly technical courses by incorporating socio-technical epistemologies. However, histories of women's oppression and histories of colonialism neither significantly informed the affective networks forming the core of the movement nor the reworking of curricula. As a result, narratives of gender, race and colonialism were not centrally incorporated in the new study program. We argue that the White Man's Burden mentality is unintentionally but unreflexively sustained even in the reframed curricula in response to the Wageningen Student Movement being predominantly Dutch, White, and led by male members.

13 JUNE 2025 09.00 - 11.00

SESSION 2

ROOM B2.116

ID 768 - "Undoing Empire" with troubling technoscientific matter in university archives

Órla O'Donovan, University College Cork

Keywords: university reckoning, colonial technoscientific violence, postcolonial feminist science studies

Over the past decade many universities internationally (e.g. Harvard University, Trinity College Dublin) have been forced to begin reckoning with their historical complicity in colonial technoscientific violence. This violence involved multiple processes of margin-making including marginalising many people from full humanity, and producing expertise in care-as-violence (Sharp, 2018) deemed necessary for the civilisation and protection of (and from) these less-than-human others. Frequently archived in off-site university storage facilities, material traces of colonial violence are being repatriated or curated differently. However, as many decolonial movements and scholars have emphasised, the work of "undoing empire" (Rassool, 2015) requires much more than this. It must extend to troubling the myriad ways in which colonial logics and ways of being, feeling and doing endure in the contemporary university (Smith et al. 2020). For Angela Willey (2016, 992), the central project for postcolonial feminist science studies is "thinking creatively, ca-



paciously, pluralistically, and thus irreverently with respect to the rules of science—about the boundaries and meanings of matter, “life,” and “humanness”.

In this paper, I consider three reckoning initiatives in University College Cork, where I work, in light these challenges. All involve technoscientific matter that is deeply troubling because of the exploitative and extractive ways in which it was acquired or crafted. I argue that the third (non-institutional) initiative has the greatest potential to be troubling in the sense of helping us respond to Willey’s call to think creatively and irreverently with respect to the rules of science, and to parochialize them. Originally named Queens College Cork and an institution of settler colonialism, these initiatives are considered through an understanding of Ireland’s multiple colonialisms (Rassool, 2015) and with reference to disputes in postcolonial theory over what should count as relevant colonialities (Harding, 2009).

The first initiative is the much publicised “Kinship” project, an international and multi-agency collaboration led by the celebrated Irish artist Dorothy Cross that involved the return of an “Egyptian mummy” (Cross, 2025). According to Cross, Kinship was a process of restitution rather than repatriation, a process of re-humanisation that involved the return of a human body, not an artifact, to its homeland (O’Sullivan Vallig, 2024). The second is the restoration and relocation of the university’s 19th pathology collections. This was instigated in anticipation of the Human Tissue (Transplantation, Post-Mortem, Anatomical Examination and Public Display) Act 2024, but also against a background of public disquiet about the careless use of the bodies of the disenfranchised dead. The Act introduces new legal requirements regarding the storage, handling, transportation, disposal or return of “human tissue”. The final initiative is research being undertaken by the Living Well with the Dead Research Collective, of which I am a member, with a 19th century collection of medical wax moulages. I consider the potential of working with these ambiguous and unruly entities to help university reckoning that disrupts hegemonic boundaries between human/non-human and life/non-life, and helps us think creatively beyond Western conceptions of the dead and what counts as human remains.

13 JUNE 2025 09.00 - 11.00

SESSION 2

ROOM B2.1.16

ID 890 - Colonial Legacies and Carbon Lock-in: The (Post)Colonial History of Samcheok, Korea and Fossil Technoscience

Jihye Kim, 한국과학기술원 (KAIST)

Keywords: infrastructure, post-colonialism, climate change

In May 2024, Samcheok Blue Power Unit 1—a coal-fired thermal power plant in Samcheok, Gangwon Province, South Korea—entered commercial operation. With Unit 2, scheduled for completion by the end of 2025, the facility’s total installed capacity will rise to 2,100 MW. This development is particularly striking given that fossil fuels are major drivers of climate change and South Korea has pledged to phase out coal by 2050. The situation is further complicated by Samcheok’s reputation as a bastion of anti-nuclear resistance. How can such paradoxical energy policies coexist?

This study critically examines the interplay between colonial legacies, technoscientific development pathways, and carbon lock-in within the context of regional energy infrastructure. Samcheok, situated in the resource-rich, mountainous, and coastal northeast of South Korea, offers a compelling case study. Historically populated by slash-and-burn farmers, land-clearing cultivators, and fishermen, the region was only integrated into national developmental agendas after Japan’s colonial rule. During that period, Japan constructed railway networks linking local mines and ports, thereby laying an early technoscientific foundation that continues to shape regional trajectories. In the postcolonial era, under shifting global influences, Samcheok evolved into a significant exporter of tungsten and later witnessed the development of anthracite coal mines in response to growing domestic energy needs.

The region’s coal mining heritage has also nurtured a robust tradition of labour activism and resistance, which notably contributed to averting nuclear power development—a feat rarely replicated elsewhere



in South Korea. Yet, with the decline of the coal industry and accompanying economic and demographic challenges, the emergence of thermal power infrastructure has been framed as a beacon of hope by local communities.

Utilizing an STS framework, this research investigates the "circuits" of capital, affect, and materiality embedded in fossil fuel infrastructures. Here, affect is not conceptualized as an amorphous force but rather as one circumscribed by specific infrastructural promises (Anand et al., 2018). By mapping these inter-linked circuits, the study elucidates why practices that engender uninhabitable environmental and social conditions persist in East Asia. Moving beyond critique, the research aspires to contribute to broader STS debates by offering novel insights into the enduring influence of colonial legacies on contemporary technoscientific and environmental landscapes in the Anthropocene.



Panel 13. Artificial Intelligence, Cultural Production and Media Consumption ‘for the Good’

Convenors:

Sergio Minniti, Università Mercatorum

Paolo Magaudda, Università di Padova

Keywords: artificial intelligence, cultural consumption, cultural production, media

This panel invites contributions that critically examine the integration of Artificial Intelligence (AI) in cultural production and media consumption, aligning with the conference's framework on 'good' technoscience. Adopting a Science and Technology Studies (STS) lens, but also welcoming contributions from media studies, anthropology, aesthetics, cultural studies, and related fields, we aim to deconstruct common dichotomous discourses on AI in society and simplistic views of AI as a threat to human creativity and authorship. We seek to explore how AI reshapes the dynamics of cultural production, distribution, and valuation, particularly in areas where AI is becoming crucial, such as the visual and performing arts, music and sound, film, television, literature, journalism, and gaming.

The panel will examine empirical and theoretical cases across these sectors, exploring a differentiated range of questions and issues related to how AI is transforming creative processes of consumption, distribution and valuation of cultural products. Potential topics include, but are not limited to:

- Authorship and intellectual property in the context of generative AI: How does AI challenge conventional concepts of artistic authorship and the rights of creators? What implications does this have for legal frameworks and intellectual property protection?
- Democratisation vs. inequality in AI access and use: Does AI genuinely expand access to cultural production, or does it reinforce existing inequalities by privileging those with greater technological resources and expertise?
- Transparency and accountability in cultural algorithms: What are the ethical implications of AI-driven algorithms shaping cultural tastes? How do we ensure transparency and address potential biases in these systems?
- Implications for creative work and cultural professions: What is the impact of AI on the roles, rights, and identities of artists, curators, and other cultural workers? How does AI contribute to creative precarity by destabilising traditional cultural professions?
- AI's influence on cultural diversity and representation: To what extent can AI foster a broader range of cultural expressions, and where does it risk standardising content and reinforcing cultural homogeneity?
- The development of human-machine collaboration and the potential of AI to enhance human creativity: How can AI enhance rather than replace human creativity? What new forms of artistic and cultural expression emerge from human-machine collaboration?

By addressing these themes, the panel aims to foster a critical, interdisciplinary reflection on the role of AI in shaping the cultural sector. We aim to offer a nuanced understanding of the complex interactions between AI, creativity and society, contributing to a vision of technoscience that prioritises the common good in cultural production. This includes investigating AI's potential to promote equity, diversity, and inclusion while also critically examining its impact on the increasing precarity of cultural work and the evolving identity of creative professionals.

We welcome submissions from scholars, practitioners, and artists that engage with these topics using a variety of methodological and theoretical perspectives. Contributions might include case studies, theoretical analyses, empirical research, or creative works that reflect on AI's transformative influence on culture, highlighting both its potential and its challenges.



11 JUNE 2025 14.30 - 16.30

SESSION 1

ROOM B3.2

ID 853 - Processing New Sonic Technofutures: Artist-Centered Music Platforms in the Age of AI

Enongo Lumumba-kasongo, Brown University

Keywords: Platform studies, AI, Hip-Hop, Music

In recent years algorithmically-driven streaming platforms and generative AI tools have increasingly presented immediate and long-term threats to the livelihood of working musicians at all levels. From Spotify's \$0.0038 per-stream payout model (as determined by the artist advocacy group United Musicians and Allied Workers) to the legal crises around authorship posed by commercial AI systems like the "songwriting" app Suno (which is currently being sued by music labels Warner Music Group, Sony Music Group, and Universal Music Group) it feels to many working musicians that creating and circulating their art in the age of AI means ceding the possibility of ever building a sustainable artistic practice within our contemporary music ecosystem. As a Black feminist rapper and STS scholar, however, I know there is always more to the story—the history of sonic innovation exemplified by Hip-Hop technocultures offers countless examples of the ways in which conditions of possibility similar to those we are experiencing at the moment can coproduce new modes of creative expression, particularly for artists making a way on the margins. In this moment, how then might the emergence of widely accessible AI-powered music tools and distribution platforms, unearth space for us to call into question even the most basic assumptions that have undergirded the music industry since the advent of recorded music? Is it possible, for example, to push audiences to dispense with the idea that a recorded song should necessarily ever settle into becoming a fixed object? How might such a shift initiate broader changes in our understanding of the role of artists in society?

Following these lines of inquiry, this talk will detail the backend development of two process-centred digital music platforms—ETERNAL SEPTEMBER (developed by composer William Brittelle) and VERSION-CONTROLLER (developed by the author)—as explorations of models for responding to the challenges of ethically creating and circulating music in the age of AI. To situate these interventions within broader discourses about current modes of music consumption and distribution, I draw on the growing literature in "platform studies," with a particular focus on Spotify as it has been examined by anthropologist Nick Seavers' and music journalist Liz Pelly, alongside Black studies critiques of the racist mechanisms foundational to the current music industry offered by scholars such as Matthew D. Morrison and Ruha Benjamin. Ultimately this talk asks us to consider how our society might look different if artists and non-practitioners alike were actively encouraged to deeply understand the creative process via the platforms we use to engage our favourite artists' work. And at a moment when creatives in other industries are actively mobilizing in response to a renewed and widespread mass labour consciousness, this talk examines how musicians might build solidarity by calling attention to the important kinds of worldbuilding labour we are also undertaking throughout our creative praxes.

11 JUNE 2025 14.30 - 16.30

SESSION 1

ROOM B3.2

ID 217 - From Cyborgs to Voices: The Disembodiment of Artificial Intelligence in the HBO Series Dune: Prophecy (2024)

Balim İslamoğlu, Bahçeşehir Üniversitesi

Deniz Gürgen Atalay, Bahçeşehir Üniversitesi

Keywords: phenomenology, science fiction, artificial intelligence, dune prophecy, disembodiment

The evolution of artificial intelligence (AI) in popular science fiction mirrors the technological developments that have profoundly shaped society over the past century. In early science fiction, AI was frequently embodied as cybernetic entities whose physical forms reflected human qualities and whose roles ranged from benevolent companions to existential threats. However, contemporary science fiction has



departed from this tradition. The representation of AI has increasingly shifted toward disembodied, autonomous entities—forms that exist as unseen, pervasive forces of memory and intelligence rather than physical beings.

This shift coincides with the widespread integration of AI technologies, such as virtual assistants and chatbots, into daily life. These systems, which have moved from speculative fiction into the real world, influence contemporary representations of AI in science fiction, emphasizing their presence as incorporeal yet omnipresent forces. While these disembodied AI forms are often portrayed as intelligent allies to humanity, they are equally capable of invoking unease. Their lack of a physical body disrupts traditional notions of identity and individuality, presenting audiences with an uncanny vision of intelligence devoid of embodiment.

In *Dune: Prophecy* (HBO, 2024), the artificial intelligence entity Anirul exemplifies this contemporary trend. Anirul, as a disembodied AI, holds a unique place in the narrative, influencing events in ways that simultaneously fascinate and unsettle. This paper investigates Anirul's role using a phenomenological approach, specifically through the lens of Maurice Merleau-Ponty's theory of perception. Merleau-Ponty's philosophy challenges the Cartesian dualism of body and mind, arguing instead that the body is fundamental to constructing experience and meaning. In light of this, Anirul's disembodiment raises profound questions about the nature of identity and how the absence of a body transforms traditional conceptions of agency.

By employing a neo-formalist textual analysis, this study explores how Anirul's disembodied nature impacts the narrative, particularly in relation to actions and emotions typically associated with organic beings. The uncanny qualities of disembodied AI are rooted in their divergence from human experience, exposing an inherent tension between the algorithmic precision of such entities and the embodied experiences central to human life. The absence of a physical form disrupts traditional notions of intelligence and amplifies fears about humanity's increasing reliance on algorithm-driven systems in the digital age.

This phenomenon, we argue, is emblematic of a broader cultural anxiety surrounding technological advancements and their implications for human identity. The uncanny unease evoked by disembodied AI reflects a deep-seated ambivalence toward artificial intelligence's transformative potential. At the same time, it underscores the continued importance of the body as a site of meaning and identity in an era dominated by disembodied digital systems.

Through the case study of Anirul, this paper seeks to illuminate the broader implications of disembodied AI representations in contemporary science fiction. It demonstrates how these portrayals capture societal tensions between the promises of technological progress and the existential challenges posed by the erosion of embodied experience. In doing so, this study contributes to understanding how the algorithmic age reshapes the boundaries of what it means to be human.

11 JUNE 2025 14.30 - 16.30

SESSION 1

ROOM B3.2

ID 862 - Behind the Stream: A Study of AI Tools in a Dutch Video-On-Demand Platform

Daniella Pauly Jensen, Universiteit Maastricht

Keywords: AI, Media, Video-on-Demand

This article investigates the role of artificial intelligence (AI) tools in the transformation of video-on-demand (VOD) platforms, focusing on a large Dutch media company. The research question guiding this study is, "How have AI tools influenced the production practices and content of online VOD platforms?"

While video-on-demand (VOD) has been around since the 1990s, recent research (Budzinski, 2021; Karr, 2023; Shafer et al., 2023) suggests a significant shift in the media landscape, with viewers increasingly preferring VOD streaming over traditional TV broadcast. This transition has been accompanied by an increased reliance on data science and AI tools. These tools have transformed production practices, content



creation, and a myriad of behind-the-scenes actions that take place before the finished product appears in one's VOD platform of choice.

At the media company, the data science team primarily researches and implements such AI tools for the company's VOD platform. These tools are all compiled in an interface the data scientists created for internal use. Through interviews with the data scientists and various stakeholders at the company (such as promo-editors, marketing teams, and content creators), this article delves into the socio-technical dynamics of their work, focusing on the adoption and creation of AI tools such as automated thumbnail selection, image aesthetics, and voice activity detection.

This article problematizes the use of third-party application programming interfaces (APIs) that the data scientists rely on for some of the requested actions, investigating how the lack of transparency affects creators' work and the final product. Simultaneously, the research engages with normative questions concerning the role of AI in media production. It probes ethical considerations such as ensuring fairness and representation, and practical considerations like leveraging AI to enhance creativity. This article contributes to the discourse on VOD production cultures by unboxing the role of AI in facilitating various 'behind-the-scenes' and at times seemingly benign actions that take place before content appears on a streaming platform.

The article concludes by assessing the impact of AI tools on the quality and diversity of content. It explores whether AI enhances or hinders the richness of audiovisual narratives and its influence on representation across gender, race, ethnicity, and culture in the content. This paper concludes that the adoption and use of AI tools in the production and content of online video streaming platforms is a complex socio-technical process that necessitates the critical examination of organisational structure and culture, and demands normative considerations about the ideal role of AI in the production practices of online VOD platforms.

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11 JUNE 2025 14.30 - 16.30

SESSION 1

ROOM B3.2

ID 367 - Choreographies of AI Voices: the discursive construction of artificial intelligence “for the good” in country music and broadcast journalism

Alexandra Supper, Universiteit Maastricht

Keywords: artificial intelligence, best practices, media discourses, human labour

In this talk, I will analyse media discourses surrounding two different cases of AI-assisted cultural production. Both cases are framed as “ethical” or “for-the-good” applications of AI, and both cases feature AI-generated models of human voices as their centerpiece: that of American country music singer Randy Travis and of British broadcast journalist Michael Parkinson.

In spring 2024, Randy Travis has released his first new song in over a decade, after having previously been left unable to speak or sing in the aftermath of a stroke. Shortly after the release of the song, it was revealed that the song was made possible by an intricate interplay between an AI-generated model of Randy Travis' voice and a close-knit community of human professionals with a long-standing working



relationship with Travis, who himself was seen to not only consent, but also actively contribute to the making of the new song.

I will compare the media discourse surrounding the release of this new song with that of another recent case that prominently features an AI-generated voice: the release of the new podcast series "Virtually Parkinson" (announced in late 2024, with episodes being launched from January 2025 onwards). In this podcast, an AI which promises to reconstruct the voice as well as interviewing style of the late Michael Parkinson, interviews various celebrities. Also as part of the podcast, the interviewees are invited to debrief about their experience of being interviewed by a generative AI in conversation with the producers of the podcast, including the son of the deceased interviewer.

The two cases show notably differences, but also some similarities, as both are presented by their makers as best-practice examples of the "ethical use" of AI for cultural production. After all, both models have been trained on data that have been provided by the legal rights-holders; both take seriously questions of consent; both are embedded in intricate, human-led working practices and promise not to threaten the livelihood of human professionals. Through a close analysis of the media coverage of the roll-out of the song and the podcast, I demonstrate how such a construction – to varying degrees of success and controversy – of ethical uses of AI is achieved through a careful "choreography" (employing the concept developed by Cussins/Thompson in 1998). Drawing on scholarship from the fields of STS, sound and music studies, disabilities studies and critical data studies, I address the cultural implications of the process by which a controversial new technology is being rendered as harmless and familiar through these discursive practices and choreographies.

11 JUNE 2025 14.30 - 16.30 SESSION 1 ROOM B3.2

ID 336 - Reimagining Creativity: AI's Impact on Social Imaginaries in the Cultural and Creative Industries

Ingrid Kofler, Libera Università di Bolzano – Freie Universität Bozen

Mustapha El Moussaoui, Libera Università di Bolzano – Freie Universität Bozen

Romuald Jamet, INRS - Institut National de Recherche Scientifique

Keywords: AI and creativity, creative and cultural industries, social imaginaries

AI is transforming the Cultural and Creative Industries (CCI), reshaping traditional creative processes and professional roles. Historically seen as an exclusively human ability, creativity is now being redefined through AI-driven cultural production, raising fundamental questions about authorship, originality, and artistic labor.

Social imaginaries—collective frameworks shaping how individuals interpret reality—play a crucial role in cultural production. As AI integrates into architecture, music, and the arts, it influences these imaginaries, potentially homogenizing creative output. Trained on vast datasets, AI often reinforces dominant narratives, limiting diversity and innovation. While some theorists suggest AI could introduce new and unconventional aesthetic forms, others warn of a "McNuggets aesthetic," where creativity is streamlined for marketability rather than artistic depth.

Beyond aesthetics, AI's growing role in CCI has ethical and economic implications. Automation challenges the nature of artistic work, raising concerns about the dehumanization of creative labor. AI's ability to tailor cultural products to audience preferences risks prioritizing commercial interests over artistic integrity. Moreover, AI-driven cultural production can manipulate consumer behaviour, shaping desires and reinforcing existing cultural biases.

This contribution critically examines AI's impact on the CCI through the lens of social imaginaries, using architecture and music as case studies. It adopts a transdisciplinary approach to highlight both economic and socio-technical implications. While AI presents new opportunities for creative expression, it is crucial to ensure that technological advancements do not compromise artistic diversity and human agency.



ID 483 - Embedding Gen-AI in cultural production and communication strategies. Qualitative analysis of 6 Lisbon based cases-study.

Caterina Foà, Università della Svizzera italiana; ISCTE – Instituto Universitário de Lisboa

Marta Robalo, ISCTE – Instituto Universitário de Lisboa

Keywords: Gen-AI, cultural organisations: artists, strategies

Cultural production is a step of value creation process for cultural organisations and artists. These types of agents, however, follow different approaches concerning the strategic combination of creativity, management and communication, related to their mission, status, budget, workflows and market orientation.

Some artists and cultural workers act as early adopters of new digital technologies, embracing entrepreneurial attitudes, collaborative and cocreative processes, but the overall cultural and creative sectors face multiple threats due to phenomena such as the platformization, datafication and the disappearing of cultural products (Duffy et al., 2019; Bilton; 2017)

Platformization affects the cultural production increasing the focus of digital communication on interactivity, cocreation, personalization, storytelling and self-expression (Ouariach et al. 2023). Technological innovations, enhance the new communication paradigm (Cardoso, 2024), based on sharing and collaboration, but on the other pose threats to contents quality, IP, data and users' protection rights, challenging both managers and specialists to retune their strategic and operational approaches to the field, adapting their workflows, tools, budgeting and stakeholders' relationship.

The rise of Gen-AI generated wide discussion about its benefits and FATE issues, being often represented a double-hedge sword for cultural production due to the potential enhancements in creativity and productivity and the risks for authorship, originality, output variety, job maintenance and perceived authenticity. Research shed light on Gen-AI usage by both cultural organisations and artists, however considering them separately lacks a comprehensive understanding of how the Gen-AI adoption by one type agent may influence the production process but also the stakeholders' relationships and communication, mainly regarding to work of arts' exhibition, marketing, and publics' engagement strategies.

Comparative cases-study includes six private and public cultural organisations, with different size, reputation, human, programming and economic resources and belonging to various sectors, ranging from performing and visual arts to audio-visual production and exhibition. Semi-structured interviews are conducted with two types of cultural workers communication managers and artists to understand if and how Gen-AI is directly adopted within their cultural production processes, and to what extent this strategy also affect strategic aspects related to the relationships with other cultural agents, their stakeholders, and the broad public. Thematic content analysis was conducted before triangulation of preliminary results.

The main objective is to collect a variety of experiences to highlight both similarities and discrepancies in the strategies implemented to develop cultural production and communication flows. Conclusions highlight across analytic themes a set of:

- heterogeneity of artists' approach to Gen-AI on cultural production according to their sectors, careers' stage and work of arts destination.
- similarities among artist incipient usage of Gen-AI on their communication strategies;
- similarities among organisations for what concerns the current reduced adoption of Gen-AI on their communication and cultural production, with growing curiosity and hesitations about the balance between benefits and thread of its adoption. Professionals are particularly concerned about IP of work of arts, standardization of communication contents and potential misuse by some internet users. On the other hand, professionals working in smaller organisations consider attractive the promise of reducing time-costly repetitive activities or improving their digital contents quality or data analysis competence.



ID 386 - Artistic Resistance and Algorithmic Creativity in the Italian Landscape

Paola Panarese, Università di Roma La Sapienza

Vittoria Azzarita, Università di Roma La Sapienza

Maddalena Carbonari, Università di Roma La Sapienza

Keywords: artificial intelligence, visual arts, creative practices, cultural diversity, inclusivity

Artificial Intelligence (AI) has emerged as a disruptive force in the contemporary cultural landscape, permeating diverse aspects of daily life and reshaping cultural production and consumption. One of the most thought-provoking areas where this transformation unfolds is the intersection of AI and art, which provides a meaningful arena for reflecting on shifts in creativity, authorship, and inclusivity (Citron and Pasquale, 2014; O'Neil, 2017). This AI-art nexus not only challenges the historically human-centric, relational, and social foundations of artistic practice (Hertzmann, 2018; Zylinska, 2020) but also raises important questions about the evolving role of art in the algorithmic age.

As digital platform logics increasingly govern cultural production, AI has reorganized creative activities around new forms of algorithmic economies, infrastructures, and governance (Poell et al., 2022). While these systems open novel avenues for collaboration between humans and machines, they also risk homogenizing aesthetics, reinforcing stereotypes, and perpetuating social inequalities (Hakopian, 2023; Manovich, 2022; Sharma, 2023). Such ambivalence calls for a deeper examination of how artists employ AI in their work and what this engagement means for cultural diversity, the future of artistic professions, and the potential for shaping cultural production for inclusivity, and equality. Indeed, these technologies can simultaneously centralize control over the creation, distribution, and monetization of cultural artifacts while leaving room for negotiation and resistance (Bonini and Trerè, 2024).

This paper presents findings from an exploratory study conducted within a broader research project at Sapienza University of Rome and the National Research Council (CNR), examining the inclusivity of ML systems and the role of art in addressing gender and ethnic stereotypes. Drawing on 34 in-depth, semi-structured interviews with Italian artists who integrate AI into their creative processes – analysed using a thematic approach (Braun and Clarke, 2006) – we investigate how AI reshapes their artistic practices, the social and political implications of algorithmic creativity, and its aesthetic and ethical impact (Arikan and Aram, 2022; Caramiaux and Fdili Alaoui, 2022).

Our findings reveal a multifaceted landscape of artistic engagement with AI. While AI-driven tools enhance creative possibilities, their propensity toward standardized aesthetics and limited originality leads many participants to assert the primacy of human authorship and resist the algorithmic commodification of culture (Caramiaux and Fdili Alaoui, 2022). In this context, interviewees broadly acknowledge that AI systems are neither neutral nor bias-free, with several artists – including Oriana Persico, Domenico Barra, and Kamilia Kard – explicitly addressing issues of AI inclusivity, particularly concerning gender and ethnic representations. Through strategies of de-symbolization and re-symbolization (Holmes, 2004), these artists envision alternative realities and challenge dominant narratives embedded in algorithmic systems. Their work underscores the power of art as a mode of critical intervention, revealing and critiquing the limitations and biases embedded in AI-mediated portrayals of the world.

Ultimately, this study highlights the social relevance of art as a vehicle for critique, negotiation, and cultural innovation in the algorithmic era. By engaging with AI's aesthetic, ethical, and political dimensions, artists and researchers can help reshape cultural production "for the Good," fostering a broader dialogue on inclusivity, and creativity.



11 JUNE 2025 17.00 - 19.00

SESSION 2

ROOM B3.2

ID 183 - Generation does not imply causation. AI biases and artistic practice

Alessio Chierico, Politecnico di Milano

Keywords: text-to-image, Post-Media Practice, Generative AI, biases, glitches.

The emergence of generative text-to-image systems has transformed the process of creating images from textual descriptions. Although these systems demonstrate remarkable combinatorial abilities, they often reinforce stereotypes because they are trained on generalized datasets (Zylinska, 2023).

Additionally, these systems lack an understanding of historical and artistic contexts, treating artworks merely as objects without recognizing their symbolic significance (Pereira and Moreschi, 2020). While current generative AI systems excel at producing visually appealing content based on statistical patterns in data, they struggle with comprehending nuanced artistic concepts and narratives.

This presentation aims to explore the implications of generative AI in contemporary art production, focusing on discussions concerning the complex definition of medium in artistic practice. It seeks to understand how these systems can move beyond simply replicating the imaginary of existing visual culture. It explores formal errors or "glitches" in AI outputs—such as compositional inaccuracies and incorrect depictions of human anatomy—as indicators of underlying biases (Simonite, 2018). Additionally, it examines biases present in AI outputs related to gender, ethnicity, and social differences that arise from imbalanced training data (Luccioni et al., 2023).

Generative AI offers both challenges and opportunities for contemporary art. Its limitations highlight the essential role of human creativity in steering technological tools towards meaningful expression. By recognizing the biases inherent in these systems, artists can leverage AI's potential to push artistic boundaries beyond traditional frameworks. As we navigate this evolving landscape where text informs image creation, interdisciplinary collaboration between art and technology will be crucial in shaping the future directions of digital art.

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11 JUNE 2025 17.00 - 19.00

SESSION 2

ROOM B3.2

ID 762 - Possibilities for a new ekphrasis: how AI reshapes the relationship between words and images

Ludovica Brandi, Università di Modena e Reggio Emilia

Lorenzo Manera, Università di Modena e Reggio Emilia

Keywords: Aesthetics, Digital Ekphrasis, Images, Words, Prompting

Thirty years after the iconic and pictorial turns, in an era dominated by ever-evolving media, where images are omnipresent and potent carriers of meaning, our understanding of the world is still heavily mediated by visual representations. The ubiquitous presence of images has little to no precedents, but it's important to investigate their ties with other dimensions, and particularly the verbal language.

The goal of this contribution is to better understand the long-standing question of the relationship between image and word and the new challenges it faces in the contemporary media landscape. Recent debates on the creative and aesthetic potential of Artificial Intelligence have focused on the construction of a par-



adigm in which the relationship between images and words is linked to prompting techniques (Verdicchio 2024, McCormack et al. 2023, Monti 2025) and their operativity (Bajohr 2024, Bolwin 2024). Some scholars have proposed that prompts—the textual inputs employed in Text-to-Image technologies—represent a digitally adapted form of ekphrasis, echoing the mechanisms by which, in the ancient conception of the term, images emerged from evocative words. However, we argue that this perspective risks oversimplifying the interplay between verbal and visual languages, reducing their complex relationships to mere computational interactions. The concept of an "operative ekphrasis" seems to focus on issues regarding the automation of the relationship between words and images, leaving behind the original meaning of the term.

Traditionally understood as a verbal description of a work of art, in the past century ekphrasis has rediscovered its classical roots, highlighting the dynamic and interactive nature of multimodal engagement (evocation, presentification, emergence, rupture) with visual artifacts through word descriptions (Spitzer 1955, Squire 2013, Webb 1999). More recent studies reflect broader shifts in how we engage with and understand this relationship, moving beyond static descriptions to incorporate interactive and participatory elements (Brosch 2018, Lindhé 2013).

Our work on digital ekphrasis includes AI tools like Text-to-Image and Text-to-Video technologies, which foster reflective practices on the new modalities of interaction between images and words. In this context, digital ekphrasis is still intended to capture attention and achieve vividness but encourages the reconsideration of both verbal and visual languages and the modifications they go through, thanks to which new imaginative, perceptual, cognitive and communicative possibilities arise, challenging the logic of representation (Milani 2024, Scorzin 2024).

Finally, we believe that TTI technologies are not alone anymore in testing the notion of digital ekphrasis. Recent innovations have introduced practices that invert the process, generating text from images. This reversal of the classic prompting dynamic highlights the bidirectional relationship between the two media and opens new artistic and aesthetic possibilities. Employing images as prompts—exemplified by tools like the Astica interface or Mario Klingemann's AICCA project—opens up a broad range of explorations that can benefit from ekphrasis, understood as a reflective practice on words, images, and their multifaceted interconnections.

11 JUNE 2025 17.00 - 19.00

SESSION 2

ROOM B3.2

ID 838 - Reframing AI in Art: Historical Lineage and Creative Practices

Alexandre Saunier, KU Leuven

Keywords: generative AI, technoscientific arts, new media arts, cybernetic arts, human-machine collaboration, computational creativity

From the perspective of technoscientific media arts, the introduction of Artificial Intelligence (AI) in creative practices continues a long tradition of artistic engagement with autonomous machines. Since the beginning of the twentieth century, artists have experimented with various forms of human-machine expressive collaborations that challenge existing notions of human creativity. In particular, since the post-WWII cybernetic arts movement, artists have appropriated electronic and algorithmic technologies to craft generative and interactive systems that seemingly take on cognitive and creative abilities once reserved for human beings.

The creative use of AI, and more specifically Generative AI (GenAI), benefits from being recontextualized within the historical trajectory of twentieth-century machine arts in order to move beyond the current hype surrounding GenAI and recognize its deeper roots in computational creativity. By situating artistic uses of AI within this lineage, we can better appreciate its potential as a tool for artistic exploration rather than merely a disruptive novelty. This perspective allows us to critically engage with the ways AI-generated content expands, challenges, or reinforces existing artistic paradigms. Moreover, understanding AI as part of a continuum of machine-based artistic experimentation helps demystify its role, shifting the con-



versation from speculation about human replacement to a nuanced discussion on augmentation, agency, and collaboration in the creative process.

In a first time, the presentation will contextualize current creative uses of AI within the historical evolution of technoscientific media arts (Brockmann 2016, Penny 2017, Salter 2010). It will highlight historical perspectives on human-machine collaboration, tracing its origins to 1920s–1930s artistic movements such as the Bauhaus, before its further development in post-WWII cybernetic arts and later in new media, interactive, and immersive arts. By situating creative AI technologies historically, the objective is to show that contemporary AI-driven artistic practices do not represent an unprecedented rupture but rather an extension of long-standing explorations into generative, algorithmic, and interactive systems. By tracing this lineage, the presentation will emphasize how past artistic movements have engaged with emerging technologies to challenge and redefine notions of authorship, agency, and creativity.

In the second phase, the presentation will critically discuss two collaborative artistic projects developed by the authors that incorporate AI technologies in audiovisual production. The first project, Granular Choreographies, examines the intersection of AI-driven generative music and video production with the practices of street dance and electronic music-making. The second project, Wilding AI, is an ongoing exploration of the use of GenAI for immersive spatial audio production by a multicultural, interdisciplinary collective of artists. By analysing these two projects, the discussion will highlight how artists develop creative strategies either to embrace AI as a co-creative agent or to subvert its logic in order to critique its cultural and technological underpinnings.

11 JUNE 2025 17.00 - 19.00

SESSION 2

ROOM B3.2

ID 824 - Stitched in Code. New imaginaries and new challenges in the fashion media

Michele Varini, Università Cattolica del Sacro Cuore di Milano

Keywords: Visual AI, Body representation, Fashion industry, Magazine Studies, Visual Methods

Since its emergence as a cultural and social phenomenon, fashion has maintained a profound and evolving relationship with technology. These two domains—fashion and technology—are inextricably linked, influencing and transforming one another across a range of dimensions. From the communicative and representational components of fashion to the artistic, productive, and consumer-oriented dimensions, technology has consistently shaped and redefined the fashion industry. Among the many innovations brought about by technological advancements, one of the most significant in recent years has been the advent of visual artificial intelligence (AI). These systems have begun to assume a central role in the industry, operating both as creative and artistic tools and as technical and production-oriented resources.

The introduction of visual AI into the fashion landscape has enabled previously unimaginable possibilities, opening new creative and professional avenues while simultaneously challenging traditional practices and roles. Established professions such as stylists, milliners, tailors, and patternmakers, which were once foundational to the industry, are being reshaped by the integration of AI. Furthermore, communication professionals and photographers, whose work has long been essential in the visual representation of fashion, are experiencing profound changes as AI-generated imagery challenges conventional modes of production and dissemination. These developments are particularly evident in the realm of fashion communication, which has historically been tied to print magazines. The sophistication of generative AI in producing visual and graphic material presents a unique challenge and opportunity for this sector, marking a critical juncture in its evolution.

This paper seeks to examine the transformative impact of visual AI on the fashion industry, with a specific focus on its implications for aesthetic representation and cultural narratives. It explores these changes through the analysis of two groundbreaking fashion magazines: Copy Magazine and CYBR Magazine. These publications represent pioneering examples of how AI is being integrated into the production and communication of fashion. Copy Magazine holds the distinction of being the first printed magazine entirely



produced using AI, serving as a case study for understanding how AI can be deployed across all aspects of editorial production. CYBR Magazine, which recently expanded into a print format, focuses on NFT fashion—a field in which AI plays a significant role in generating digital garments and visual assets.

Through a detailed visual analysis of these two magazines, this research aims to investigate the imaginaries, visual languages, and aesthetic frameworks they construct. Particular attention is paid to the representation of bodies and beauty stereotypes, as these elements are central to the broader cultural narratives shaped by fashion. By examining these examples, the study seeks to elucidate how AI-driven processes are reconfiguring not only the technical and creative practices of the fashion industry but also its underlying cultural values and symbolic systems. In doing so, this paper contributes to a growing body of scholarship that addresses the intersections of fashion, technology, and society, offering critical insights into the role of AI in shaping the future of fashion as both an industry and a cultural practice.

11 JUNE 2025 17.00 - 19.00

SESSION 2

ROOM B3.2

ID 390 - Fashion, Artificial Intelligence, and the Emergence of Hybrid Imaginaries: Towards a Posthuman Aesthetic Between Algorithm and Matter

Michela Musto, Università degli Studi della Campania Luigi Vanvitelli

Keywords: Posthuman Aesthetics, Technomorphism, Algorithmic Imaginaries, AI-Driven Fashion Design, Cultural Dispositives

The design practice serves as the ontological ground upon which all artefacts are conceived; when this process is mediated by the introduction of a new technology, it is not merely the act of designing that undergoes transformation, nor solely the tangible artifact itself, but more profoundly, the collective imaginaries that emerge from the intricate interplay between human and machine. In the case of artificial intelligence (AI), these imaginaries are redefined as a reflection of the epistemic structures of an era, along with the very conception of the body, identity, and subjectivity. In this scenario, fashion practices, where cultural and material fabric constantly intertwine to shape new aesthetics and posthuman sensibilities, emerge as a privileged field of observation. If the design has historically served as a mediation between humanity and technique, the integration of AI into creative processes reconfigures its role, elevating it into a co-agent of formal invention, where humans and machines converge in a symbiotic act of co-creation.

In an age where technomorphism pervades design practices and reshapes the very frameworks of artistic and material production, where the boundaries between the organic and the artificial dissolve, the artifact becomes a living testament to the entanglement of algorithmic logic and human intentionality, challenging the very essence of what it means to create and to be created. This does not occur without implications: the proliferation of new algorithmic imaginaries necessitates a critical reflection on their potential for exclusion or emancipation, interrogating the principles of equity, diversity, and social justice that should inform their development. In this context, public discourse and digital media assume a decisive role. They do not merely document the adoption of AI in fashion and design but actively shape its perception, normalizing its integration or amplifying its tensions. In this framework, the medial construction of social imaginaries is reconfigured as a political act: on the one hand, AI is narrated as a vehicle of innovation and aesthetic progress; on the other, it is depicted as a potentially alienating entity capable of eroding craftsmanship and human intentionality. It is, therefore, imperative to question how these media discourses influence the legitimization of AI in the fashion design field and who is included or excluded from these narratives.

This contribution aims to critically explore the relationship between AI, fashion, and emerging imaginaries by adopting an interdisciplinary approach that intertwines design theory, aesthetics, and the philosophy of technology. Through an analysis of literature and case studies, this research seeks to illuminate the epistemic and ethical implications of this technology in the design process, highlighting its generative and normative potential and, ultimately, reflecting on how fashion, as a cultural dispositive, can serve as a laboratory of experimentation for an emerging posthuman aesthetic, co-constitutive of a new formal sensibility and a catalyst for a more just and inclusive future.



13 JUNE 2025 09.00 - 11.00**ROOM B2.2.13**

Panel 14. Education for Good. Affirmative technoscientific practices in the educational space

Convenors:

Leonardo Piromalli, *Istituto di Ricerche Educative e Formative*

Assunta Viteritti, *Sapienza, University of Rome*

Keywords: care, knowledge, policy, practice, sociomateriality

This open panel invites contributions that explore education as a public space (Murdoch 1998; Löw, 2016) in order to experiment with technoscientific practices capable of promoting the everyday common good within educational settings. We encourage a rethinking of how educational practices and policies can be designed and reconfigured through sociomaterial mending, care and regenerative reflection. Contributions are welcome that address the role of affirmative critique in reimagining the relationships between education and technoscience, and explore how we might transition from merely exposing injustices to actively inhabiting "trouble" and engaging with open-ended futures (Haraway, 2016) while emphasizing transdisciplinary and intra-active modes of knowing (Barad, 2007). Particular interest lies in research that examines how education can cultivate material-discursive entanglements that challenge existing hegemonic structures, as well as how it may foster mending, healing, regenerative reflections and the flourishing of diverse life forms.

For instance, we invite contributions that explore:

- local practices of bending, gaming, or resistance by various educational actors (Souto-Otero & Benito-Montagut, 2016) in response to the effects of corporate interests and global policies on educational technoscience;
- different rhythms, unexpected pauses, and collaborative temporal imagination in the face of rapid technological advancement and acceleration in contemporary educational scenarios (Tierens et al., 2024);
- efforts to unlearn power dynamics that have historically intersected education, space, and technologies (Landri, 2018) by re-centering marginalized knowledge, objects, affects;
- practices that highlight how existing epistemic inequalities can be mitigated or counteracted through collaborative actions among educators, students and technoscientific actors;
- practices of alliance with non-human living entities that experiment with post-anthropocentric educational practices, reimagining the relationship between learning and more-than-human worlds (Zembylas, 2022).

At the heart of our call lies the belief that education should not serve merely as a passive receptor of technological interventions but rather as an active participant in co-creating shared futures. These may be spaces of pluralism where diverse experiences are affirmed and given voice rather than measured and compared (Zembylas, 2022; Gorur et al., 2023), as well as environments of mending and care that can hold together fragmented and vulnerable worlds (Puig de la Bellacasa, 2015).

We believe that STS practice-theory can provide valuable support for working "in" and working "on" the world (Law and Singleton, 2013) to construct and cultivate a shared yet multiple vision of the "good" in education.



13 JUNE 2025 09.00 - 11.00

ROOM B2.2.13

ID 295 - Mathematical Belonging and the Role of Technoscience

Cindy Jong, University of Kentucky

Pooja Sidney, University of Kentucky

Benjamin Braun, University of Kentucky

Keywords: mathematics, belonging, technoscience, college students, education

In a review of research in mathematics education over the past century, Schoenfeld (2016, p. 518) noted "equity, assessment, and technology" as "scholarly challenges" for the future in the field. In this same review, he described the historical role of Artificial Intelligence and its contribution to the cognitive revolution in mathematics education. The purpose of this abstract is to explore the specific connection between belonging and technoscience to attend to two of the broad scholarly challenge areas in mathematics education research. Belonging in mathematics is not a widely researched topic, although it is peripheral to identity. However, research shows how some students experience a lack of belonging in mathematics (Solomon, 2007), especially if they are part of a marginalized group in the U.S. (Author, 2020). This is partly due to Western notions of mathematics that are narrow, rigid, and procedural (Baker, 2023; Gutiérrez, 2018).

Our research team of mathematics educators, mathematicians, and psychologists sought to understand mathematical belonging among college students. We surveyed hundreds of first- and second-year college students in the U.S. about their experiences in mathematics. We wanted to understand more about the ways in which students feel that they belong, or don't belong, in various mathematical contexts. What we found surprised us: there are multiple ways that students experience belonging! We found that students experience at least four distinct types of positive belonging in mathematics, which we call Individual, Classroom, Collaborative, and Community belonging, along with negative experiences of Exclusion (Authors, 2024). In our descriptions of these four types of belonging, we make a case for the role of technoscience, viewing it as authentic content with social responsibility (Makrakis & Kostoulas-Makrakis, 2005; Tala, 2009). Further, there is promise for technoscience to advance Collaborative and Community belonging in mathematics.

Individual belonging refers to feelings of acceptance, appreciation, and value when in a mathematical setting, such as the classroom. Classroom belonging is defined as relating to classmates in a mathematical setting. Collaborative belonging refers to feeling that one's ideas are accepted when working with others to solve mathematical problems. Community belonging is defined as feelings of inclusion and connection in the mathematical community. While community belonging is somewhat dependent on how students define the mathematics community and therefore less clearly defined than the other types of belonging, there is a lot that can be done to create a sense of community belonging in mathematics. An important first step is for us as mathematics educators and mathematicians to broaden our definitions of the mathematics community to be more inclusive and expansive. If there is an awareness of the harm that has been caused by mathematics in society (O'neil, 2017), educators can create spaces for communities to explore the good that mathematics with a technoscience perspective can have in the future. Collaborative and community belonging in mathematics requires a departure from idiosyncratic practices of a discipline to practices that have the potential to raise social consciousness. Thus, exploring these categories of mathematical belonging can invite broader participation.



13 JUNE 2025 09.00 - 11.00

ROOM B2.2.13

ID 495 - AI storytelling for a social and restorative justice pedagogy

Enrica Lovaglio, California Polytechnic State University, San Luis Obispo

Keywords: AI, universities, prisons

Underprivileged groups are a minority in American universities, which should be immune to partisan interests and accessible to everyone. Pragmatic action to increase equity, diversity, and inclusion in higher education admissions has been lacking or short-lived. Current solutions have targeted the administration through hiring diversity experts and faculty through bias training, even though, according to the 2016 Harvard Business Review, traditional bias training, which includes visual and text-based role-play scenarios, is forgotten within days and can cause adverse outcomes, such as defensive reactions, resentment across diverse groups, and stereotype reinforcement.

In devising strategies to diversify, American universities have left out the students, who today are primarily passive receivers and spectators of many initiatives focused on "talking" more than "doing." This research fills this gap by empowering diverse groups, college students and incarcerated youth, inside the classrooms as active content makers of cultural content. For the incarcerated group, at times illiterate and artistically challenged, AI is the only tool that allows freedom of expression. This research presents a literature review and several case studies of pedagogical interventions by the author and her colleagues, collaborations between university students and incarcerated populations, to demonstrate that changing pedagogical paradigms and classroom dynamics foster students' inclusive attitudes and behaviours.

America produces the world's greatest technological innovations but struggles with the most devastating socio-economic and racial inequalities of this century. This research shows two systems in crisis: Public universities are significantly under pressure to provide a welcoming environment inclusive of all races, genders, and socio-economic statuses but are miserably failing due to their top-down paternalistic approach focused on reaching change through an information deficit model that alienates students and personnel and has been proven largely ineffective (al-Gharbi, 2020; Devine and Ash, 2021; Brannon et al., 2018). The public correctional detention system holds the world's highest incarceration and recidivism rates, keeping incarcerated people, many of whom are of colour, idle without a chance at rehabilitation or a productive future after being released.

This research proposes a methodology of breaking conventional barriers, merging the two systems, public universities and public prisons, to benefit students and incarcerated youth by embracing an empowerment-based approach that enlists the recipients as active change-makers, recognizing that they must be the primary drivers of their own transformation if we want it to be effective and long-lasting (Cox and Devine, 2019). Combining psychological and sociocultural theories with AI storytelling, this research sheds light on leveraging technological affordances to create collaborative environments inside the classrooms that unite college students and incarcerated individuals for a social and restorative justice pedagogy.

13 JUNE 2025 09.00 - 11.00

ROOM B2.2.13

ID 529 - Teenagers and digital technologies. A comparison among the perspectives of high school students, teachers and leaders

Alba Francesca Canta, Politecnico di Torino

Linda Tonolli, Politecnico di Torino

Viktoria Konidari, Ελληνικό Ανοικτό Πανεπιστήμιο (Hellenic Open University)

Alvise Mattozzi, Politecnico di Torino

Keywords: youth, school leaders, professors, digital technology, education

Social media and, more in general, digital technologies are increasingly becoming entrenched as habitual tools for communication, social interaction and learning, mediating not only the everyday lives of new



generations but, inevitably, of the older ones (Trentin 2017). The pervasiveness of these tools in different domains requires us to reflect on their role and rethink new models of interaction that start from the bottom by listening to those who use and live these tools: young people.

Based on data collected through structured interviews administered in the framework of an Erasmus+ European project about digital literacy and disinformation (DRONE Project), the present contribution intends to compare views on the digital engagement of teenagers by teenagers themselves, by high school professors and school leaders. We can consider the three groups as concerned public (Marres 2012) gathering around the issue of digital and teenagers, expressing their views on the question of teenagers' use of digital technologies in different spheres, including school ones.

By comparing different versions of the issue, we will propose a reflection on possible dialogue among these three different concerned publics. While for school leaders, the digital represents the natural environment of young people and offers them easy access to the various social worlds (Clark, Leigh Star 2012), for teachers, this relationship is more complicated. If, on the one hand, this world has quick and easy access, it also represents a supportive tool, used critically and often consciously, and a new way of interacting. In this sense, many teachers have worked to deepen that relationship and give them or learn from young people how to navigate this world. An additional element emerges from the adolescents' perspective: the virtual one represents one among the possible worlds of one daily life that does not necessarily replace the others but coexists. It is constantly evolving, astonishing but frightening at the same time, and while it is true that it is easy to access, it also represents new challenges and opportunities for young people, and many are aware of this.

Finally, our analysis explores the ground on which education could "not serve merely as a passive receptor of technological interventions, but rather as an active participant in co-creating shared futures", as the call says, and thus probes the space for co-creating shared patterns among the various concerned publics making up the education environment.

13 JUNE 2025 09.00 - 11.00

ROOM B2.2.13

ID 598 - Art-based methodologies for sustainability. Exploring ways of relating

Silvia Bruzzone, Mälardalen Universitet

Henny Strisberg, Stockholms konstnärliga högskola

Carmen Pellegrinelli, Trieste University

Keywords: art-based methodologies, sustainability, academic education, relationality.

Ethics, responsibility, and sustainability have become urgent issues in both education and society. However, there is a need to go beyond traditional approaches (such as CSR, codes of ethics, or lists of competencies and principles) which often reinforce neoliberal dynamics. What kind of pedagogical approaches may encourage more transformational and responsible learning and doings?

Feminist posthumanism introduces a new epistemological approach, or an ethico-onto-epistemology: knowing and learning do not refer to the reproduction of pre-existing knowledge, but emerge from material-relational doings, beings and respons-abling—with the world. Emphasis is placed on the continuum between humans and non-humans in different ways (air, water, bacteria, fungi, etc.) as forms of embodiment. The arts and aesthetic learning processes, by engaging the body, the senses and other materialities encourage different ways of knowing, relating, affecting and being affected.

Building on this framework, we have developed a project aiming to explore sustainability as embodied practices, by applying transdisciplinary approaches at the intersection of art and science. We have developed (four) workshops addressed to students of different programs (education, engineering, communication, health care and management) at a university in Sweden. The workshops aimed to explore key concepts for sustainable transitions - care, threshold, water and landscaping – and were facilitated by professionals in drama, dance and visuals from different universities (MDU, Stockholm University, University



of Trieste) and from different art scenes.

The project is currently ongoing, and the aim of this contribution is to share some preliminary reflections and questions coming from those experiences.

Which forms of relationality? While all workshops explore sustainability-related concepts through embodiment and relationality, the heterogeneous techniques which were mobilized bring the attention to different aspects of relationality and ways of relating.

Connecting planets – art & science. Mobilization of art-based methods: representation versus performativity. What do these methods do to a public which is more used to traditional methods? Vice versa, how may the encounters with students outside the arts lead to rethink those methods?

Interdisciplinarity in practice (or through controversies). The concepts were chosen to be explored by students from different disciplinary backgrounds. While these encounters enriched the discussions, they also occasionally led to controversies.

"Test what works": Methodologies are not given but need to be adaptable according to different publics and situations. This requires teachers to cultivate and develop a listening attitude and capacity to facilitate reflection emanating from situated experiences.

Challenging hierarchies. How may the relationship between teachers and students be (re-)configured through these methodologies? Overcoming hierarchies by new ways of being together and interacting in the classroom (teachers performing exercises together with students etc.).

"Points de bascule". At the start, art-based workshops often trigger bodily and affective reactions such as surprise, giggling, confusion, a sense of doing something childish, or even resistance. Then we observe some turning points—what we call "points de bascule"—where initial reactions shift toward greater engagement, enjoyment, and moments of éclat. What happens in these moments? What do they do, both to students and to teachers?

13 JUNE 2025 09.00 - 11.00

ROOM B2.2.13

ID 783 - Storytelling as an educational Responsible Research tool for AI for good

Anna Maria Piskopani, University of Nottingham

Efpraxia Zamani, Durham University

Elvira Perez Vallejos, University of Nottingham

Keywords: responsible research, education, artificial intelligence

Although the general public and young researchers are often exposed to utopic and dystopic media narratives of how AI technoscience can save or destroy humanity, they do not have the resources and tools to understand and rethink the new reality that the new technoscience brings to the present and near future and their role and responsibility in this. Thus, we created the EDU RRI toolkit that provides a set of resources that are easy to use and adapt to the level and area of the learners, and it has been designed specifically to support the integration of responsible research in the education and training of early and mid-career researchers, professionals, and practitioners.

Stories can be powerful tools for educational and training purposes, as they can help us think around significant issues where human cognition and emotions intersect. Using this as a central idea, we develop two fictional research projects with controversial uses of AI. The first one was about pain sensors developed with the use of AI to create a novel approach to physiotherapy, and the second was about an AI doll for abandoned children living in children's homes. We used the help of a large language model (LLM) tool (ChatGPT) to convert these projects into stories.

Our method draws from the narrative theory of education. Narrative-based learning is a learning approach, that suggests that people make sense of their experiences through stories, and storytelling (Mawasi et al.,



2022). Such narratives function as a mental framework and as the communication vehicle for people to interpret and understand the world around them, including their own experience of the world.

To test the method, we organised four focus groups with researchers from different career phases and disciplines and asked our participants: a) to criticise the stories as they have been written; b) to identify gaps and problematic areas and ways to improve them; c) to imagine the negative consequences, ethical and legal implications, but also their future impact on individuals and society as a whole; d) to find ways to address potential issues; and e) finally, to rewrite the stories. We encouraged them to be as creative as they wished, removing elements of the story or add new ones that can help communicate their own views.

In this paper, we're going to discuss our research findings. We are going to present how our participants engaged with these stories, better understood the context, reacted to controversial parts of stories, thought of implications and risks based on their scientific knowledge, past experiences but also fictional dystopic narratives of AI technologies and finally searched for ways to write about new technoscience in a way that is both intriguing and engaging but also provides more accurate information and is critical and thought provoking.

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13 JUNE 2025 09.00 - 11.00

ROOM B2.2.13

ID 793 - Caring for Education: Reconsidering Educational Drudgery

Waldo Heugebaert, Universiteit Maastricht

Keywords: EdTech, Educational Drudgery, Generative AI, Care

The EdTech landscape is notorious for its demands for, and promises of, educational reform. While this is not a new phenomenon, it seems these demands are today turbocharged by the growing popularity of LLM-based educational applications (Sriprakash et al., 2024). Often, a primary selling-point of these tools is that they will help reduce time and effort spent on all kinds of distracting, boring, or otherwise inefficient teaching responsibilities. Products like Khan Academy's Khanmigo, for instance, promise teachers they will "make your role less about busy work [, without] learning curve ('Meet Khanmigo', n.d.)". The way EdTech discourses draw on and reproduce uncritical images of 'technology' as panacea for all kinds of 'educational ills' is well-documented (see, for instance: Selwyn, 2016; Zawacki-Richter et al., 2019). Less prominent, however, is the study of the practices that these discourses discard out-of-hand as 'busy work', 'mindless work' or 'educational drudgery', particularly those practices engaged in by educators.

My paper aims to examine the nature of these educator-practices which EdTech seeks to reinvent, focusing specifically on the areas of 'feedback provision' and 'course design'. These domains will be studied by juxtaposing the results of a thematic analysis of commercial discourses about LLM-based teaching tools, with a philosophical reevaluation of the practices EdTech seeks to innovate out of existence. The philosophical analysis will draw on Nell Noddings' (1992) call to rethink education in terms of care, and Bernard Stiegler's (2008) pharmacological analysis of digital grammatization's implications for education. The purpose of this exercise is not to specify how to 'properly' use LLM-based teaching tools; but to show that, by caring about and for 'educational drudgery', this drudgery may itself appear as a form of care: for students, for what they make, and for the knowledge that is shared with them. By way of conclusion, the paper considers how this perspective on educational drudgery may inform pedagogical engagements with LLM-based teaching tools. Specific attention will be paid to the temporal contrast between 'careful drudgery' and 'techno-optimized efficiency'.

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13 JUNE 2025 09.00 - 11.00

ROOM B2.2.13

ID 800 - Developing a Critical Pedagogy for Active Responsible Digital Innovation

Vanessa Dirksen, *Open Universiteit*

Keywords: critical pedagogy, critical technical practices, emphatic imagination, STEM Higher Education

This paper addresses the 'active responsibility gap' (Santonio de Sio and Meccaci, 2020) of information and communication (ICT) professionals in the face of contemporary digital and artificial intelligence technologies. "This gap consists in the risk that persons designing, using, and interacting with artificial intelligence (AI) may not be sufficiently aware, capable, and motivated to see and act according to their moral obligations towards the behaviour of the systems they design, control, or use (p. 1059). As we contend, the active responsibility gap should be addressed in education programs in information and computer science in particular.

Digital technologies and AI both embody and disrupt sociocultural values (Han et al., 2022; Flanagan et al., 2008). The values 'inscribed' in these technologies tend to represent the perspectives and interests of a privileged minority (i.e., WEIRD) and may lead to undesirable effects in terms of the amplification of inequalities and the exclusion of marginalized and less privileged people. ICT professionals of all kinds play a crucial role in "reproducing [such] structures of inequality" (Manning, 2024: 6). It is therefore essential to educate future ICT professionals to recognize their role in (unintentionally) perpetuating personal and cultural biases within contemporary digital technologies and AI, all the more so as values carried and inscribed in AI technology are increasingly difficult to trace.

The objective of raising the moral and social consciousness of ICT professionals is in line with contemporary calls and guidelines for responsible and humane AI (UN, 2024; HLEG, 2019; Dignum; 2019; 2021). However, to date, STEM higher education falls behind in translating these principles into critical educational practices and didactic methods. The odd obligatory ethics course aside, in information and computer science curricula, to date, pursuing efficiency and effectiveness gains (i.e., instrumental values) still seem to prevail over societal/moral ones (i.e., intrinsic values).

In this paper we urge for the need of developing a critical pedagogy for responsible digital innovation (cf. Conley et al., 2024) to be integrated in higher education programs in information and computer science curricula. As we will show, the essence of such a didactic method is not so much determining which values information and computer students should engage with, but instead how they may develop a sensitivity for alternative value propositions such as inclusivity and equality, providing them the means and (experimental) working formats to do so.

To enhance the empathetic imagination and active engagement of information and computer science stu-



dents with social-ethical dilemmas of emerging technologies, we depart from principles of Critical Technical Practices as applied to digital research (Hirsbrunner et al., 2024; Van Geenen et al., 2024). In short, this means that critical reflection is specifically understood as something that ICT professionals do prospectively and from within the technical practices they help co-create. Subsequently, and in line with the various types of responsibility as defined in the tradition of Responsible Research and Innovation (RRI), we propose the development of five ideal typical learning activities to revolve around virtue, process, outcome and forward looking responsibility respectively.



12 JUNE 2025 09.00 - 11.00

ROOM B3.4

Panel 16. Integrating Technology, Ethics, and Creativity in Health-care

Convenors:

Orhan Önder, Universität Wien

Boris Abramovic, Universität Wien

Keywords: Care & Diversity, Ethics of Care, Imagining Future Care, Technology & Art & Care, Technoscience for Good & Creativity

In the context of advancing healthcare technologies, the intersections of digital innovations, care ethics, and creativity have great potential to collectively reconfigure the ways in which we perceive and engage with care practices. As digital technologies, artificial intelligence (AI), and robotics become increasingly integrated into healthcare systems, it is vital to examine their role not only as tools for efficiency but as agents which are socially and culturally capacitated to reshape care relations. With its foundation in relationality, responsibility, and attentiveness, the ethics of care offer a critical lens through which these technologies can be designed and improved to better meet the needs of people.

When we focus on creative applications of technology within care settings, we can identify cases such as virtual rehabilitation programs following surgery, artificial music therapy for palliative care patients, and care robots for story-telling and drawing in hospitals and assisted living facilities. Even if these technologies have the potential to improve patient care, it's important to understand that they pose the risk of supporting mechanistic or depersonalized forms of care and lack of genuine human reciprocity due to technical limitations and the scarcity of an ethical framework. The ethics of care require technology that is not only functional but also sympathetic and relationally attuned, with all technological interventions emphasizing human dignity and engagement. Likewise, these technologies should reflect user diversity and unique socio-cultural characteristics that shape user identity.

Rethinking the way healthcare solutions are developed and applied can be greatly aided by creativity and insights from various forms of artistic and cultural practices that extend the possibilities of technologies and engage with the concept of care in unique ways. To valorize those possibilities, this panel will bring together contributions that explore current strategies for integrating care ethics with technology and creativity, assessing their emergent promise for reimagining healthcare solutions in care settings.

We encourage proposals that address, but are not limited to, the following questions:

- How can digital technologies be reconfigured to foster more compassionate, empathetic, humane and patient-centred care practices?
- What role should care ethics play in the design and implementation of healthcare technologies?
- How can creativity and artistic practices inform the development of patient-centred technologies for care?
- How can we develop healthcare solutions that prioritize relationality, empathy, and emotional engagement alongside technological efficiency?
- Which practices and insights from artistic, scientific and ethical visionings contribute to the pluriversity of users and better integration of socio-cultural sensitivity in care practices?
- In what ways can we rethink the issues around the shortcomings of technology as it relates to the reciprocity in human-to-technology relations in the context of care? How can imaginative engagements with technology help us to ethically shape the future of care?
- In what ways can we rethink the integration of AI and robotics in care environments to enhance human relations?



12 JUNE 2025 09.00 - 11.00

ROOM B3.4

ID 346 - Empowering Healthcare Providers with Virtual Labs for Migrant Maternal Support

Alessia Bisio, Universidad de Córdoba

Pilar Aparicio-martínez, Universidad de Córdoba

Aurora Ruiz-Mezcua, Universidad de Córdoba

Juri Taborri, Università di Tuscia

Enrique Yeguas-bolívar, Universidad de Córdoba

Keywords: Virtual Reality labs, barriers, sanitary training, migrant women, quality education

Education plays a pivotal role in equipping healthcare providers with the skills and knowledge necessary to address the unique challenges diverse patient populations face. Innovative training methods, such as virtual reality (VR), are revolutionizing how healthcare professionals learn to deliver culturally sensitive and gender-specific care. Despite these advancements, there remains a lack of comprehensive training and information on how to professionally support migrant pregnant women in healthcare settings.

Over the past decade, Southern European countries have seen a significant increase in migrant and refugee arrivals, with a notable proportion of pregnant women among them. These women often travel alone and face heightened risks to their pregnancies, including premature birth, low birth weight, infant mortality, postpartum depression, and other adverse health outcomes. Upon arrival in Europe, they encounter substantial barriers to accessing healthcare, particularly within public systems. These barriers include restrictive legal entitlements, fear of deportation, low health literacy, and social fragility, often deterring women from seeking care or disclosing sensitive issues, such as self-induced abortions.

Language barriers, cultural differences, and administrative challenges create obstacles for both women and healthcare providers, limiting access to quality care and leading to poor pregnancy outcomes. The lack of interpreters and cultural mediators forces reliance on untrained relatives or children, compromising effective communication and care quality.

This paper highlights the innovative use of VR laboratories as an effective training tool to improve interactions between healthcare providers and migrant pregnant women. VR technology offers immersive, interactive, and reality-based scenarios, enabling healthcare professionals to practice in a risk-free environment. These simulations allow medical staff, nurses, psychologists, and occupational therapists to develop critical skills such as cultural sensitivity, effective communication, and clinical competence. By fostering empathy and enhancing theoretical and practical knowledge, VR empowers healthcare providers to deliver tailored, culturally sensitive, and gender-specific care to this vulnerable population.

This methodological paper outlines a framework for developing a VR lab designed to raise awareness of the barriers patients and providers face while equipping healthcare workers with practical tools to overcome these challenges and improve pregnancy outcomes. In addition, the project includes testing the VR laboratories with participants from hospitals and nursing schools to assess usability and evaluate effectiveness. This evaluation will provide insights to refine the VR tool and ensure its practicality and relevance in real-world healthcare settings. Furthermore, the initiative involves a comparative analysis of neonatal and pregnancy care between two facilities: the fourth-level Reina Sofia Hospital in Córdoba, Spain, and the second-level Saint Joseph Hospital in Ikelu, Njombe region, Tanzania. This analysis seeks to underscore disparities in healthcare systems and highlight the need for specialized training programs to bridge these gaps and improve maternal and neonatal care.

This work is part of the UNITE (University Network for Inclusive and digiTal Education) project, funded by the European Union. UNITE fosters diversity awareness, cultural inclusion, and gender sensitivity through innovative and inclusive education. The VR-based training program aligns with these principles, representing a significant step toward improving healthcare outcomes for migrant pregnant women and advancing global maternal health equity.



12 JUNE 2025 09.00 - 11.00

ROOM B3.4

ID 519 - From Design to Impact: How Multisensory and Smart Tech Are Transforming Care Services.

Elena Enrica Giunta, Politecnico di Milano

Silvia Peluzzi, Studio Shift

Giuseppe Bugada, ITACA Cooperativa Sociale

Sara Vavassori, ITACA Cooperativa Sociale

Elisa Veronelli, ITACA Cooperativa Sociale

Keywords: strategic design, co-design, smart tech, augmented spaces, long-term thinking

This paper presents the experience of Cooperativa Sociale ITACA (Bergamo), which, in collaboration with Studio SHIFT (a design agency), has been restructuring its personal care services since 2019. These services support people with severe disabilities and focus on mental health prevention for young people and adolescents. The co-design processes implemented align with the principles of Inclusive Design, which integrates user diversity into the design process. The development of new services has been driven by a long-term vision and continuous interdisciplinary collaboration, incorporating technological solutions such as:

- Immersive multisensory spaces for practising the Snoezelen and Basal Stimulation methods, aimed at promoting psychophysical well-being and learning.
- Computer Game Therapy, designed to enhance motor, cognitive, and relational skills.

Between 2022 and 2024, ITACA established three Snoezelen Rooms: two within Day Centers for people with disabilities and one in a multipurpose space called SPAZIO12, creating opportunities for outward-oriented experiences that cater to a broad range of community members. Currently, 135 people with vulnerabilities regularly benefit from these multisensory experiences, with additional activities offered to schools and private individuals. In 2023, the cooperative conducted its first impact assessment on the benefits of multisensory approaches for people with disabilities and autism, reporting an SROI (Social Return on Investment) of 3.5. Meanwhile, Computer Game Therapy has been structured into 12-session cycles for 12 participants per session, providing an additional pathway for personal development. Also in 2023, ITACA took a further step in knowledge-sharing by organising a Conference/Festival focused on disability and emerging technologies. The event combined theoretical reflection with hands-on activities, helping educators, psychologists, teachers, and care professionals explore the potential—and limitations—of multisensory approaches, virtual reality (VR), augmented reality (AR), and smart devices. As a direct outcome of the conference, one local community of practice and two internal training working groups (WeTech - Be Snoezelen) were established. Their experiments and findings will be presented in this paper.

12 JUNE 2025 09.00 - 11.00

ROOM B3.4

ID 522 - Investigating Deception Issues Arising from the Design of Social Robot for People with Dementia

Fan Wang, Technische Universiteit Eindhoven

Giulia Perugia, Technische Universiteit Eindhoven

Yuan Feng, Northwestern Polytechnical University

Wijnand A. Ijsselstein, Technische Universiteit Eindhoven

Keywords: Human-Robot Interaction, Social Robot, Robotic Deception, People with Dementia

The rapid evolution of autonomous systems like social robots has reshaped human-machine interaction. Social robots aim to enhance psychological well-being and quality of life, especially for users such as people with dementia (Abdollahi et al., 2017). However, they could also blur the line between assistance and



manipulation (Wolfert et al., 2020). Robotic deception—"a robot, as an artificial agent, creates a misleading impression through its representations or signals"—remains a complex ethical challenge in this context. Social cues can foster illusions of sentience or cognition, resulting in misplaced trust and inappropriate uses (Moharana et al., 2019). For people with dementia, the emotional relationship with social robots may lead to disconnection from reality. For example, they may falsely believe that a robot offers true friendship, expressing sorrow when it breaks or is taken away, or even socially isolating from humans (Elder, 2016; Sharkey & Sharkey, 2012). By analysing the dynamic interplay between robot design and user perceptions, our overarching goal is to help design ethical social robots for people with dementia, ensuring these technologies empower rather than exploit vulnerable individuals.

We unfold our research in two parts. First, identify the specific social cues and design pipelines contributing to robotic deception. By designing social cues such as appearance, gaze, gestures, or speech, humans' natural tendencies of attributing human-/animal-like traits to non-living entities can be amplified, making users perceive or unconsciously respond as if the robots are real ones, even though acknowledging their artificial nature (Sætra, 2021; Zlotowski et al., 2015). This blurring creates the foundation for robotic deception, raising an important question: How can we identify specific design features or pipelines that tap into and accommodate people with dementia's natural proneness to deception?

Second, the boundaries of acceptable and beneficial robotic deception remain unclear. Social cues amplifying anthropomorphism/zoomorphism tendencies have multiple benefits—enriching interactions, enhancing experience and engagement, and improving trust and efficiency (Admoni & Scassellati, 2017; Ishowo-Oloko et al., 2019; Waytz et al., 2014; Zlotowski et al., 2015)—they also raise ethical concerns about (un)intentional deception leading to emotional dependency or loss of autonomy. Therefore, we ask: To what extent robotic deception is acceptable and beneficial for people with dementia?

Coeckelbergh (2018) and Musiał (2023) argued that the perception of social robotic deception heavily depends on user perspectives. However, understanding people with dementia from their perspective can be challenging. To address this, we plan to adopt an interactive participatory design methodology to examine deception within a dementia care context and explore users' attitudes toward robotic deception.

This research will contribute to the design of social robots and HRI by producing:

- Empirical insights into how robotic deception unfolds in people with dementia, highlighting the interplay between robot design and user perception;
- Practical design guidelines for developing ethical social robots for people with dementia balancing the benefits and potential harms;

A novel participatory approach to engage people with dementia in the ethical design of social robots, offering a replicable experience for studying deception in sensitive user groups.

12 JUNE 2025 09.00 - 11.00

ROOM B3.4

ID 537 - "Is the robot deceiving grandma?" Addressing human-robot attachment within elderly care through creative solutions

Gaia Contu, Scuola Superiore Sant'Anna, Pisa

Keywords: human-robot interaction, attachment, deception, robot ethics, ethics of care

In the age of new technologies, our capacity to form attachment bonds extends beyond people, animals, and objects to include robots. The research field of socially assistive robotics focuses on investigating and creating robotic devices designed to provide care for vulnerable people, such as the elderly. The world population is indeed aging at an increasing rate, while care services remain scarce, and Personal Care Robots present a promising solution to combat loneliness and mental health issues among the elderly. However, this raises an important ethical question: what if the affective involvement formed in Human-Robot Interaction is based on deceptive premises? Given the frailty and delicate moral status of the end-users, this



issue becomes a primary concern.

This presentation will explore the ethical issue of Human-Robot Attachment, proposing both an in-depth philosophical and theoretical analysis and the development of experimental designs that demand a high level of creativity, abstraction, and imagination.

Specifically, I will examine two questions:

- Is human-robot attachment inherently based on deception? (top-down approach)
- How can we configure an ethical Human-Robot Relationship in the case of elderly care? (bottom-up approach)

Starting from the theoretical frameworks of Human-Robot Affective Coordination (Dumouchel & Damiano, 2017), I will argue that the standard accuse of deception is based on false premises.

In fact, modern philosophy of mind, despite affirming the overcoming of Cartesian dualism and recognizing the mind as a cognitive machine like any other, continues to assume the human mind as a paradigmatic epistemic agent, and the argument of deception is precisely based on this residual dichotomy. In reality, this is not the case: the mind, as well as emotions and affective processes, exist within a relational space. Interestingly, this is also supported by empirical evidence. Experiments from the behavioural sciences and moral psychology have shown that the notion of an inner emotional or cognitive state being outwardly expressed only as a subsequent effect does not align with reality. Instead, the affective process is bilateral and bidirectional, as illustrated by William James's pragmatist theory.

After demonstrating this, I will argue that this conclusion must be further tested within a practical social space and that to develop such an experimental framework requires strong creative abilities. According to the perspective of Social Construction Of Technology (SCOT), User-Centred Design and Care-Centred Value Sensitive Design (van Wynsberghe, 2013), technoscience is not inevitable and does not occur in a deterministic vacuum, thus it is crucial to focus on user preferences and values, especially in delicate contexts such as care practices. Considering this, it is critical to develop empirical studies to test affective behaviours and emotional expectations in elderly-robot relationships.

Therefore, I will show that, given the ethical constraints and the challenges in experimental design, the ability to elaborate new collective and interactive solutions driven by art can play a decisive role. I will conclude that designing care robots to elicit attachment in the elderly is not inherently ethically controversial, yet specific precautions – which will be discussed - must be followed.

12 JUNE 2025 09.00 - 11.00

ROOM B3.4

ID 854 - Designing Inclusive Phygital Public Spaces for Elder Care: A Speculative Role-Playing Workshop for Integrating Emerging Technologies

Tehilla Shwartz Altshuler, היטרקומדל ילארשיה ווכמה The Israel Democracy Institute

Romi Mikulinsky, Aalto-yliopisto

Keywords: speculative design, aging technology, phygital spaces, elder care, ethics

Previous research in Science and Technology Studies has highlighted the growing gap between technological development and policymaking (Berardi et al., 2024; Hameed et al., 2024), particularly regarding technologies for aging populations. While scholars have examined technology adoption among older adults (Berkowsky, Sharit, & Czaja, 2018; Gambo et al., 2023) and the adequacy of technology to aging in place (Braun and Schultz, 2022; Marshall, et al., 2022) less attention has been paid to participatory approaches in designing future phygital spaces - environments where physical and digital realities converge through technologies like smart glasses. These technologies raise critical questions regarding human rights and values, such as privacy, autonomy, freedom, equality, control, and sociability in public spaces.

Our research employs a speculative design methodology to investigate how emerging phygital technologies impact four key interaction types: person-to-person, person-to-space, person-to-reality, Per-



son-to-Platform Interactions (P2P, P2S, P2R, P2PL). Building on Pink's (2022) conceptualization of futures as experiential and contingent rather than predetermined, we developed a participatory board game as our primary research tool. This game facilitates structured interactions between multiple stakeholders - elderly individuals, families, caretakers, technologists, policymakers, and designers - through role-play scenarios addressing ethical challenges in technology adoption.

This case study introduces a newly developed design-driven research methodology that combines multiple approaches to ensure ethical and comprehensive data collection and analysis. First, we conduct participatory design workshops using our custom-developed board game, which introduces participants to near-future fictional scenarios where they must navigate complex trade-offs of technology adoption. Second, we employ the Voros Futures Cone framework to analyse possible, plausible, preferable, and preposterous futures, moving beyond binary techno-utopian or apocalyptic visions. Third, we conduct stakeholder interviews and feedback sessions to gather qualitative data about participants' experiences and insights about the integration of advanced technologies in elder care (be it care robots, agentic AI, or immersive technologies). Finally, we perform a comparative analysis of emerging policy frameworks to contextualize our findings within current regulatory landscapes.

Our results reveal several key findings that contribute to both theoretical understanding and practical application. First, the game-based approach successfully bridges communication gaps between stakeholders, enabling more nuanced discussions about privacy, autonomy, and sociability in phygital spaces. Second, we identified specific friction points between different stakeholders' needs and values, particularly regarding surveillance and agency for elderly individuals and their caretakers. Third, our methodology effectively exposes blind spots in current policy approaches to aging technology, highlighting areas where regulatory frameworks need adjustment to address emerging challenges in phygital spaces.

These findings contribute to STS discourse by extending Pink and Salazar's (2017) work on anthropologies of the future into the domain of aging technologies. Our research demonstrates how speculative design can serve as a practical tool for democratic technology governance, while also advancing theoretical understanding of how futures are "made, tamed, and transformed" in the context of aging populations and phygital spaces. This approach enables us to consider not only technologies and innovation narratives but also the diverse needs and perceptions of older people, leading to more inclusive and equitable digital futures.

12 JUNE 2025 09.00 - 11.00

ROOM B3.4

ID 875 - Technology-Supported Peer Counselling within Local Service Settings: Creative Solution or Shifting Care Responsibilities?

Urban Nothdurfter, Libera Università di Bolzano – Freie Universität Bozen

Eleonora Melchiorre, Libera Università di Bolzano – Freie Universität Bozen

Maria Alessandra Molè, Libera Università di Bolzano – Freie Universität Bozen

Keywords: technology-supported peer counselling, online peer support, digital outreach

This paper examines the implementation of technology-supported peer counselling as an innovative practice within the prevention and outreach strategies of local social and health care services in Italy. Adopting a critical and care-informed perspective, the paper discusses the findings of an in-depth qualitative investigation of anonymous online peer support practices and their ambiguous entanglement with institutionalised forms of public care. In the post-pandemic landscape, young people have emerged as one of the groups most affected by emotional and social fragility and exposed to mental health-related risks. At the same time, the help-seeking behaviour of young people increasingly relies on stigma-avoiding forms of support in their digitalised lifeworlds. This underscores the urgency to break down barriers to access services and develop innovative approaches and technology-supported tools aimed at reaching out to young people. Against this background, a national project was designed in Italy to promote and integrate tech-



nology-supported peer counselling in local service settings. Based on a peer-to-peer approach, the project aims to create an anonymous space where young people can access empathetic listening and openly exchange with volunteer peer counsellors. At the same time, the project is implemented within local service settings and meant to provide a bridge towards social and health care services. Within a wider national research project (PRIN PNRR 2022) on digitally mediated practices of care, in-depth qualitative case studies examined the local implementation and interpretation of the project in different local service settings.

Through a qualitative methodology combining onsite visits, both onsite and online interviews with peer volunteers and professionals, digital ethnography, and conversation analysis, the case studies investigated the involvement and implementation of online peer support in local service settings by exploring different perspectives, observing accessibility and encounter practices, and analysing anonymous online support conversations between service users and peer volunteers.

The findings show both the potentials and limitations of technology-supported peer support and its involvement in the prevention and outreach strategies of local services. The findings are discussed from a critical and care-informed perspective to shed light on the ambiguous entanglements of this kind of support with the offer of social and health care services. The project opens new spaces for creative caring practices that challenge traditional boundaries in manifold ways and potentially bridge traditional service settings and digitalised lifeworld contexts of young people. At the same time, the findings show that volunteer peers may find themselves exposed to a wide range of needs and emotionally complex situations to be managed in an anonymous online environment. The findings suggest that promoting technology-supported peer counselling can be a creative solution for reaching out to young people by interweaving online volunteering and institutionalised services. At the same time, it remains essential to ensure that peer volunteers receive proper training and supervision, and that low-threshold online peer support is linked with a system of professional services and public care.



12 JUNE 2025 09.00 - 11.00

ROOM B5.1

Panel 17. From Efficiency to Entanglement: Rethinking Technology, Work, and Organisation

Convenors:

Francesco Bonifacio, Università Cattolica del Sacro Cuore

Cherry Jackson, Royal Holloway

Keywords: Entanglement, Labour, More-than-human, Quantification, Technology

What mattered most during the Industrial Revolution was not the mere introduction of new machinery but how that technology fundamentally reshaped social relationships. This transformation spurred movements like Luddism, where both people and things were no longer allowed to simply "matter" but were made to "count." As philosopher Jacques Ellul later argued, efficiency became the dominant value in modern life, prioritising quantitative measures over qualitative ones. This focus on efficiency and measurement has only accelerated since Ellul's writings, extending even to aspects of life like happiness, altruism, and relationships. Today, nearly everything and everyone can be quantified and categorised.

This panel interrogates how the quantification of human and more-than-human life has restructured work, technology, and organisation from the Industrial Revolution to the present. We seek to explore how humans and more-than-humans alike are increasingly embroiled in hidden entanglements with technology, work, and organisational practices. As a result, things and people no longer belong; they are owned and managed. This social reconfiguration has disproportionately benefitted some while marginalising others.

The panel invites contributions that rethink our normative approaches to technology, work, and organisation, offering alternative ways of designing, building, and collaborating. In particular, we are interested in submissions that:

- Explore experimental or qualitative methods for engaging with technology and work;
- Investigate more-than-human perspectives and how non-human entities shape technological practices;
- Draw on feminist technoscience, indigenous knowledge systems, posthumanism, or ecofeminist approaches to rethink labour and organisation;
- Address ethical considerations in technoscientific practice, asking what technoscience can be good for, and for whom, while paying attention to who gets to define these terms.

Contributions can be methodological, philosophical, or empirical, and we welcome papers from all disciplinary perspectives. By reframing technoscience as something that "matters" and resists the drive toward efficiency and quantification, we aim to explore new ways of thinking about technology, work and organisation in the Anthropocene.

12 JUNE 2025 09.00 - 11.00

ROOM B5.1

ID 137 - Automation Technologies and Machines in the Changing Workplace: A Social-Scientific Review

Yavuz Ülker, Universität Freiburg

Keywords: Automation, labour, technology, STS

This research provides a review of the Science and Technology Studies (STS) literature on how machines and automation technologies change the landscape of workplaces and human work. While STS scholars have increasingly emphasized including inequality and sociotechnical issues in their studies, the study of work and workplaces remains a relatively neglected research topic. This research strives to pinpoint specific debates in the discourse, intending to holistically bring perspectives from the literature. With this, the diverging proclivities of the examined journals in terms of research are also acknowledged and commented



upon. The research method is that of a semi-systematic review. Literature from the following journals is investigated: *Osiris*, *Technology and Culture*, *Social Studies of Science*, and *Science, Technology, and Human Values*. The discourse is divided into four thematic clusters. The first one focuses on the historical study of labor. The second cluster covers the debates on technological determinism. The third one looks at work and labour in the post-industrial context. The final cluster concentrates on human-machine interactions.

The main argument developed in this research is twofold: First, the literature is fragmented and aligns largely with the High- and Low-Church distinction in how STS scholars research and teach. Second, considerations of power struggle and disempowerment appear as underlying elements throughout the literature in different forms. A large-scale replication of this research could yield more detailed results on the High- and Low-Church divide as well as debates on disempowerment. Along with STS scholars, this research could contribute to the studies of labour relations, organisational sociology, and machine ethics. This research could possibly assist in future attempts at theory-building.

12 JUNE 2025 09.00 - 11.00

ROOM B5.1

ID 289 - Playing by the rules, bending the rules: pragmatism in platform labour

Camilla Volpe, Università degli Studi di Milano Statale

Keywords: Platform, pragmatism, content creators, precarity, labour, platform labour

Precarity, a structural feature of post-Fordism, has progressively accustomed young adults to a system of economic, occupational, and social insecurity. Socialized within a neoliberal context, these individuals have internalized the idea that stability is an exception rather than the norm, developing coping mechanisms to navigate an increasingly uncertain landscape. They often accept precarious conditions with resignation, struggle with social comparison, and engage in underpaid or unpaid labor. This pervasive sense of impermanence extends beyond employment, shaping their social relationships, time management, and future outlook. In this context of uncertainty, digital platforms have emerged as key tools for connection and communication, while simultaneously fostering informal digital economies characterized by high labour intensity and low capital investment. Instagram and TikTok, in particular, have become fertile environments for monetizable digital labor, with content creators leveraging these platforms as a means of economic survival. However, platform labour is subject to algorithmic governance, which operates in an assertive and unidirectional manner. Algorithmic feedback loops reinforce visibility mechanisms that reward specific behaviours and content, compelling creators to engage in continuous self-optimization and strategic adaptation.

This study aims to examine the impact of such dynamics on the platform labour of content creators on Instagram and TikTok and to explore the strategies they employ to mitigate its negative effects. Methodologically, the research is based on digital ethnography and qualitative interviews with a selection of micro-influencers.

The findings reveal that uncertainty and instability are central to the experience of platform labor, contributing to widespread anxiety and burnout. The unpredictability of algorithmic changes, the constant need to sustain audience engagement, and the pressure to produce a steady stream of content result in an intensified and often stressful work situation. To counteract these negative effects, content creators develop adaptive strategies that can be understood as a form of vitalistic platform pragmatism. This manifests primarily through two key practices: consistency and creativity. Consistency is perceived as essential to maintaining visibility and ensuring a degree of economic stability, while creativity serves as a tool for differentiation, allowing creators to navigate platform constraints and experiment with new forms of engagement. In this sense, the work of micro-influencers represents an ongoing negotiation between the opportunities afforded by digital platforms and the challenges imposed by their socio-technical structure.



12 JUNE 2025 09.00 - 11.00**ROOM B5.1**

ID 720 - Workplace Care in the Age of Iatrogenic Harm.

Ingrid Holme, University of Galway

Alexander Stingl, University Of Galway

Brendan Flynn, University Of Galway

Paula Tumulty, University Of Galway

Alexander Kladakis, University Of Galway

Shane O'Donnell, University College Dublin

Susi Geiger, University College Dublin

Pat O'Connor, University of Limerick

Richard Lombard Vance, Irish Research

Jane Calvert, University Of Edinburgh

Conor Douglas, York University

Keywords: Academic Ecosystem, Iatrogenic Harm, Postdoc Staff, Care

The concept of 'iatrogenic Harm', commonly thought of as harm from medical treatment or healthcare, has been enthusiastically embraced by medical schools and healthcare institutions. For Ivan Illich, this misread his intention to examine enterprises which claim, "to abolish the need for the art of suffering by a technically engineered pursuit of happiness", leading to the "total management of the person, now transformed into a system" (Illich 2002, page ii). Following this vein, our paper focuses on the concept of 'the academic ecosystem' based on our ongoing research study comparing the lives of postdoctoral researchers in Ireland, Denmark, and Singapore*. We explore the growth of the technological assemblies of doctoral schools, professional development courses and Human Resource 'charters' and how they form production sites of misery and iatrogenic harm. Spoken of as 'precariousness' by news media, politicians, and employee unions, this concoction of harms can seem an inherent requirement of the current system and structure of university employment. However, we end by questioning to what extent considering 'arts of suffering' enables a radical rethinking of care within the university workplace.

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12 JUNE 2025 09.00 - 11.00**ROOM B5.1**

ID 758 - Faster, better, fairer: How AI job interviewing companies conceptualise algorithmic fairness

Lou Therese Brandner, Eberhard Karls Universität Tübingen

Keywords: AI ethics, algorithmic fairness, hiring and recruiting, human resources

Artificial intelligence (AI) supported job interviewing presents itself as a new mainstream solution in the human resources (HR) industry. One-sided structured behavioural interviews are recorded in front of a computer camera, without human recruiters present, and analysed by an AI system that generates assessments and rankings on which human recruiters can base further decisions. Given the ubiquity of job interviews in conjunction with the time, cost, and effort that go into them, automating this process has disruptive potential; but the technology has also been publicly criticised for a lack of accuracy and potentially producing biased results [1][2]. In light of such scrutiny, this contribution analyses how automated interviewing companies communicate their commitment to AI fairness to the public.

A central claim of (semi-)automated hiring is that AI systems are less prone to bias than human recruiters,



whose decisions might be influenced by stereotypes or prejudice. But given that these systems depend on human input, AI applications can reproduce existing biases and automate them [3]. Automated interviewing could thus perpetuate existing job market discrimination toward women, racial minorities, people with disabilities, and other marginalised groups. The term AI fairness or algorithmic fairness describes statistical methods intended to mitigate or eliminate these kinds of biases; fairness concerns linked to the development and use of automated interviewing have been discussed from ethical and legal perspectives [4].

This ongoing research is based on a mapping of 50 companies offering AI-assisted HR technology. Starting from this mapping, the websites of selected video interviewing companies are analysed to assess available material (e.g. white papers, blog posts, explainability statements) communicating how the businesses conceptualise AI fairness and related terminology. The aim is to assess how "fairness" is framed, both to attract customers and to mitigate concerns by applicants and the wider public – how and to what extent is the term used? How does its framing relate to operationalisations in the available literature on AI ethics? Can different kinds of conceptualisations be discerned - and what implications do they hold for the future of applying for jobs? At the time of the conference, the analysis will be concluded and the results of the research can be presented.

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12 JUNE 2025 09.00 - 11.00

ROOM B5.1

ID 789 - Platform workers without platforms: worker agency and platform engagement in platform-based property management

Quinn O'dowd, University of Illinois at Urbana-Champaign

Keywords: platform labor, Airbnb, workplace organisation, agency

In the gig economy, platform organisations are often critiqued for implementing algorithmic management tools, which not only evaluate work in the absence of human managers, but also optimize extracted data to induce more intensive, flexible ways of working. In this way, the datafication of work can be seen as a uniquely powerful process in allowing platforms to dictate the terms of labor. These critiques of the organisation of platform labour assume that workers and platforms have a one-on-one relationship; nevertheless, work on platforms like Airbnb increasingly takes place in more conventional work contexts, as hosting labour is largely carried out by property management companies. Within such organisations, work is organized both by the Airbnb platform and human managers, who mediate workers' relationship to the platform. This arrangement raises questions about how workers engage with the platform and its non-human systems of management in the presence of human managers. Using participant observation data from a case study of one such property management company operating on Airbnb in Prague called SmartStay, I argue that it is the workers without any relationship to the platform, such as cleaners, who are made to work in the most intensive conditions yet have the least agency over their work. In this paper, I highlight three reasons for this; first, SmartStay's cleaners are dependent on coworkers to relay time-sensitive, platform-derived information, second, they are unable to turn down jobs on the platform, and third, their lack of platform literacy makes it difficult for them to contest human managers' decisions.



Thus, rather than emphasize datafication as a site of precarity, I demonstrate how, for certain workers in the platform economy, the experience of domination can still come from human management. In this way, I show how workers can be abstracted from the platform—as cleaners' relationship to the platform is entirely mediated by human managers and co-workers who reinterpret and reimagine its values—and that this distance from the platform makes workers more vulnerable to mistreatment. Thus, I contend that the entanglement of human and platform-based systems of management can both extend and distort how platforms shape labor. I therefore demonstrate how certain platform entrepreneurs can take advantage of unequal platform relationships within their company to reinforce conventional workplace hierarchies. In doing so, I present a more complex picture of platform power, as one that does not unambiguously transform labor, but one in which certain on-the-ground actors can shape to their advantage.

12 JUNE 2025 09.00 - 11.00

ROOM B5.1

ID 843 - The Inscrutability of Digital Artifacts – Rethinking Human Creativity and Vulnerability in AI-Mediated Spaces

Irene Olivero, Università degli Studi di Genova

Keywords: Artificial Intelligence, creativity, human vulnerability, epistemic manipulation, metaphysics

Imagine asking a text-to-image AI model like DALL-E to generate an image of a quiet street in Paris at dawn. Your expectations might include soft morning light, empty roads, and Parisian architecture. Yet, the AI-generated results are often unpredictable—some surreal, some distorted, some eerily precise but containing unexpected (and likely not desired) elements. The unforeseen (to a certain extent) outputs produced by these digital technologies—often eluding direct user control—position them as a potential bridge between human faculties and technological artifacts. This underlines the need for a broader discussion on the shifting boundaries of human uniqueness in the face of rapidly advancing AI capabilities.

Generative models like DALL-E, Midjourney, and ChatGPT produce outputs that users cannot fully anticipate—these digital artifacts display behaviours that mimic human-like unpredictability and creative expression (Young and Terrone, 2024). This unpredictability does not seem merely a technical glitch but rather a fundamental aspect of how AI algorithms interpret and execute tasks based on their training data and design structure. This peculiar but inherent feature of AI-driven generative technologies raises pressing questions: If creativity becomes a collaborative or even contested space between humans and machines, should AI be granted authorship rights? How much control can humans exercise over the outputs of these digital artifacts? Do these technologies subtly shape aesthetic preferences, reinforce dominant cultural narratives, or even obscure accountability in creative labor?

In this talk, I aim to investigate these issues while addressing how AI generative technologies challenge traditional metaphysical classifications of artifacts and natural objects by exhibiting behaviours typically ascribed to humans. While AI remains a product of human design and, as such, an artifact by definition (Hilpinen, 1992), its creative outputs suggest a level of autonomy that complicates its status as a mere tool. I will argue that these digital artifacts function autonomously within their operational environments, demonstrating forms of creativity and randomness that challenge the notion of imagination as an exclusively human faculty. Furthermore, AI's increasing role in institutionalized creative practices (e.g., art, design, journalism) raises ethical and ontological concerns regarding epistemic manipulation, authorship, and the evolving boundaries of human uniqueness.

By engaging with these issues, this talk contributes to the broader discourse on AI's role in reconfiguring relationships between humans and technology. The inscrutability that seems to inherently characterize AI-driven generative technologies challenges traditional assumptions about imagination and creative authorship; it blurs the line between human and artificial creativity while also introducing new forms of human vulnerability – issues that warrant extensive discussion in more experimental contexts.



12 JUNE 2025 09.00 - 11.00

ROOM B3.3

Panel 18. What comes next for Feminist STS?

Convenors:

Anna Jabloner, Universidad Instituto de Empresa

Danya Glabau, New York University

Keywords: Black feminism, Feminist STS, disability, technoscience

Feminist STS has been a hub of activity in recent years, with new journals and interdisciplinary theory reinvigorating the center of the field from what had previously been treated as a marginal set of scholars and concerns. In particular, Black feminist theory has motivated intersectional and justice-based critiques of digital technologies, care work has become a sustained area of theoretical interest, from the laboratory to the hospital to the home, and disability theory has gained its footing in STS via feminist research on biomedicine and medical innovation. Indeed, the subfield marks an important moment in 2025: the ten year anniversary of a dedicated feminist STS journal, *Catalyst: Feminism, Theory Technoscience*.

Now that feminist STS has gained broad institutionalization and recognition, what comes next? This roundtable invites scholars from any methodological and/or disciplinary perspective to map out future directions for feminist STS. What possibilities, for example, has an intersectional perspective on digital and biomedical infrastructures opened up for teaching, research, and activism? How does feminist STS translate into innovative pedagogy, and what variety of institutions host such programs? How does feminism unsettle taken for granted commitments in STS, like the interest in the laboratory as a primary research site or "studying up" among scientists and other experts? And how might feminist STS provide a platform for the pursuit of other commitments in the field, like better recognition of scholars in/of the Global South?

For our roundtable discussion, we invite short, 5-minute summaries of forward-looking concerns or research in feminist STS. These short statements can alternately consist of short demos or multimedia presentations of engagements with feminist technoscience beyond traditional academic texts. Please indicate what you wish to briefly present as well as the questions you want to discuss with your fellow discussants in your abstract.

12 JUNE 2025 09.00 - 11.00

ROOM B3.3

ID 236 - Feminist STS in Trump 2: tech nerd goes macho

Anna Jabloner, IE University

Keywords: Black feminism, Feminist STS, disability, technoscience

The global lead disseminator of fake news, conspiracy theories, and other untruths is back in power in the US, and with a vengeance. Populists, autocrats, and fascists are in charge in numerous EU countries and across the globe. As Trump belligerently starts into his second administration, fake news and overtly anti-science ideas are not just being amplified but find strong and real political leadership in his loyalist institutional shake up. In addition, Silicon Valley leaders, long identified with a nerdy and distinctly (white-) American style of being a tech-nerd or -bro, are all over the news re/discovering their meat-eating, chest-beating virility at the onset of Trump 2. What a twisted double challenge for feminist STS folks! In this potential contribution, I'd like to briefly connect the political moment to some possible futures of feminist STS. And trying to stuff my LeGuin-ian satchel with some talking points as the tech-nerd goes macho, I suggest the following discussion questions:

- In light of a shifting political landscape, what are the futures of an institutionalized feminist STS? Are those institutions secure? Why or why not?
- Who do we talk with/against/vis-à-vis in this political moment, when official scientific institutions may change or even be dismantled?



- How do feminist STS scholars argue for the need for feminist critiques of science and technologies when we may no longer be addressing the major scientific institutions and funders, but more explicitly those in power who might find in "feminist STS" the perfect evidence of a woke takeover?
- How might we address, especially with students and in everyday language, the need to critically study objectivity under Trump 2?
- If we are, as feminist STS scholars, reacting to chest-beating, meat-eating neo-machos re-discovering their lost virility, how do we do so? Where, and when? How do we bring intersectional feminism in/to a flaring US-style macho politics?
- Or, do we explicitly keep quiet in this moment – in order to protect feminist STS structures in what might amount to the emergence of (some kind of) fascism?

12 JUNE 2025 09.00 - 11.00

ROOM B3.3

ID 370 - Body, Water, Camera. A Sensory Feminist STS Project.

Lily-Cannelle Mathieu, McGill University

Keywords: #corporeality, #cyborg, #feminist STS, #film, #non-word-based methodology

A multimedia presentation: I would be thrilled to participate in this panel and to have the opportunity to discuss my (yet untitled, and perhaps forever so) short ethnographic film with a group of scholars actively working in Feminist STS. The 5-minutes film presents unedited, yet highly technologically-mediated images and sounds produced by a GoPro HERO10 camera handled by myself, a young anthropologist who was then learning to dive in the hope of glimpsing at common octopuses in Sicilian waters. This film was produced in the context of the ethnographic fieldwork I conducted for my doctoral research, in which I propose to think of, and invite to try to experience, cognition from both octopian and AI 'bodies' and perspectives.

The short film nods poetically to an experience of learning to breathe underwater, through a cyborgian apparatus, and to an unexperienced filmmaker's corporeal and mediatic negotiations with her new GoPro recorder. The film proposes itself as a sensory engagement with water, corporeality, and mediaticity, and invites reflections on what feminist STS can look like, beyond words. Indeed, it is my hope that the film's sensory qualities are heightened by the absence of words, and that they can transmit, viscerally, an experience of being a body in water, of being somewhat of a (temporary?) cyborg, of breathing through a complex apparatus, and of seeing (or pretending to see) through an AI-powered camera encased within a transparent box protecting it from the sea water's pressure changes. Here are a few questions I would be very excited to think about with fellow discussants:

- What can an engagement with the concepts of water, liquidity and viscosity bring to contemporary Feminist STS (June 2020)?
- What are the stakes of referring to corporeality in Feminist STS today (Alaimo 2014, Parisi & Teranova 2021)? (How) can we think with or within this paradigm without reiterating a dichotomic association between the feminine and the body, on one side, and the masculine and the concept of a 'disembodied' mind, on the other? How can the processes and outcomes of thinking with one's body be articulated in contemporary conversations?
- How can 'cyborg-ness' be made present to a public; how can it be made felt, beyond words and discursive explanations (Stevenson 2017)? How can one viscerally transmit (Diamond 2003) an experience of 'cyborg-ity'? Can film, for example, allow an empathy towards cyborg-ness to emerge? An embodied empathy towards other or Other bodies?
- Very pragmatically, how can a junior scholar 'do' STS or academic work beyond words in an institutional landscape normatively constructed around discourses (Ahenakew 2016)? How can one seek academic approval and recognition when conducting non-word-based methods and creating non-word-based academic works?



- What are emergent possibilities at crossroads between More-than-Human and Feminist STS studies (Haraway 1991, Haraway 2016, Alaimo 2016, Swanson 2017, Braidotti 2019)? What forms can feminist sensibilities take in more-than-human relationships and entanglements?

12 JUNE 2025 09.00 - 11.00**ROOM B3.3**

ID 741 - Can Technology Be Feminist? New Directions in Technology Assessment

Marta I. González García, Universidad de Oviedo

Natalia Fernández Jimeno, Consejo Superior de Investigaciones Científicas

Keywords: Feminist technoscience studies, technology, assessment

Well-known feminist philosophers of science, such as Evelyn Fox Keller, Helen Longino, Sandra Harding, and Donna Haraway, participated in the lively academic debates of the 1980s and 1990s concerning the possibility of a feminist science. These feminist epistemologists challenged the presuppositions of mainstream epistemology while advocating for the relevance of the knowing subject and the social context in the shaping of knowledge, or, in Haraway's (1991) words, 'the situationality of knowledge.' Although these reflections and their differing positions were developed as a result of the intersection of science and gender, the approaches and terms of the debate can be easily extrapolated to the analysis of technology, while accounting for its specific features. In the philosophy of technology, a similar discussion has been unfolding since the 1970s, primarily focusing on the extent to which technological development contributes to the oppression or liberation of women. An example can be found in feminist reflections on reproductive technologies, where more 'techno-optimistic' approaches, which saw in technological development the possibility of emancipating women from reproductive tasks in the future (e.g., Firestone, 1970), were contested by more 'techno-pessimistic' positions that viewed reproductive technologies as inherently patriarchal and aimed at the oppression of women (e.g., Corea, 1985). However, since the 2000s, there has been an explosion of constructivist and post-constructivist studies that approach the technological phenomenon with new perspectives. These new perspectives have reignited the debate in feminist technoscience scholars, as demonstrated in several publications (e.g., Layne, Vostral, and Boyer, 2010; Loh and Coeckelbergh, 2019; Loh, 2023). The objective of this contribution is to engage with the current debate by analysing the possibility of a feminist technology. To this end, the discussion in feminist philosophy of science will be reviewed in order to explore what lessons can be drawn for feminist perspectives on technology.

12 JUNE 2025 09.00 - 11.00**ROOM B3.3**

ID 791 - Establishing a Feminist AI Lab in a University of Technology: Navigating Tensions and Disciplinary Boundaries

Catalina Lagos Rojas, Technische Universiteit Delft

Ariane Lucchini, Technische Universiteit Delft

Francesca Mauri, Technische Universiteit Delft

Sara Colombo, Technische Universiteit Delft

Keywords: Feminist AI, Academic Research, Epistemic Hegemony, Feminist STS

We write this abstract as members and affiliates of the newly founded Feminist Generative AI Lab to unpack the challenges we are facing in positioning ourselves and our research in a technology-driven academic context, and in navigating disciplinary and epistemological boundaries. This work explores the key struggles we face in establishing a feminist approach to generative AI research, particularly within Science and Technology Studies (STS), Human-Computer Interaction (HCI), and Design & Engineering.

First, we deliberately use the term 'feminist', acknowledging its political and historical meanings. While



ethical considerations in AI are increasingly gaining attention, feminist AI is not simply about fairness or neutrality. Feminist approaches challenge power structures, hegemonic narratives, and epistemic exclusions, seeking to reconfigure who designs, benefits from, and governs technology. However, within academia, the use of explicitly political terms is often met with skepticism, particularly in disciplines where technology is still framed as objective and neutral. This tension between feminist positioning and academic legitimacy creates a fundamental challenge for those working at this intersection.

Second, feminist research requires engagement with diverse forms of knowledge, extending beyond conventional epistemological paradigms in academia. Feminist STS and HCI scholars emphasize co-creation, participatory research, embodied knowledge, and elevating emotions as fundamental methodological commitments. However, academic research in science and technology often privileges specific epistemic traditions, making incorporating activist, artistic, or community-based knowledge within dominant scientific frameworks difficult.

In the field of AI, feminist critique is gaining growing attention. However, our challenge is to balance theoretical critiques with the practical aspects that allow for centering feminist values in technology development. We position our work as part of this affirmative, constructive feminist approach - not solely as a critical deconstruction but as an active effort to redefine generative AI in practice, through feminist principles.

This work is authored by design and HCI researchers from European, North American, and South American contexts, each bringing distinct disciplinary backgrounds and research perspectives. Despite these differences, we share common challenges in applying feminist methodologies within a technology-driven academic context. Acknowledging that these are our first steps into feminist STS, we aim to use this session to present our Lab's manifesto, critically reflecting on the decisions, negotiations, and compromises that shaped its development. This manifesto is not a static declaration but a living document, evolving alongside our research.

We conclude by posing key questions to the panel and attendees: (1) What constitutes a feminist research lab, and how does it manifest in different technological and scientific fields? (2) What tensions arise between opening research practices (through participatory, activist, or co-creative methods) and maintaining scientific "reliability"? (3) How can feminist scholars working in technology redefine "rigour" in ways that acknowledge positionality and lived experience?

12 JUNE 2025 09.00 - 11.00

ROOM B3.3

ID 855 - Durable for Who? Examining Memory Systems and the Climate Crisis through a Feminist, Decolonial STS Framework

Kaitlyn Rich, Rutgers University

Keywords: Climate Change, Libraries/Archives, Information Infrastructure, Feminist STS, and Decolonial STS

Increasingly, library and information science research has focused on the impact of climate change-related disasters on archives and libraries (i.e., flooding, material damage, storage issues, material relocation, increased focus on ecological sustainability practices in the field, private companies entering public cultural knowledge preservation, and library closings impacting community climate justice). However, there is also an element of libraries, archives, and information systems being implicated in the climate crisis and climate justice issues in the forms of data centers' energy consumption, data centers' impact on surrounding communities, digital preservation access and resources (memory workers labour and energy resources), and community/public access to climate knowledge and climate justice resilience resources of the academy.

This paper is interested in how the material of information infrastructure, archives, and libraries are impacted by the climate crisis and also implicated in the escalating climate disaster. Increasingly precarious information, produced and preserved by memory systems and infrastructure, plays a significant role in quantifying, supporting, and interrogating societal knowledge, power, and ideology. Most existing research



on archives and climate change usually separates the impact and implication discussion of memory sites and systems. Scholarly work either focuses on the threat of climate disasters on memory sites, such as libraries and archives, or the research work focuses on the natural and labour resource toll of memory systems, such as the energy need of data centers and digital preservation. This paper argues that examining both impact and implication through a feminist and decolonial science and technology studies (STS) lens could provide the needed critical theoretical framework to integrate socio-political, economic, and increasingly ecological questions and help ask and understand new connections between memory, power, infrastructure, and climate.



13 JUNE 2025 09.00 - 11.00

ROOM B2.2.12

Panel 19. Technosciences in City-Making: How to tackle urban emergenc(i)es

Convenors:

Saskia Gribling, Politecnico di Torino

Tommaso Listo, Politecnico di Torino

Micol Rispoli, Politecnico di Torino

Francesca Moro, Politecnico di Torino/Tsinghua University

Shiila Infriccioli, Eidgenössische Technische Hochschule

Albena Yaneva, Politecnico di Torino

Keywords: city-making, design-driven processes, human and non-human, non-institutional practices, participation, stabilization, urban emergencies, urban knowledge, urban labs

Viewing the city as an emerging process rather than a static entity, this panel aims to trigger a discussion around different 'emergences' of processes usually taken outside urban planning tools and yet crucial for city-making. STS studies have dealt with that in-depth under different perspectives and topics (Latour, B. 2006; Yaneva, A., Zaera-Polo, A. 2015; Blok, A., Fariás, I. 2016; Tironi, M. et al. 2021, 2022; Florentin, D., Coutard, O. 2024).

This panel focuses on how a certain knowledge becomes relevant in city-making and, in particular, how it becomes operational through structuring interconnected techno-scientific practices. Indeed, the practices of urban actors involved in city administration and transformation, be they those of city departments, maintenance companies, research institutions or private citizens, base their know-what and know-how on assemblages of procedures, expertise, technosciences' sources and tools that, stabilised over time, have earned the trustworthiness of their respective users. Stabilisations, however, are always coextensive with more or less long periods because new (human and non-human) actors always burst onto the city scene, bringing controversies over trustworthiness that were taken for granted. These moments provide an opportunity for scholars to empirically assess the stabilisation of these emergences and the destabilisations and disappearances of forms of technoscience that influence urban development. Moreover, to reflect on how the construction of new assemblies redraws the boundaries between expertise and lay knowledge and to what extent these changes can be considered participatory and democratic.

We would like the panel to address how some variables gain importance at the expense of others in formulating the epistemic and operational tools involved in city-making. To be able to capture and frame these moving processes, we encourage contributions based on case studies and empirical research. Yet, the panel aims at opening up the discourse to a design-driven attitude. Thus, the underlying question would be: how to strive for a more grounded city-making? Therefore, the panel also welcomes methodological reflections that may suggest embedded tools to look at those processes. Potential topics include, but are not limited to:

- Crises in urban systems: analysing the challenges which demand new forms of regulation and response (i.e. housing emergencies, etc.).
- Oppositional and alternative urban practices: highlighting practices that operate outside institutional frameworks yet exercise their action in a structured way in daily activities and mundane events.
- Attempts to bridge the gap between technical and lay knowledge.
- How the work done in research institutions can move beyond theory to influence the city's form, governance, and everyday life.
- Empirical research on the construction of data practices and AI applications towards citymaking and city administration.
- Attempts to address new emergencies related to socio-ecological changes (i.e. urban heat islands, extreme weather events, multi-species interrelations).



After short presentations, a roundtable discussion will be supported by the contribution and discussion of Albena Yaneva (Politecnico di Torino).

13 JUNE 2025 09.00 - 11.00

ROOM B2.2.12

ID 326 - Measuring Noise, Defining Moral Order in the City: A netnographic analysis of the effects of digital associationism on social conflict and urban relations

Anna Capretta, Università degli Studi di Padova

Keywords: Digital associationism, urban order, urban decay, noise

Touristification, studentification, and diffusion of night-time economy: these are some of the processes that have been producing significant transformations in contemporary cities. These changes have a direct impact on the socio-demographic composition of the urban population and thus on urban relations: particularly at the neighbourhood level, conflicts for the use of urban space and time by different social groups arise and are often framed as issues regarding urban (in)security, both by local institutions and citizens.

The present research focuses on an anti-decay committee created by long-time residents living in the centre of Padua, Italy. This committee, called STOP Degrado Padova, carries out its activity of reporting cases of urban decay and the negative effects of (mala)movida through the use of digital tools: a Facebook group chat and SmarterNoise, an application for measuring noise levels. By studying the effects of material and discursive online practices enacted by the committee on the definition of urban relations, the aim is to investigate whether this form of digital associationism acts as a "school of democracy", fostering urban bonds and cooperative practices for the use of the urban space, or reinforces the status quo, in terms of discrimination and exclusion of marginalized groups.

To answer this research question, a qualitative and diffractive methodology is adopted. Urban sociology, neo-materialist feminism and an STS approach inform the present empirical work: through netnography, it investigates the situated, everyday practices of the residents' committee being analysed. In particular, the discursive construction of urban decay is examined, showing that it is referred to acts of vandalism (mainly littering and graffiti), the presence of unwanted objects or (marginalized) people in the urban space, and behaviours related to (mala)movida such as heavy drinking, noise pollution, and petty crimes. The use of a Facebook group, where members can share personal thoughts, photos and videos, contributes to address the material dimension of urban life, focusing on the negative effects of decay and (mala)movida on the physical and mental health of long-time residents, who often express anger and exasperation around the issue of noise. Even if their perception is highly subjective, the use of the SmarterNoise app allows residents to measure and record noise in video format. By sharing in the group chat these videos where measurement of noise levels in dB(A) is visible, a personal sensory experience is made public: through the reference to technological and scientific knowledge offered by the app, this experience is presented as objective and irrefutable, allowing residents to impose their moral order to the rest of the urban population. For this reason, this research concludes that this specific form of associationism, which develops around the issue of urban decay through the use of digital platforms, does not work as a "school of democracy" but reinforces a securitarian and conflicting status quo.



13 JUNE 2025 09.00 - 11.00**ROOM B2.2.12**

ID 439 - Microclimatic regimes formation: the emergence of cool spaces against extreme urban heat

Margherita Tess, Humboldt-Universität zu Berlin

Keywords: urban heat, adaptation, climate change, climatology

As urban heat island phenomenon combined with global warming's effects are increasingly impactful, paying attention to how urban microclimates are known, stabilised, and infrastructured becomes pivotal.

This study focuses empirically on adaptation efforts to urban increased summer heat: my ongoing ethnography in southern Japan follows controversies surrounding greening cities for climatic purposes, architecture's thermal insulation and adaptive functions of clothing (e.g. Cool Biz initiative).

Microclimatic regime formation is observed in the following two moments: I trace how understanding urban heat has been problematised and stabilised in disciplines such as urban climatology and indoor climatology. I look at how "cool" spaces are planned and designed.

Focusing on the materiality of heat, I explore how it is constituted as an object of knowledge and intervention in urban spaces. First, I trace how specific stabilisations of interactions between matter, bodies, and energy in the city emerged in the late 20th century across the intertwined domains of urban planning, architecture, and clothing. Second, considering the recent need to reconfigure urban spaces in response to rising temperatures, I examine how these stabilisations are beginning to fracture and how cooling infrastructures are being planned and designed as a result. This paper provides an overview of my PhD research.

13 JUNE 2025 09.00 - 11.00**ROOM B2.2.12**

ID 543 - Negotiations of accountability: contesting urban futures through desired, promised, deferred, refused, imposed and feared infrastructural development in Cagliari, Italy

Carola Ludovica Giannotti Mura, Università degli Studi di Milano - Bicocca

Keywords: infrastructure, waterfront regeneration, planning, future, science and technology studies (STS)

A key intuition of ethnographic perspectives on infrastructures is that, while they often instantiate sites of reinforcement of neoliberal urban agendas, unequal claims to expertise and technocratic determinism, infrastructures also constitute complex socio-technical assemblages where normative configurations tied to urban planning can become most unstable. Drawing on the field of STS, this paper provides an ethnographic account of recent waterfront regeneration in the city of Cagliari, focusing on the redevelopment of the portion of the waterfront surrounding the neighbourhood of Sant'Elia. Contextualising my object of research within fragmented place-making and place-branding strategies of the local administration, I attempt to reconstruct the socio-technical trajectories of two specific moments of redevelopment: the construction of a pedestrian bridge connecting the neighbourhood to the city centre and the still ongoing redevelopment of a harbour for small-scale fishing.

I first draw on strategic planning documents and local newspapers to show how aesthetic-moral values associated with the construction of urban attractiveness for the city of Cagliari intersect with deep-rooted histories of territorial stigmatisation of the neighbourhood, setting worthy subjects against unworthy ones from whom value is extracted but who remain excluded from the promises of purported aesthetic sanitation, cultural rebranding and entrepreneurial rejuvenation thanks to tourism. I then test these narratives against different expectations of redevelopment held by inhabitants of the neighbourhood and fishers working at the harbour, showing how the fragmentation of accountability that has historically characterised local state action in Sant'Elia makes institutional planning expertise open to contestation. I thus



propose the concept of "negotiations of accountability" to show how different urban futures are performed by the works of desired, promised, deferred, refused, imposed and feared infrastructural development at the neighbourhood level. Eschewing the rationality of planning claims to the territory through the materialisation of sub-certainties that embrace human, housing and water ecologies, the bridge and the harbour finally emerge as both attempted power-knowledge readings on urban space and sites of agentive connections susceptible to resignification, thus embodying complex socio-technical trajectories freighted with alternative urban futures.

13 JUNE 2025 09.00 - 11.00**ROOM B2.2.12**

ID 558 - InformAria: a urban pathway of co-creation and socio-technical innovation

Federica Manzoli, Fondazione Giannino Bassetti; Università di Modena e Reggio Emilia

Angela Simone, Fondazione Giannino Bassetti

Anna Pellizzone, Fondazione Giannino Bassetti

Cecilia Gaballo, Fondazione Giannino Bassetti

Marzia Mazzonetto, Stickydot srl

Keywords: co-creation, air quality, open innovation, smart cities

In this abstract, we analyse the factors that characterised the co-creation steps in a recent pilot activity called "InformAria", aimed at developing technological tools to inform citizens about the air quality and possible measures to protect their health in Milan, Italy, one of the most industrialised areas of Europe.

This was a case of co-creation as a practical experiment of transition from the "public understanding of science" to an active "engagement" in socio-technical innovation, typical of the current participative and deliberative trend (Pellizzoni, 2017, 2014; Stilgoe, 2013; Dryzek et al., 2019; Wynne, 2007). Meant as an alternative to the technocratic solutions derived from the linear model (Arnaldi et al., 2023), co-creation is here shown as an engagement strategy able to regulate the relationship between innovation and society in an urban setting.

In light of the debate on the role of actors and methods of civic engagement in techno-scientific challenges (Braun and Könniger, 2018), we analyse the factors that enabled the production of two prototypes, created under the common name "InformAria", by two groups of volunteers representing the so-called "quadruple helix" (QH), namely research, policy, industry and citizens (Schütz et al., 2022).

The opportunity to implement this experience was the European H2020 project MOSAIC, concluded in December 2023 and which operated in the context of the "100 Climate-neutral and smart cities" mission to support QH interested/affected actors in finding fair, inclusive, sustainable and workable solutions to achieve climate neutrality by 2030. The main assumption of the project was that, by adopting QH approaches in innovation processes and products, cities can value and respond to the social dimension of the green transition.

We reflect on the MOSAIC/InformAria co-creation experience with particular attention to its enabling factors, concluding that co-creation proves capable of putting the environment and health values and the social and technological expectations shared in local contexts at the centre of innovation. This can happen only if: - local policies and networks are identified and clarified at the very beginning of the process; - the collective challenge triggering the process is clear; - all the QH actors actively participate and are fairly rewarded.



13 JUNE 2025 09.00 - 11.00

ROOM B2.2.12

ID 781 - Continuous Co-Creation: Integrating Community Wisdom with AI in City-Making

Michele Zannoni, Università di Bologna

Flaviano Celaschi, Università di Bologna

Andrea Cattabriga, Università di Bologna

Keywords: community intelligence, hybrid intelligence, participation, urban, relationality

Urban governance remains fractured between top-down technocratic models, which often alienate communities through opaque data practices, and bottom-up participatory efforts, which struggle to scale or sustain impact. This tension is compounded by the episodic nature of traditional participation—public hearings, workshops—that treat communities as static stakeholders rather than dynamic co-producers of urban knowledge.

At the heart of this challenge lies a fundamental disconnect: technical expertise and lay knowledge are seldom integrated as continuous contributors to citymaking.

The presentation proposes the Systemic Relational Insights (SRI), a framework and a digital "scientific device" resulted from a PhD research experimentation and now incorporated into a spin-off company, which reimagines urban governance as an ongoing negotiation between human intuition, machine intelligence, and situated community perception.

SRI are assembled with a cyclical process where algorithms synthesize quantitative data streams (IoT sensors, municipal databases), with lived experiences—gathered via digital platforms and participatory workshops—and scientific knowledge. Unlike episodic models, SRI embeds communities in a continuous feedback loop: residents annotate algorithmic outputs with hyperlocal narratives, while AI identifies latent patterns in these hybrid datasets, generating actionable hypotheses for collective refinement. This convergence of knowing—statistical, qualitative, tacit—transforms instability, such as climate disruptions or housing inequities, into sites of relational innovation.

Central to SRI is its rejection of AI as a solutionist tool positioning algorithms as connectors that surface contradictions between institutional metrics and grassroots realities, highlighting blind-spots in collective knowledge and generating relational patterns to stimulate community sensemaking. By treating data not as neutral inputs but as co-constructed artifacts, SRI challenges the stabilized approach to knowledge management dominating urban planning, where dashboards mapping fluxes and quantities fail to represent contextualised complexity.

The framework confronts critical questions: how can technoscientific assemblages remain open to destabilization by alternative to mainstream epistemologies? Can participatory design transcend tokenism to sustain equitable knowledge co-production? SRI responds by institutionalizing friction—ethical, epistemic, operational—as a generative force. Its hybrid intelligence protocol prioritizes open-source tools and EU AI-Act compliance to ensure scalability without sacrificing contextual integrity. Challenges persist, particularly in balancing algorithmic efficiency with the slowness of democratic deliberation, yet SRI's iterative ethos reframes this tension as necessary for resilient urban futures.

This proposal advances a vision where cities evolve not through episodic interventions but as living laboratories of continuous co-learning, bridging data-driven governance and community sensemaking.



13 JUNE 2025 09.00 - 11.00

ROOM B2.2.12

ID 887 - Negotiating Architectural Knowledge: Design Education in Brazil (1994–2024)

Pedro Rodrigues, Instituto Federal de São Paulo

Helena Aparecida Ayoub Silva, Universidade de São Paulo

Alvise Mattozzi, Politecnico di Torino

Keywords: architectural design education, sociotechnical networks, brazil

Design education operates as a dynamic and interconnected network, where institutions, actors, and discourses interact to construct, define, and organize architectural knowledge. It is a space of negotiation, where knowledge is continuously shaped through interactions between curricular frameworks, educators, and professional practices.

Drawing on empirical research, this study investigates the debate surrounding architectural design education in Brazil as a sociotechnical network, analysing works presented at the National Meetings on Teaching Architecture and Urbanism (ENSEA), the PROJETAR Seminars, and the Meetings of the National Association for Research and Postgraduate Studies in Architecture and Urbanism (ENANPARQ). By mapping this network, the research identifies key ideas and controversies that have shaped curricular policies from 1994 to 2024, reflecting broader technological, societal, and pedagogical transformations. The study reveals how the debate underlying these curricular changes has significantly impacted accessibility, diversity, and equity in design education. The shift from a rigid, standardized approach in 1994 to a more flexible and integrated orientation by 2024 reflects ongoing negotiations over what expertise is required and who gets to define it. These changes not only reconfigure professional training but also influences how architectural knowledge interacts with evolving socio-environmental and urban concerns.

By tracing these interactions within the sociotechnical network, the research highlights how design education functions as a site where ideas on ethics, materiality, and spatial production are continuously redefined, shaping the role of future architects in city-making processes. Central to this investigation is the role of technoscience as an ongoing process of assembling and contesting knowledge, practices, and institutional structures. Building on Latour's challenge to the division between technical and social domains, the research emphasizes that technoscience is embedded in broader networks of human and non-human actors, regulations, and material infrastructures. This perspective underscores how urban knowledge is constructed and operationalized through interconnected technoscientific practices, influencing governance, spatial practices, and socio-technical imaginaries. The research also captures the complexity of the debate by reflecting on the contributions of various authors and institutions. It reveals tensions within institutionalized forms of knowledge and discussions on pedagogy seek to address different perspectives on knowledge production while responding to contemporary urban and environmental crises.

By examining these curricular transformations, the study contributes to rethinking how knowledge is constructed and stabilized within design education. It underscores how education itself acts as an evolving infrastructure, continually shaped by and shaping broader sociotechnical networks, institutional negotiations, and city-making processes. Ultimately, this work encourages collaborative exploration of the topics under discussion and the construction of new possibilities for teaching architectural design, offering insights into how design education can better address social and environmental challenges in an increasingly complex urban world.



12 JUNE 2025 14.00 - 17.00**ROOM B5.1**

Panel 20. Good Technoscience for the energy transition: Dealing with infrastructures implementation and renovation

Convenors:

Paolo Giardullo, Università di Padova

Ivano Scotti, Università di Napoli, Federico II

Keywords: energy transitions; energy infrastructures; infrastructural turn

This open panel aims to engage scholars with energy transition issues by using Science and Technology Studies lenses to focus on energy infrastructures. Following the recent focus into infrastructures in social science (Graham, Marvin 2022), this panel engages with the many facets of socio-material entanglements between infrastructures, users and built environment.

Energy transition is one of the most critical challenges facing contemporary society: although many differences may exist, national governments and local authorities are implementing and further planning investments to energy needs with technologies that are economically suitable and have near-zero environmental impact, improving access for citizens. The deployment of new infrastructures and/or the reconversion of already available ones is crucial. Renewable energy systems (on and off-grid) has been often promoted as the main solution for achieving energy transition for good of the environment and the future of humankind.

Energy transition is challenging for nations, local communities, and social groups in very different ways (Scotti, Carrosio 2019). The energy retrofitting of buildings is not exempt from criticism either: as is well-known, improving a building's energy efficiency, as well as planning new 'green' areas, can lead to disruptions in the real estate market, potentially triggering displacement dynamics. Often, the benefits appear limited compared to the side effects for some actors or territories that may be marginalized or sacrificed in the transition, risking being "left behind". In this sense, any low-carbon energy technology presents socioterritorial, organisational and environmental issues, particularly linked to its material constraints. Therefore, such a process is highly complex and uncertain with many social justice implications. At the same time, it is supported by the promises made by governments, researchers and private companies. This introduces a further issue concerning the discursive layer about new technologies for energy transition: technologies are framed positively carrying great expectations. Despite their limitations, there is a positive tone toward renewable energies and low impact energy sources (Giardullo 2024). Hydrogen for instance, as a versatile energy carrier, could replace fossil fuels in production and daily uses (e.g., refueling cars). Nuclear energy as well is facing a new momentum with promises about fusion and about new small-scale plants for fission. However, hydrogen technology is still immature, costly, and require dedicated infrastructure, while nuclear fusion is currently far from being operative and nuclear energy in general still faces local hostility.

As the shaping of infrastructures is a power-laden process (Silvast et al 2024) we invite scholars to submit their abstract proposals joining a conversation about mutual entanglements between infrastructures, users and discourses about energy transition across different contexts. More specifically we warmly invite contributions about, but not limited to the following:

- Socio-technical imaginaries of energy futures through infrastructures
- Energy justice and the politics of transition about territorial distribution of new infrastructures
- Public engagement and participatory governance in energy systems
- Social shaping of energy technologies in urban and rural context
- Participation about buildings re-use and retrofit
- Resistance, acceptance, and adaptation to energy transitions

Furthermore, we encourage contributions that promote interdisciplinary perspectives and methodologies for studying infrastructures of energy transitions.



ID 174 - The Bartelby effect: how Civitavecchia said no to the decoupling of work and health.

Claudio Marciano, Università degli Studi di Genova

Keywords: Energy Transition, Trade Union, Stakeholders Engagement, Social shaping of Technologies, Artifacts as politics

Better to die of cancer than starve. A banner with this slogan led, in 2002, a demonstration of workers at the petrochemical plant in Gela, southern Sicily, when the court had ordered its provisional closure for excessive polluting emissions. As tragic as it is, the slogan recounts a condition, the decoupling between the right to work and health, that was (and is) common to dozens of territories in Italy, and has marked the country's industrial policies from the post-World War II period to the present.

This script is recurrent, but not incontrovertible. In Civitavecchia, in particular, there seems to be an exception. In this city, located just a few kilometres from Rome, where two mega thermoelectric power plants are located, a 'Bartelby effect' has occurred: like the famous scribe in Melville's tale, the local community has 'preferred to say no' to the conversion to natural gas of the Torvaldaliga Nord (TVN) power plant, currently fuelled by coal, and has proposed an alternative development plan based on the integration of off-shore wind and green hydrogen. When fully operational, i.e. in 2030, this investment would be able to generate 50 per cent more jobs, and significantly lower pollutants and greenhouse gases.

The plan has turned into executive projects, carried out by various entrepreneurial actors, whose development, however, is still in the incubation phase. Since August 2023, the Ministry of the Environment has been considering the granting of authorisation for off-shore wind power plant. Moreover, Enel, the owner of the current power plant, has diverging industrial interests with respect to the project and has not joined the groupings of companies involved in the alternative projects.

However, this case study is interesting not because of the results that haven't yet been achieved, but because of the governance process that can be analysed empirically. Leading the development of the proposal was the majority trade union among the plant's workers, the FIOM-CGIL, which acted as a 'broker' between companies, local authorities, the port authority and environmental associations: a completely different orientation from that taken by the same confederation on the occasion of the conversion of the plant to coal.

This article aims to reconstruct this process in the light of the theoretical model of experimentalist governance. The reference to experimentalism is useful for interpreting the organisational behaviour of different social actors, and for reading the intersectionality and associations between themes usually presented in a divergent manner in the literature, such as the conflict between capital, labour and nature; the role of trade unions in guiding technological transformations and public policies on technologies; the post-privatisation of the energy sector in Italy, with the emergence of conflicts between mixed and private enterprises; the path dependencies of industrialism and the right of local communities to express themselves on environmental easements, beyond mere economic compensation.



12 JUNE 2025 14.00 - 17.00

ROOM B5.1

ID 190 - Is nuclear power good for energy transition? A long-term analysis of the Italian daily press

Camilla Fiz, Università degli Studi di Padova

Paolo Giardullo, Università degli Studi di Padova

Keywords: nuclear renaissance, nuclear infrastructure, energy transition, media discourse, sociotechnical imaginary

Currently, nuclear power is being framed as a 'nuclear relaunch' or 'renaissance', otherwise a low-carbon solution that could accelerate or empower the process of energy transition. Nevertheless, the goodness of nuclear energy for energy transition remains an open question, since its envisioned futures and the present state of the industry can be negatively shaped by numerous aspects. Major disruptive events over time, such as the accidents of Chernobyl and Fukushima, have contributed to embed the nuclear discourse, and those on the overall energy system, into a crisis frame. Moreover, public discourse in the media about nuclear infrastructure's economic, material, and social implications can significantly influence public perception of nuclear risk. This discourse often evokes broader imaginaries than other energy sources, spanning from dystopian futures to optimistic visions of progress.

Drawing on the perspective of Science and Technology Studies (STS), our study proposes a long-term exploration of the discourse about nuclear power infrastructures and energy transition in the Italian newspapers. Indeed, the recent ambivalence of Italy towards nuclear power has made this country of particular interest. Whether energy policies have excluded the use of nuclear energy for many years, in June 2024 both fusion and fission plants were involved in the country's strategy for energy transition, as outlined in the National Plan Integrated for Energy and Climate (PNIEC). For a better understanding of the features of nuclear renaissance in Italy and its role in the energy transition, we analyse the media discourse that can participate in the construction of collective narratives and expectations about technoscientific issue.

The research question is: How do past and future perspectives shape the current nuclear discourse in the Italian media over time? Analytically we look for: how desirable and undesirable futures are shaped, the expectations of different actors, and the role assigned, for example, to technological solutions and scientific advisors on nuclear risk management. For this purpose, we rely on the model of green metacycle of attention, that is inspired by the attention cycle of Anthony Downs and has been recently applied in the media study of renewable energy. We employ three main approaches: analysis of the media coverage by assessing salience; analysis of frames, combining advanced tools for quantitative content analysis; and analysis of actors by the Named Entity Recognition. We conduct the analysis on several newspapers, such as: La Repubblica, Il Corriere della Sera, La Stampa, Il Sole 24 Ore, Avvenire, Il Giornale, Il Messaggero, and Il Mattino. All together they cover most of the mainstream journals available in Italy.

In this way, we can track the continuities and discontinuities in the discourse about nuclear energy over time and measure the main sociotechnical imaginaries and actors involved, such as experts, politicians and environmental movements. Beyond these aspects, this study critically discuss what is predicated as "good energy policies" over time on the media. Therefore, we contribute to the ongoing discussions in STS about the goodness of technoscientific solutions in addressing climate change and energy security.



12 JUNE 2025 14.00 - 17.00

ROOM B5.1

ID 374 - Futureproofing ageing nuclear sites: Local Perceptions of Small Modular Reactors near Marcoule (France) and Sellafield (UK)

Mathias Sabbe, Liège University

Keywords: Small Modular Reactors, Local perceptions, Nuclear communities, Sociotechnical imaginaries

Small Modular Reactors (SMRs) are increasingly advocated by their proponents as a cheap and reliable, low-carbon option for climate change mitigation (IAEA, 2024). Vendors advertise a paradigm shift in nuclear energy generation, claiming lower capital costs, enhanced safety, greater flexibility, and improved public acceptance. Although only a handful are operational, private and public interest is high, with over 90 projects at various development stages reported in 2024 (NEA, 2024).

Despite growing interest in SMRs within the STS literature (e.g., Kari et al., 2023; Sovacool, 2019), few studies have examined local perceptions and expectations in areas that may potentially host these novel reactors in the future. The literature on siting controversies highlights how proposals for nuclear new build often generate public concerns and opposition from residents near new proposed sites, indicating that a strong not in my backyard (NIMBY) effect remains associated with nuclear-related projects (e.g., Di Nucci & Brunnengraber, 2017; Woo et al., 2017; Easterling & Kunreuther, 2013). Consequently, public authorities have typically resorted to concentrating new nuclear infrastructure within existing nuclear sites (e.g., Greenberg et al., 2017), hence suggesting that first SMRs will likely also be built in these locations.

This study, conducted as part of a European project (ESFR-Simple), presents a comparative analysis of local perceptions of SMRs near two legacy nuclear sites that may potentially host these small reactors in the future: Marcoule (Gard region, France) and Sellafield (West Cumbria, UK). Empirically, the research relies on field observations, two focus groups, and 30 semi-structured interviews with local elected officials, environmental protection associations, concerned citizens, farmers, social workers, and local industry representatives near these sites. Theoretically, we build on extensive literature on nuclear communities (e.g., Vilhunen et al., 2022; Venables et al., 2012) and sociotechnical imaginaries (e.g., Jasanoff & Kim, 2009; Rudek, 2022; Smith & Tidwell, 2016) to highlight how industrial trajectories can shape local visions of desirable futures.

Strikingly, initial findings suggest a strong local appetite for the siting of SMRs near both Marcoule and Sellafield, with dissenting opinions being often marginalized, or even silenced, in these traditionally pro-nuclear contexts. Over the past decades, both Marcoule and Sellafield have gradually shifted towards decommissioning and dismantling as their primary activities. This shift, while vital to sustaining local economies, also brings a sense of finality, as dismantling efforts are locally interpreted as a sign that the site's purpose is coming to an end. In this context, SMRs are often narrated as a strategic means to future proof ageing nuclear sites, maintaining their relevance while also sustaining local economies. Indeed, beyond immediate job creation, SMRs are also perceived as a catalyst for attracting industries seeking to decarbonize their manufacturing processes. This strongly resonates with a local attachment to past industrial heritage. For instance, in West Cumbria, once renowned for its steel industry, the idea of using SMRs to produce green steel, was depicted as an opportunity to restore a severed link with the area's industrial past.



12 JUNE 2025 14.00 - 17.00**ROOM B5.1**

ID 441 - Socio-technical challenges in implementing decentralized energy infrastructures in off-grid communities: The LoCEL-H2 Project

Alice Palmieri, Università di Napoli Federico II

Dario Minervini, Università di Napoli Federico II

Rosanna De Rosa, Università di Napoli Federico II

Keywords: Decentralized energy infrastructures, Energy justice, Energy transitions, Participatory approaches

Energy poverty remains a pressing global issue, with 750 million people – primarily in sub-Saharan Africa – still lacking access to electricity (IEA 2024). In many cases, the extension of national grids is technically, financially, and politically unfeasible, making decentralized renewable energy infrastructures a critical pathway for energy access. However, beyond technological feasibility, the deployment of such infrastructures is deeply entangled with local socio-economic, political, and cultural dynamics, raising issues of governance, trust, and social acceptance.

The LoCEL-H2 project (Low-cost, Circular, plug and play, prosumer Energy system for off-grid Locations including Hydrogen) focuses on developing decentralized energy infrastructures in off-grid communities in Zambia and Ivory Coast. By integrating photovoltaics, battery storage, and an innovative hydrogen system, the project seeks to reduce dependency on firewood and charcoal – key drivers of deforestation and indoor air pollution, with severe health consequences. However, the effectiveness of such low-carbon energy infrastructures depends on their ability to align with local energy cultures, knowledge systems, and socio-material constraints.

SSH critically examines how energy technologies are negotiated, adapted, or resisted by communities, particularly in relation to territorial justice, gender roles, and local governance structures.

This contribution reflects on the socio-technical aspects and politics of decentralized energy infrastructures, discussing how policy frameworks, community trust in technology, and participatory governance mediate their implementation. Through ethnographic fieldwork, including focus groups, interviews, and participatory planning, the research highlights how access to energy operates as a "derivative right", shaping broader transformations in health, education, and economic agency.

In other words, the infrastructural and justice dimensions of energy transitions underscores the necessity of a bottom-up governance to foster local capacity building, community-led interventions and long-term sustainability.

12 JUNE 2025 14.00 - 17.00**ROOM B5.1**

ID 526 - Testing AI in Brussels energy communities. Exploring the frictions with material and legal infrastructures

Simone Casiraghi, Vrije Universiteit Brussel

Rocco Bellanova, Vrije Universiteit Brussel

Keywords: Artificial Intelligence, Energy transition, Energy communities, Sociology of testing, Infrastructure

The constitution of local energy communities provides a critical space to explore the socio-material entanglements of energy transition, where citizen-driven actions to support renewable energy intersect with complex material and legal infrastructures. This contribution examines the development, in a research project, of an AI-driven system (proxy) designed to facilitate the coordination and distribution of renewable energy within energy communities in Brussels, focusing on its relations with the existing energy infrastructures and community practices.



In the context of energy crises and rising demands, alongside increasing information overload in households, AI is positioned in the project as a means to create more efficient and coordinated energy use behaviours (Fernández Domingos et al., 2022). The vision behind the adoption of AI is to enable more efficient and cost-effective decision-making among energy prosumers - community members who both produce and consume energy. However, this seemingly straightforward narrative overlooks the nested infrastructures that underpin these AI systems.

Energy communities depend not only on existing technological infrastructures like solar panels and smart meters but also on legal infrastructures (European directives and national laws, as well as contracts) that govern the relationships between community members, third-party actors, and regulators. These infrastructures, both material and legal, shape the possibilities and constraints for AI integration in energy sharing, highlighting the complexity of transitioning to more decentralized, community-driven energy systems (Lennon & Dunphy, 2024). The AI system in this case interacts with and is constrained by these pre-existing infrastructures, creating frictions that may be invisible in the design and co-creation phases.

Drawing on insights from the sociology of testing (Marres & Stark, 2020) and taking seriously the claim to think "from and within infrastructure" (Anand et al., 2018), this paper interrogates what and whose concerns are reflected in testing exercises of AI proxies for energy communities in Brussels.

This allows us to examine two interrelated aspects. First, some tensions arise between the expectations of different stakeholders (researchers, community members, and institutional actors) regarding what is being and what should be tested. These differences in what should be tested (e.g. the scientific validity of a device, disaggregation techniques, methodologies, coordination mechanisms, behavioural patterns, economic models...) often reveal underlying assumptions about what matters in the energy transition and how AI can facilitate or hinder that process. Second, it allows us to uncover the frictions that emerge when these AI systems interact with the existing legal and material infrastructures. These frictions challenge assumptions about the smooth integration of AI into existing infrastructures and complex energy systems that rely on such infrastructures.

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12 JUNE 2025 14.00 - 17.00

ROOM B5.1

ID 546 - The role of infrastructure in energy communities: Evidence from Austria

Michael Ornetzeder, Austrian Academy of Sciences

Keywords: Energy communities, Commons, Commoning, Infrastructure, Case study

Energy communities are seen as the key to a successful energy transition. A recent commentary by the International Energy Agency highlights that putting communities at the heart of the energy transition is crucial to the successful implementation of energy and climate policies. Energy communities, the report argues, are demonstrating global benefits by deploying renewable technologies, improving efficiency, ensuring reliable energy supplies, reducing costs and creating local jobs. In addition, these initiatives are gaining recognition for promoting inclusive, equitable and resilient energy systems.

As the legal framework for the establishment of energy communities has been significantly improved in recent years, many new initiatives have been established. Austria is one of the pioneers in Europe.



However, the question of what kind of community is actually being created in these many new initiatives has received little analysis. What is meant by community? Are members organising themselves to share common resources, or are they more like economic platforms where prosumers can buy and sell energy?

This paper explores this question through the concept of energy-commoning. Energy-commoning refers to the idea of collaborative management and use of energy resources. Similar to the concept of commons in general, which refers to shared resources, energy-commoning specifically refers to the approach of organising energy sources, technologies and infrastructure democratically and participatively to enable a more equitable and sustainable energy supply. In this paper we present two contrasting case studies of energy communities from Austria, which show large differences in the quality and number of common pool resources, material engagement, especially in terms of shared infrastructure, economic engagement and self-governance responsibilities. The construction and management of energy infrastructure seems to be an important driver for the formation of stronger communities.

12 JUNE 2025 14.00 - 17.00

ROOM B5.1

ID 603 - Energy Communities and Socio-Technical Transformations: Energy Democracy and Justice in the ECOEMPOWER Project's Pilot Sites in Trentino, Italy

Letizia Zampino, Università di Trento

Attila Enrico Bruni, Università di Trento

Vincenzo D'andrea, Università di Trento

Aurora Jeanne Stanislava Dudka, Università di Trento

Keywords: Energy Communities, Energy Justice, Socio-technical transformations, Energy Democracy

Energy communities are often framed as attempts for achieving energy democracy – enhancing citizen participation in energy governance (van Veelen & van der Horst, 2018) – and energy justice – ensuring fair distribution of benefits and burdens (Jenkins et al., 2016; Sovacool et al., 2019). These two dimensions are deeply interwoven: without democratic decision-making, justice risks being procedural; without justice, democracy may remain an exclusive privilege rather than a universal right.

Drawing from empirical research within the ECOEMPOWER European project, this paper explores how energy communities materialize these interconnections. While the project includes five European countries (Italy, Germany, France, Greece, and the Czech Republic), this paper focuses on the Italian context, specifically on three pilot sites in the Trentino region, where efforts to establish energy communities are currently underway. The research adopts a mixed-methods approach, integrating quantitative data – including indicators of participation, governance structures, and distributive outcomes – with qualitative insights from key stakeholders involved in the development of energy communities. Through interviews and participatory observation, we analyse the expectations, challenges, and power dynamics that shape local energy governance.

By examining governance models, participatory mechanisms, and distributive outcomes, we critically assess whether energy communities genuinely foster democratic and just energy futures, or whether they become devices for shifting energy transition's responsibilities to citizens while maintaining structural asymmetries. This contribution calls for a deeper interrogation of energy democracy and energy justice processes to ensure an energetic transition not only technically efficient but also socially transformative.

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12 JUNE 2025 14.00 - 17.00

ROOM B5.1

ID 819 - The Naples East biogas Plant: between technological innovation and just transition

Annamaria Zaccaria, Università di Napoli Federico II

Antonella Berritto, Università di Napoli Federico II

Rosaria Madonna, Università di Napoli Federico II

Keywords: biogas plant, ecological transition, just transition, stakeholder engagement, territorial governance, circular economy

The transition towards a more sustainable energy model and circular economy has positioned biogas plants as key infrastructures in waste management and renewable energy production. The case of the planned biogas plant in Naples East presents an opportunity to explore the complexities surrounding these infrastructures, particularly in urban areas characterized by socio-economic and environmental vulnerabilities. While policymakers and project proponents highlight its potential contribution to Italy's National Recovery and Resilience Plan (PNRR) objectives, it remains to be seen whether the project will encounter significant local opposition or develop into a broadly accepted innovation for sustainable waste management.

This research, still in its early stages, adopts a multi-layered methodological approach to investigate the socio-political landscape surrounding the project. By integrating PESTL analysis with stakeholder mapping and engagement strategies, the study aims to assess potential areas of conflict, cooperation, and negotiation. The methodology combines secondary data analysis, socio-demographic profiling of the Ponticelli district - where the plant is to be built - and an initial exploration of public discourse surrounding the project. The objective is to formulate hypotheses regarding the key drivers that could shape stakeholder positions and the governance mechanisms that might influence the project's implementation.

Preliminary considerations suggest that the acceptability of the biogas plant will be contingent upon multiple factors, including institutional transparency, public participation and historical environmental concerns in the area. Some actors might emphasize the plant's potential to improve organic waste treatment efficiency, reduce landfill dependency, and contribute to the EU's decarbonization goals. Conversely, civic committees and environmental organisations might raise concerns over potential environmental impacts, perceived health risks, and governance processes. The hypothesis of conflict would find its foundation in the history of environmental degradation experienced by the Naples East area, with massive industrialization first, followed by devastating deindustrialization. These processes have exacerbated public distrust, particularly towards large-scale infrastructure projects, reinforcing skepticism about their long-term benefits.

By examining these dynamics, the study situates itself within the discussion on ecological transition, technological innovation, and energy justice. Rather than assuming fixed positions among stakeholders, the research seeks to identify the conditions under which such infrastructures can be socially and politically viable. Ultimately, we hypothesize that beyond technical feasibility, the success of biogas infrastructure will depend on the integration of social inclusion, participatory governance, and adaptive policy frameworks that address both local resistance and broader sustainability goals.



12 JUNE 2025 14.00 - 17.00

ROOM B5.1

ID 873 - Are Smart Infrastructures Good Technoscience? The Promises and Perils of Smart Buildings

Dobigny Laure, Université Catholique de Lille

Aulanier Audran, Université Catholique de Lille

Keywords: Smart Building, Infrastructure, Energy, User, Imaginary

Smart buildings are urban infrastructures presented as technological solutions for the ecological city of tomorrow. Envisioned as the "nodes" of the smart grids and the smart city, they carry a powerful imaginary of urban transformation and ecological solution, whether in terms of energy efficiency and decarbonization (renewable energy), as well as a positive imaginary of comfort, adaptability, and so on. Universities are then more and more numerous to retrofit their buildings in "smart" or to build new ones with this objective. Confronting the imaginary of smart buildings by their developers and designers with the daily experience of their users, this presentation will question the promises and perils of these infrastructures. What user involvement in the decision-making process and use of these buildings? What are the daily and long-term maintenance challenges for their technicians? What dangers do these buildings expose us to, and what futures do they open or close?

Using ethnographic and participatory methods, this presentation is based on the study of four smart university buildings in the Lille region, France (INCLUNIV project, funded by the French Agency for Ecological Transition - ADEME). First, we will analyse the promises of smart buildings and the imaginaries they convey. These infrastructures share with other smart technologies the imaginaries and promises of energy efficiency, security and transparency (Reigeluth, 2023), as well as comfort, adaptability and even agility in technical systems. In use, however, it is the inconveniences of these buildings (thermal, visual, sensory, aesthetic, etc.) and their inflexibility (lack of switches or thermostatic controls, inability to adjust blinds or open windows, etc.) that are highlighted by their users.

It's therefore the technicians and maintenance staff who are most likely to benefit from the smart building. Automation and the centralization of information make management, maintenance and security easier. However, while this work is facilitated, it does not disappear and is even accentuated compared to traditional buildings: without constant care of the technical systems that maintain them (Denis & Pontille, 2022), these buildings risk rapidly deterioration.

Ultimately, the smart building fails in both representation and practice to make the building the site of an ecological experience. The automation and airtightness of these buildings, justified by energy efficiency objectives, create a standardized environment that cuts individuals off from sensitive relationships with their milieu. By neutralizing the possibilities of creative adaptation, smart buildings reinforce an atmosphere of isolation and the depoliticization of infrastructures. In this party, we will discuss the new risks and vulnerabilities created by smart buildings, both for the users (sad atmosphere, breakdowns, cyber-attacks, etc.) and for the environment. By fragmenting the relationship between people and their environment, these infrastructures tend to close off, rather than open up, the possibility of new relationships with the world and new ways of living (Mathieu, 2014), which are essential if we are to meet the challenges of the environmental and energy crisis.



12 JUNE 2025 11.30 - 13.00

ROOM B2.2.15

Panel 21. Perpetual Opacity of Repair and Maintenance: Histories of Technological Upkeep and Reparazione from Informal Economies to Political Resistance Movements

Convenors:

Dhritiman Barman, Virginia Tech

Alexander Nicholas Rewegan, Massachusetts Institute of Technology

Lee Vinsel, Virginia Tech

Keywords: Care, Informal Economy, Maintenance, Repair, Resistance

Scholars have rightly shown how the material and epistemic investments of time, labor, and care involved in the processes and practices of maintenance and repair are often unseen, ignored, or actively invisibilized—both by scholars and by societies in general—despite their material centrality to the ongoing functioning of many kinds and scales of technological and social systems. This panel seeks to explore a flip-side counterpart to this framing.

Where, when, why, and how are maintenance and repair purposely hidden, conducted in secret, or otherwise masked intentionally by maintainers and reparative practitioners in their communities and networks? How does secrecy itself require maintenance and repair? As scholars of the sociology and anthropology of informal economies—in our case, the production, distribution, and consumption of drugs—we seek panel participants who might also think about the ways in which the maintenance and repair of technology are fundamental to informal, semi-formal, "underground," illegal, grey-area, or shadow economies, and/or to linked histories of political resistance, activism, and care. Often, informal economies and movements for sociopolitical change are intimately related, either as a way of fundraising for resistance, for survival in contexts of oppression, or the simple moral act of care where AIDS patients need access to medical cannabis (Dioun, 2017).

What kinds of repair—from the repair of technologies to technologies of/for repair—have been, and are currently central to, making a life and a living in illegalized contexts and spaces? Thinking with scholars focused on the intersecting issues of race, class, gender, disability, and sexuality, some conceptual synonyms to consider might be: repair as resistance, maintenance and care, and care and ethics. In the logic of care, Mol (2008) speaks of how scientific facts come later and that values occur first; we ask how the care is maintained and repaired when needed. How care is being clandestinely maintained in situations where state-sanctioned rules are resisted?

We also ask how to understand the ways in which repair and maintenance are involved in the work of policing, disciplining, and controlling the life and livelihoods of people and things that work in informal economies from carceral technologies (e.g., keeping prisons functioning; surveillance cameras operational) to the production and maintenance of stigma and fear (e.g., public health campaigns against drugs) that seek to disrupt clandestine economies or political organizing, protest, and resistive action? How and to what extent are intentionally hidden practices of maintenance and repair actively rendered as crucial targets: documented, coerced, and prevented in the service of disrupting the functioning of informal economies and/or movements for social and political change?

We invite papers offering a wide variety of case studies, including (but not limited to) drug-plant agriculture to borders and migration to sex work and digital economies. Papers can address political resistance, informal economies, or some combination of the two.



12 JUNE 2025 11.30 - 13.00

ROOM B2.2.15

ID 144 - Taking Things Apart: Clips, Glues and Pentalobe Screws

Mark Thomas Young, Universitetet i Oslo

Keywords: maintenance, repair, circular economy, disassemblability, refurbishing

This presentation examines how and when objects are taken apart, the contexts in which this occurs and the challenges actors face in achieving disassembly. In doing so, my aim will be to demonstrate how "disassemblability" – the extent to which the parts of an object can be separated without destroying them or the object - represents an important feature of our relationship to technology and one which has yet to receive sufficient attention from existing literature.

The first part of the presentation explores how disassemblability is grounded in a relational ontology, in which the separability of components depends not only on how objects are designed, but also on the skills, knowledge and equipment available to consumers and technicians. For this reason, there are a much wider range of actors who are able to determine the disassemblability of objects than the producers of technology alone. In fact, the disassemblability of objects is often contested by a range of actors, from consumer organisations to DIY hackers, who disrupt practices and attitudes towards objects by disseminating tools, equipment and information enabling them to be taken apart. These processes stem from a variety of motivations, including concerns surrounding environmental impacts of existing patterns of consumption and the democratization of technology.

The second part of the presentation examines how these themes intersect by focusing specifically on the case of the smartphone. Smartphones are devices which connect and fold components together so tightly that they strongly encourage us to see them as singular. Most smartphones are designed in ways which give very little indication that they can even be opened - let alone that they consist of parts. They often have seamless exteriors, with few if any visible screw holes - and components which are often glued together. However, since the origin of the technology itself, the disassemblability of smartphones has been contested by actors who disseminate not only tools and equipment, but also knowledge that enables people to take their phones apart. Yet even despite consisting of various components, none of this material aims to enable the disassembly of smartphone displays which have long been treated as singular objects in western Europe and North America. When the glass which forms the front layer is cracked, common practice in these regions dictates replacing the entire display. Replaced displays are then shipped to other geographic locations such as eastern Europe or China, where they are disassembled to identify and replace faulty or broken components before returning to the market again in the form of "refurbished" displays. This case study looks at how the disassemblability of these objects change as they move between and across different contexts and explores some recent initiatives to disrupt the existing landscape by providing DIY tools and specialized equipment to consumers and repair shops in Western Europe and North America which enable the disassembly of displays.

12 JUNE 2025 11.30 - 13.00

ROOM B2.2.15

ID 167 - Maintenance as Sabotage and Political Discourse

Roberto Leggero, Università della Svizzera italiana

Keywords: Sabotage, Maintenance, Politics, Invisibility, Safety

Usually, sabotage is the exact opposite of maintenance. But what if maintenance, the very opposite of sabotage, itself becomes an act of sabotage in public discourse? Sabotage could be described as an action whose aim is to keep something out of order for as long as possible, while maintenance is the attempt to keep something efficient as long as possible. Of course, sabotage exactly as maintenance, has deeply political meanings. Maintenance is linked to power by three elements: technology, cost and political will. You need all three to get the job done. Sabotage also needs some political directive, technology and financial aids.



There is no doubt that the best saboteur is the maintainer, and like maintenance, sabotage often involves sticking your neck out. Moreover, in modern times, maintenance and maintenance workers have become invisible because the flow of services cannot be interrupted for any reason. So, maintenance is hidden or confined to the darkest hours. It's the same with sabotage, except that for the maintainers working "in the dark" is a consequence of something that has nothing to do with the work but is a necessity that comes from the economic pressures generated by society.

On 31 August 2023, around midnight, a team of five maintenance workers was killed by a train traveling at high speed (160 km/h) on the track near Turin. Just three days after the disaster, at the Monza racetrack, the Italian Prime Minister said: "Monza is the temple of speed, and it will also be a source of inspiration for us. Because we need to race more to make this nation race".

The team worked despite the railway being open, because keeping it open was more important than safety. The Commission of Inquiry concluded that human error had caused the accident to occur.

The OSS saboteurs' manual for the Second World War, Simple Sabotage Field Manual, aimed at factory managers and workers in Nazi-occupied territories, suggested to managers that one method of sabotage was to "apply all regulations to the letter". As some fatal accidents in Italy involving railway maintenance personnel have shown, compliance with the letter of the safety regulations is not only not enforced but is considered a reason to exclude the workers from maintenance work. This opens a clearer view of what maintenance is in its essence nowadays. One works on the razor's edge with a high risk for personnel considering positively those teams who risk their own safety to complete maintenance work as quickly as possible.

So, when we ask, "What is maintenance?", we are really asking, "What does it maintain?". Shareholder satisfaction? What would happen if, today, a company manager in charge of maintenance suggested to his subordinates that they should work by applying the rules to the letter? What does it mean "human error" in maintaining? Are maintenance and sabotage two sides of the same coin, or are they one and the same these days?

12 JUNE 2025 11.30 - 13.00

ROOM B2.2.15

ID 286 - Do-it-yourself hormones: practices of political resistance in an on-line transgender forum

Natasa Stoli, Universiteit Maastricht

Olga Zvonareva, Universiteit Maastricht

Klasien Horstman, Universiteit Maastricht

Keywords: transgender healthcare, do-it-yourself hormones, political resistance, citizen participation

In political resistance scholarship (Scott, 1985; Bayat, 1997), marginalised communities take direct action to resist oppressive narratives. Such actions can be strategically conducted in secret to ensure the longevity of the communities who practice them. Choosing an online community of transgender activists dealing with issues of accessing hormone replacement therapy (HRT) as the focal point of this study, we view this community's "do-it-yourself" (DIY) hormone production practices through the lens of political resistance. We argue that in response to inadequate healthcare services and a sense of frustration at the perceived state abandonment, this community informally supports and cares for each other by producing hormones outside of the established boundaries of the global pharmaceutical arena. As these pharmaceutical products are produced at-home, with support and guidance from other community members, but with complete lack of top-down supervision by certified experts in the field of biomedicine, they present a form of concealed resistance politics, where a community engages in medical citizenship, claiming their rights to their own bodies, often in direct opposition to governmental policies.



12 JUNE 2025 11.30 - 13.00

ROOM B2.2.15

ID 447 - Dressing to Disappear. Fashion as a Tool for Hacking Surveillance

Giulio Galimberti, Università degli Studi di Milano Statale

Samuele Sartori, Università degli Studi di Milano Statale

Keywords: Hacking, Surveillance, Fashion Theory, Thermal Imaging

Clothing plays a crucial role in shaping both personal and collective identity, increasingly intertwining with issues of surveillance, privacy, and control. In this context, garments can become instruments of resistance, hacking, and artistic experimentation. This talk examines how fashion and textile innovation intersect with counter-surveillance practices, focusing on emerging techniques designed to disrupt the pervasive mechanisms of human body recognition and detection.

One of the most notable examples is Cap Able, a collection that employs advanced jacquard knitting techniques to deceive facial recognition algorithms. The collection integrates adversarial patterns that exploit algorithmic vulnerabilities, rendering wearers invisible to surveillance cameras. Inspired by animal prints and geometric motifs, these patterns introduce imperceptible distortions that confuse AI systems while remaining visually appealing to the human eye. By embedding elements of computational camouflage into everyday wear, Cap Able embodies a fusion of design, engineering, and civil resistance.

Beyond optical recognition interference, thermal camouflage apparel has gained traction as a means of counteracting infrared-based surveillance. The Stealth Wear collection, for example, employs advanced materials to obscure thermal signatures, challenging the ability of drones and infrared cameras to detect human bodies. By reducing infrared emissions and masking thermal signatures, these garments subvert the fundamental premise of thermal imaging, which relies on differentiating living beings from their surroundings based on heat production. Such innovations have profound implications not only for privacy but also for the future of wearable technology as a medium for socio-political resistance.

As the boundary between fashion and technology continues to blur, counter-surveillance clothing emerges as a site of contestation against authoritarian monitoring. By analysing case studies like Cap Able and Stealth Wear, this talk explores how artistic and technological interventions in clothing serve as mechanisms of resistance and détournement.

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12 JUNE 2025 11.30 - 13.00

ROOM B2.2.15

ID 467 - Maintenance of Cultural Artifacts: From Preservation to Immanent Critique

Mark Theunissen, *The New School*

Keywords: Maintenance, Cultural Artifacts, Repatriation, Museums and Technology, Metaphysics of Artifacts

It appears to be relatively clear what is understood with technical maintenance: a form of servicing, repairing and upkeep of a technical artifact with the goal of continued functioning as deployed in a specific



context. However, it is less clear what counts as the maintenance of a cultural artifact, specifically of its material instantiation, whose proper functioning is to help shape, define, or even constitute a specific cultural practice or ritual.

The connection between the material instantiation of technological artifacts and its proper functioning through maintenance seems quite tight – there are clear limits on the range of possible material instantiations to allow for the intended functioning. In contrast, this relation is much less determined in the case of cultural artifacts, allowing a much wider range of variation in the way a proper functioning is materialized and embedded in a social context.

I argue that a paradox may arise between the 'proper' maintenance of the material substrate or material culture involved in various rituals and practices (for example religious, magic, or oracle practices) and the 'proper' maintenance of the actual rituals and practices. The resolution of this paradox will require forms of repair and maintenance that are put pressure on the distinction between the material and spiritual (geistliches) aspects of cultural artifacts.

A straightforward example is the recent return by the Berlin Ethnological Museum of two 15th-century masks (Kalguakala) to the Kogi community in Columbia. The masks were central in certain temple rituals only to be handled by Kogi priests. (As a representative of the tribe said: "They are not a historical artifact, they are alive.") Yet, for the sake of their 'maintenance' in the museum, these masks were treated with a toxic pesticide that makes their actual use a health risk and obviates any sense of maintenance of these masks as relevant to the Kogi rituals.

This presentation compares several case studies including the one above to bring out some central issues that might arise in our thinking about the maintenance of artifacts in the context of specific material cultures. Specifically, I argue that this further strengthens the emerging view in the philosophy and sociology of technology that to more fully understand the function of artifacts we should consider the practices of maintenance and care surrounding them.



Panel 22. Redefining Relationships: Human Vulnerability and AI-driven Technologies

Convenors:

Maria Zanzotto, Università di Torino

Norberto Albano, Università di Torino

Laura Gorrieri, Università di Torino

Keywords: Artificial Intelligence (AI), Ethical implications, Human-machine interaction, Social Robotics, System design

The rapid advancement of Artificial Intelligence (AI) and robotics has profoundly transformed the landscape of human-machine interactions, challenging our traditional perceptions of technology. On the one hand, the design of this new generation of tools prioritizes easy access and seamless integration into existing processes, and as a result, they are employed by an increasing number of companies, institutions and private users. On the other, these systems foster new intricate interrelationships with the users, precipitating a reevaluation of key philosophical and ethical concepts about the nature of human-machine interactions. This is particularly urgent for tools that entail generative AI, deep learning, and autonomous systems.

This panel invites scholars to explore the evolving dynamics between humans and machines, focusing on whether these interactions inherently involve manipulation or represent new forms of relationships. Can we consider human-machine interactions as neutral, or do they create specific vulnerabilities, especially in the case of technologies designed to simulate human-like behaviour? Generative AI systems such as large language models (LLMs) are increasingly involved in decision-making processes, creative tasks, and even moral reasoning. This raises the question: are these interactions empowering or manipulating individuals, and what are the ethical implications?

This panel encourages discussions considering different perspectives, exploring the nuances of human-machine relations across different technological domains, from conversational agents and social robots to advanced AI-driven decision-making systems.

Key themes that will be addressed include:

- The nature of manipulation in human-machine interactions: Is manipulation a negative phenomenon, or can it be reframed as a necessary interaction element?
- The ethical implications of designing machines that simulate human-like behaviour: Does this make humans more vulnerable to manipulation, or does it open new forms of collaboration?
- How to design the new generation of AI tools or robots: What features should technology have to foster a beneficial relationship with its users? Does this discussion guide the design of the new tools or does it rely on something else?
- The impact of these new technologies in institutionalized contexts: What is the role of technology in specific relationships where power dynamics are already shaped? Can we consider new generational tools neutral in delicate contexts such as medicine, judicial system, military, public or private administration and education?

This panel invites contributions from a range of disciplines, including Science and Technology Studies (STS), philosophy, and the social sciences, to critically engage with these questions.

We propose an experimental format for the panel, structured as a roundtable discussion in which an LLM will be included as one of the participants. By placing the LLM among the human speakers—while fully acknowledging that it operates at a different level—we aim to offer a hands-on exploration of the challenges involved in engaging with technology. This will allow us to examine the dynamics of manipulation, assistance, and interaction that such technologies bring to human relationships.



ID 219 - Biopower of Algorithms: Bioethics and the new forms of reductionism

Aldo Pisano, Università della Calabria

Keywords: AI, Algorithms, Ethics, Control, Bio-power

According to Foucault's theory, digital technologies and Artificial Intelligence configure a sophisticated form of bio-power apparatus [5] that radically transforms human experience through algorithmic control mechanisms. Employing a risk-based methodology grounded in applied ethics, this research draws on Beauchamp and Childress's (1979) principlism and Floridi's (2022) critical extensions, specifically examining technological manipulation as a bioethical issue where individuals are reduced to "quantitative selves" losing their intrinsic dignity.

Leveraging neuroscientific knowledge, particularly dopaminergic systems activated by digital interactions, technological platforms construct manipulation systems that progressively reduce individual autonomy [6;7] and exposure to heterogeneous ideas, identities, and values [8]. These algorithmic devices operate through strategic behavioural modulation, structured via carefully calibrated feedback loops. Digital interfaces transform into behavioural engineering tools that act at the neurophysiological level, intercepting and redirecting reward and motivation mechanisms. The smartphone becomes the primary technological architecture of this process, functioning simultaneously as a surveillance [9] and behavioural [2] modification device. Algorithmic intervention progressively restricts individual perceptual and cognitive landscapes, strategically constraining knowledge acquisition and decision-making processes. Through targeted notifications, personalized content, and adaptive interfaces, these systems generate an almost deterministic environment that gradually erodes human agency. Social media platforms and artificial intelligence applications represent the most refined tools of this new form of biopolitical control.

This technological paradigm raises profound ethical issues [3] about the nature of individual autonomy, presenting an urgent ethical imperative to develop critical frameworks capable of preserving human dignity and self-determination in an increasingly algorithmically mediated reality. The contemporary challenge lies in understanding and countering these mechanisms of behavioural reduction and normalization, reaffirming the complexity of human experience against the reductionist logics of techno-algorithmic systems and their possible interruption of human agency and tasks [8]. Applied Ethics - specifically Bioethics [1] - can serve as a risk analysis tool for future ethical and legal disciplining by reaffirming the principle of self-determination and forewarning against the danger of personal manipulation as a form of bio-power [5;9]. The methodological approach centers on preventing the reduction of individuals to quantifiable entities, protecting human dignity against technological systems that seek to control and normalize human behaviour through algorithmic mechanisms.

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12 JUNE 2025 11.30 - 13.00 **SESSION 1** **ROOM B3.1**

ID 581 - Embracing Human Vulnerability in Mental Healthcare AI Systems: A Philosophical and Empirical Perspective

Ria Ariani, Technische Universität Berlin

Mehmet Özketen, Technische Universität Berlin

Keywords: Vulnerability, Mental Health, AI, Ethical Values, Chatbots

Human vulnerability in artificial intelligence (AI) systems is often framed as a liability, subject to bias, misuse, and systemic failures. However, this study challenges that position by investigating how human vulnerability, when correctly understood, could potentially be reframed as a desirable and even beneficial element in human-AI interactions. Combining philosophical insights with empirical evidence, we argue that vulnerability is not a shortcoming but can foster mutual relationships that enhance trust, empathy, and adaptability for both humans and AI systems. Rather than viewing vulnerability solely as a weakness to be mitigated, we propose that it plays a constructive role in shaping more ethical, responsive, and meaningful AI applications.

To support our perspective on vulnerability, we focus on the interaction of mental health patients and AI systems. The AI systems that we steer our attention to are the so-called chatbots. Moreover, we address the ethical issues that arise from the design of such AI systems and argue that certain ethical values are to be taken into account at the very beginning of the design of such AI systems. This revelation has essential implications for policymakers and developers, particularly in the area of AI governance, design, and ethical frameworks to acknowledge vulnerability as a constructive feature. All in all, we thereby come to the conclusion that taking these ethical aspects into consideration is a sufficient condition for the vulnerability to be a desirable element in the case of human-AI interaction. This seems to be the case at least in the context of some AI systems, which is in our case chatbots in mental health applications.

12 JUNE 2025 11.30 - 13.00 **SESSION 1** **ROOM B3.1**

ID 693 - Ethical AI in Elderly Care: Balancing Technological Capabilities, Deception Risks, and Reciprocity

Orhan Önder, Universität Wien

Boris Abramovic, Universität Wien

Keywords: AI Ethics, Elderly Care, Ethics by Design, Deception, Human-Machine Interaction, Social Robotics

The integration of AI-driven technologies in elderly care presents both opportunities and ethical challenges, particularly concerning dignity, autonomy, and patient wellbeing. This paper explores three key dimensions in the ethical design of AI systems for elderly care: technological capabilities, deception risks, and the role of reciprocity in human-machine interactions.

First, we assess the capabilities of AI technologies, highlighting the importance of transparency, reliability, and user-centred design. Ethical AI must be adaptable to the diverse needs of elderly individuals while ensuring accountability and interpretability.

Second, we examine the risks of deception associated with AI's human-like interactions. As AI systems increasingly simulate companionship and emotional engagement, there is a growing concern over misleading users and fostering unhealthy dependencies. We stress the need for clear boundaries and user awareness to mitigate these risks.

Third, we explore the concept of reciprocity in AI design, advocating for technologies that support meaningful, respectful interactions. Drawing from care ethics, we propose design strategies that empower elderly users, maintain their agency, and enhance social connectedness.



By integrating these three pillars—technological capabilities, deception risks, and reciprocity—this paper contributes to the development of AI systems that enhance elderly care without compromising ethical values. We call for interdisciplinary collaboration to ensure AI technologies remain empowering, transparent, and aligned with the principles of ethical caregiving.

12 JUNE 2025 11.30 - 13.00**SESSION 1****ROOM B3.1**

ID 837 - Socially Assistive Robots for Ageing in Place: potential and ethical implications in the NHoA Project

Ilaria Alfieri, Libera Università di Lingue e Comunicazione IULM

Raquel Ros, IIIA - Artificial Intelligence Research Institute

Keywords: socially assistive robotics, ageing in place, human-robot interaction, co-design, ethical implications

As the global population ages and the number of elderly people requiring support rises, ensuring the well-being and independence of older adults has become an urgent societal priority. Many elderly individuals prefer to live independently in their homes and receive care and assistance there (Broekens et al., 2009), although they often face challenges related to mobility limitations, cognitive decline, and social isolation.

In response to these issues, Socially Assistive Robots (SARs) - a special category of social robots that deals with the care and assistance of the elderly with psychomotor pathologies, the disabled or children with autism, through social interactions (Matarić M. J., Scassellati B., 2016) - have emerged as a promising technological solution, designed to support ageing in place by providing companionship, cognitive stimulation, and practical assistance (Ollevier A. et al., 2020).

It is in this context that this work aims to focus on the NHoA project led by the robotics company Pal Robotics (Barcelona, Spain), which focuses on the co-design of robotic solutions to improve well-being and alleviate loneliness among elderly individuals in home settings. The present study aims to critically assess both the potential and the ethical implications of designing SARs by using the NHoA project as a case study.

For these purposes the work will proceed as follows: firstly, the background of the research will be explored to understand why SARs can support ageing in place. Secondly, the NHoA project will be introduced, describing its main phases and development process. Thirdly, the ethical concerns expressed by older people during their interaction with the robots are analysed, with a particular focus on issues related to privacy, autonomy, reduction of human contact and deception. Lastly, my work attempts to provide possible solutions to these ethical issues and to promote a shift from the manipulative influence often associated with such technologies towards a model of human-robot partnership that prioritizes user agency, transparency, and ethical design.



12 JUNE 2025 14.00 - 17.00

SESSION 2

ROOM B3.1

ID 143 - Designing LLMs for Deeper Human-AI Relationships: A Social Penetration Theory Approach

Mark Jacobs, Clark University

Keywords: Social Penetration Theory, Human-AI Relationships, AI Learning Companions, LLM Design, Critical Design

Large Language Models (LLMs) are increasingly being applied in educational contexts, particularly as AI-driven learning companions. When people interact with chatbots and LLMs, these interactions often mirror human-to-human relationships. While prior research has broadly explored human-AI interactions, few studies have systematically applied relationship theories, such as Social Penetration Theory (SPT), to the design of AI-driven learning companions. This paper seeks to address this gap by exploring how SPT can inform AI design, fostering more engaging interactions and deeper connections.

SPT describes how interpersonal relationships develop through gradual self-disclosure, trust-building, and reciprocity. Applying this theory to human-AI interactions offers a framework for understanding how users form and deepen relationships with AI systems over time. This paper outlines the key stages of SPT and their relevance to potential AI behaviours. Following this, a systematic review of existing research on human-AI interaction highlights AI qualities that promote relational depth, including trust, empathy, self-disclosure, and authenticity. The review also identifies unique factors in human-AI relationships, such as anthropomorphism, social presence, and non-leading dialogue. Additionally, it discusses qualities that may undermine relationships, such as a perceived lack of self-interest or personal history, as well as the potential impact of the "uncanny valley" phenomenon.

Based on these findings, the study synthesizes a taxonomy of key design qualities—both positive and negative—that can guide the development of AI companions. This taxonomy provides a structured framework for identifying features that enhance relational depth in AI systems. Furthermore, the paper discusses how combining this taxonomy with a critical design approach, which emphasizes questioning assumptions and exploring alternative possibilities, can lead to the development of innovative and effective learning companions. By doing so, this research offers both theoretical insights and practical guidelines for creating AI systems capable of building meaningful relationships with users, thereby enhancing learning outcomes in educational settings.

12 JUNE 2025 14.00 - 17.00

SESSION 2

ROOM B3.1

ID 401 - An Embodied AI Co-teaching Assistant for Ecoliteracy and Environmental Education: A New Dawn of a Novel Human-Machine Paradigm

Gianfranco Rubino, Libera Università Internazionale degli Studi Sociali Guido Carli

Keywords: Ecoliteracy, AI-assistant teacher, robotic

This paper presents the implications derived from an innovative approach to environmental education through the development and implementation of an AI-powered robotic teaching assistant designed specifically for ecoliteracy education. Built considering Sterling's (2021) whole-systems approach to sustainability education, the research aims to establish a novel pedagogical framework that positions the AI assistant as a collaborative teaching tool for advancing environmental awareness and ecological understanding, connecting robotic and LLMs in a tout-court vision of a novel human-machine paradigm for ecoliteracy. This requires a transition from the traditional teacher-speaker model to an unprecedented teacher-designer of experiences. The availability of LLMs is also transforming the traditional concept of "study", making it an interactive and continuous process. Instead of seeing studying exclusively as an activity carried out in autonomy, which often means in solitude, students are now involved in a constant dialogue through all the key phases of learning: exploration, cognitive processing and consolidation. Although the literature is



starting to indicate attention to maintaining the centrality and proactivity of the role teacher (teachers' agency), AI environments offer potential support in teaching practice. Instead of focus exclusively on the transmission of content, teachers are called upon to develop their skills in designing learning experiences that encourage participation active, critical thinking and collaboration among students. Traditional environmental education methods have been criticized for failing to change students' attitudes and behaviours toward sustainability (Chen et al., 2020). In this context, for example, in designing guided discussions and problem-based activities, LLMs can generate realistic scenarios and provide real data that can be used in simulations and role play games, allowing abstract and theoretical concepts to be applied to concrete contexts, to promote a deeper and more lasting learning. Furthermore, LLMs can generate provocative questions and stimulating, encouraging students to reflect with knowledge of the facts and participate in discussions meaningful, thus improving their critical thinking skills and their understanding of the content itself.

Following the embodied cognition principles outlined by Skulmowski et al. (2016), the physical embodiment through a robotic interface stimulates curiosity, enhancing student engagement and facilitating complex environmental concepts through interactive demonstrations and real-time environmental data visualization.

This system fundamentally reimagines the relationships between teachers, students, AI tutors and environmental education by creating an embodied co-teaching experience that aligns with UNESCO's (2020) framework for Education for Sustainable Development (ESD) and Global Citizenship Education (GCED). The embodied AI serves as a dynamic knowledge repository and interactive facilitator, capable of presenting real-time environmental data, ecological relationships, and sustainability concepts in an engaging and age-appropriate manner, apart from teaching the youngsters the basics of programming, robotic and AI. Environmental education research by Ardoin et al. (2018) supports the integration of technology with field-based learning while incorporating Wals and Benavot's (2024) principles of ecoliteracy education. By introducing a four-phase learning cycle: environmental awareness building, systems thinking development, action-oriented learning and reflective practice, this approach aligns with Orr's (2020) foundational work on ecological literacy and Capra's (2023) framework for systems thinking in environmental education.

12 JUNE 2025 14.00 - 17.00

SESSION 2

ROOM B3.1

ID 777 - Between Abstraction and Situatedness: Can Generative AI detect Biased Interactions and Create Awareness in the Workplace?

Catalina Lagos Rojas, Technische Universiteit Delft

Sara Colombo, Technische Universiteit Delft

Keywords: Bias awareness, prejudice, workplace interactions, Feminist technology, generative AI

Bias, prejudice, and discrimination persist as complex challenges in workplace interactions (Leslie, Kim, & Ye, 2025). Despite increasing investments in Diversity, Equity, and Inclusion (DEI) initiatives, addressing these systemic issues remains difficult. One major challenge is the fact that bias is context-dependent. What is considered biased behaviour in gender (e.g., interrupting women more frequently), racial (e.g., microaggressions), or other interpersonal interactions can vary across social, cultural, and professional settings. Recognizing bias requires situated awareness, yet most interventions rely on generalized models of bias, failing to account for the power relations in specific contexts and intersectional realities that shape individual experiences (Haraway, 1988).

A key barrier to bias awareness is the bias blind spot, where individuals tend to perceive bias in others more readily than in themselves (Monteith et al., 2019). Even those who endorse egalitarian values struggle to identify how their behaviours may perpetuate inequities, especially when bias manifests in subtle, socially ingrained interactions. Traditional bias training often fails because it challenges individuals' self-perception without providing meaningful mechanisms for self-reflection, leading to defensiveness and cognitive dissonance (Rattan, 2019).



Beyond individuals, bias is embedded in power relations. Interpersonal confrontation can be an important strategy for reducing bias, but its effectiveness is shaped by who is confronting and under what circumstances. Those in marginalized positions may not feel safe or empowered to call out bias, particularly in professional hierarchies, where they risk retaliation, exclusion, or reputational damage (Becker & Barreto, 2019). Moreover, bias confrontation is not always well received; research shows that how and by whom bias is pointed out affects whether the message is acknowledged or dismissed (Czopp, 2019).

This work explores the tensions and opportunities of using Generative AI as a mediator of bias awareness in workplace settings from a feminist perspective. LLMs present an opportunity to surface patterns of bias, but without the social risks associated with human confrontation (Czopp, 2019), but they also introduce other challenges:

- Positionality of AI – Rather than a neutral observer, AI systems reflect the values, biases, and assumptions embedded in their training data. How do we account for AI's alignment with specific positionalities and power structures?
- Abstraction vs. specificity – How can a tool that inherently abstracts, obscures, generalizes, and sometimes erases contextual nuances be reconciled with the need for specificity, reflexivity, subjective, and context-sensitive understandings of bias?
- Intersectional complexity – Can AI meaningfully capture the ways gender, race, class, and other identities intersect in shaping workplace power dynamics, or does it risk flattening these nuances into oversimplified patterns?

A feminist, intersectional approach to AI design highlights that bias is not a universal concept but an embedded, relational, and power-dependent phenomenon. If AI is to play a role in bias awareness, its design and development must move beyond static, decontextualized models of bias detection and engage in participatory, iterative, and situated processes that acknowledge the lived realities of those affected by bias. This contribution critically examines whether AI can foster reflexivity in human interactions or if it risks reinforcing power asymmetries under the guise of neutrality.

12 JUNE 2025 14.00 - 17.00 SESSION 2 ROOM B3.1

ID 440 - Chatbots aren't manipulative... They're just designed that way. Whose concern is that?

Valeria Mauro, Università di Catania

Keywords: LLMs, anthropomorphism, manipulation, deception, AI risks

AI-powered chatbots have become commonplace, though this doesn't mean the average user fully understands what is at stake when interacting with them nor that they find it in their interest to demand safeguards. For instance, users may not be aware that a chatbot's assertions cannot be assessed in the same way as those made by human beings, that their decision to use it might stem from a sub-optimal desire, or that their emotional investment is entirely misplaced. According to an influential account by Noggle (1996), manipulation occurs exactly when a person's beliefs, motives or feelings are led to fall short of the ideals that are supposed to govern them. In the case of large language models (LLMs), a major enabler of manipulation is our tendency to anthropomorphize non-human entities. Building on this, I argue that by framing chatbots like ChatGPT and Gemini merely as misleading interfaces (for example, by reminding users that they "can make mistakes" and lack real mental states), providers downplay how these systems are actually designed to be deceptive tools. Their linguistic and interactional features are crafted by developers to exploit our psychological habits and social drives, aiming to boost engagement and, ultimately, to maximize data collection. To achieve this, Big Tech players benefit from the ambiguity surrounding these systems' true effects (namely, that we are vicariously deceived more than accidentally misled by chatbots) which allows them, in turn, to evade legal and ethical responsibility for compromising users' rights to transparency, explainability and, more broadly, rational moral agency: it seems that while



we humanize algorithms, they treat us as machines. I claim that preventing this disturbing reversal of roles is one of the most pressing challenges companies and governments will have to face in the coming years and outline potential solutions to mitigate these risks.

12 JUNE 2025 14.00 - 17.00**SESSION 2****ROOM B3.1**

ID 614 - Believable Generative Agents and Epistemic Vulnerabilities

Leonie Möck, Universität Wien

Sven Thomas, Universität Paderborn

Keywords: Generative agents, Believability, Epistemic Vulnerabilities, Human-AI-Relations

Recent advancements in AI systems have sparked renewed interest in generative agents capable of simulating human personalities. These agents are touted as tools with diverse applications, such as facilitating interview studies with replica of human personalities (Park et al. 2024), improving online dating experiences (Batt, 2024), or serving as personalized "companion clones" of social media influencers (Contreras, 2023). Proponents argue that such agents, designed to act as "believable proxies of human behaviour" (Park et al. 2023), offer opportunities to prototype social systems and test theories. With their application in a range of areas, the potential for exploiting the effects of their human-likeness arises.

This paper addresses epistemic vulnerabilities in relations between humans and generative agents by critically examining foundational assumptions underpinning the concept of believability. What, precisely, does "believable" mean in the context of generative agents, and how might an uncritical acceptance of their believability create self-fulfilling prophecies?

This analysis traces the origins of Park et al.'s framework of believability to Bates (1994, 122), defining the believability of an interactive character that "[...] provides the illusion of life". Bates (1994) compares AI agent research to the creation of Disney characters. The aim here isn't to trick people into believing that the character is alive but to evoke certain reactions and sensations despite an awareness of the fictional and artificial nature of the character. Enjoying the hermeneutics of believability by reading sense into a caricature or a cartoon character is established through an epistemic distance to the character.

This is a fruitful point for the evaluation of epistemic vulnerabilities. We argue that epistemic vulnerabilities arise when believability turns into belief. Furthermore, a what we call situated understanding of believability includes the epistemic environment of the relation between generative and human agent and helps to pinpoint to dynamics of opacity and potential sources for epistemic vulnerabilities. Establishing situated believability as we argue is precisely about creating a situation in which a distance similar to the one mentioned above between the agent and the user is maintained, and in which the criteria of believability get defined in a given context.

The epistemic environment includes all material-semiotic constellations a generative-human-agent-relationship is evolving in, including the normative assumptions underlying the conceptual hermeneutics. Therefore, drawing on Günther Anders' critique of technological mediation and Donna Haraway's reflections on technoscientific world-building, this paper situates generative agents as key sites where science, technology, and society intersect. By interrogating the assumptions behind believability, this research contributes to a deeper understanding of the socio-technical implications of these emerging AI systems.

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12 JUNE 2025 14.00 - 17.00

SESSION 2

ROOM B3.1

ID 867 - 'Give Me a Human Please': The Duty to Protect Human Encounters in the Smart Technology Age

Emma Dore-horgan, Vrije Universiteit Brussel

Keywords: Respect, moral duties, human-to-human encounters, smart technologies, persons' social nature

A customer jokes with the barista preparing their coffee. A nursing home resident converses with the nurse dispensing their daily medication. Two acquaintances chatter as they wait for the bus. These casual yet regular encounters are typically important to us, but our ability to enjoy them is increasingly under threat. Our societies are gradually outsourcing various customer-facing jobs to robotics and artificial intelligence (A.I.). Many now work remotely. And when we meet other persons in shared public spaces, we often remain crouched over our screens rather than opening ourselves to the possibility of a human encounter with them. These changes are happening as (and because) smart technologies have met our human vulnerabilities – specifically, our tendencies to favour convenience, efficiency and simplicity.

This talk argues that we have respect-based reasons for constraining the encroachment of smart technologies on our social lives, given persons' fundamentally social nature. I argue that the imperative to respect persons grounds a pro tanto (i.e., defeasible) directed duty – on the part of governments, industry etc. – to refrain from supplanting humans with automated agents in domains and contexts where social interaction characteristically plays an important role. I also argue that this imperative to respect persons means that individual persons have a duty, owed to others, to attend to them free from technological distraction/immersion when interacting with them, owing others an apology when failing to do so.

My discussion is structured as follows. I begin by identifying the broad categories of behaviour that are required to demonstrate respect for persons. Following Buss, I suggest that respect requires i) treating people 'properly', as we were meant to be treated, given the kinds of things that we are, and ii) treating people in ways that directly express appreciation of their 'special' or 'great' value (Buss, 2012). Drawing on insights from psychology, I argue that limiting the avenues through which people can have human-to-human encounters is an instance of treating people improperly, as though we do not have a need for regular, human-to-human casual encounters. I also argue that conveying the message that people have special value requires giving people our time, rather than farming out social interaction to, for example, social robots. I consider why it is important that institutions and individuals endeavour to remain respectful of persons while reaping the benefits of smart technologies, suggesting it is because of the role respectful treatment plays in the cultivation and maintenance of persons' self-respect. I conclude by considering the policy, design and individual-level implications of my arguments.

12 JUNE 2025 14.00 - 17.00

SESSION 2

ROOM B3.1

ID 899 - Vulnerability and the ethics of designing human-AI interfaces

Erich Prem, Technische Universität Wien

Keywords: vulnerability, human-AI interfaces, ethics

1. Vulnerability is an essential human characteristic in denoting the capability of being wounded. Vulnerable as an adjective originates around 1600 and remained fairly rare. However, its usage (according to Google ngram) massively increased from the 1930s. How did we become that vulnerable suddenly? It seems plausible that the meaning of "being open to attack" became added to the original meaning of physical (and later emotional) wounds. Today, the term also refers to nature, such as when coral reefs are more



vulnerable today than they were before global warming. The concept of vulnerability has, however, been used also as a technical term, such as in "cybersecurity vulnerabilities", "a nation's economic vulnerability", and the "vulnerability of democratic institutions". This is again a reference to the meaning of "openness to attack" rather than the opening of a wound.

2. Those who are vulnerable have often opened up. "The vulnerability of the human heart" reflects emotional openness and fragility. Those in love are typically vulnerable to being rejected and emotionally hurt. From this vulnerability arises great value and appreciation. Without the risk that is associated with exposing one's vulnerabilities, the gains are not the same. As such, vulnerability is a positive aspect that emphasizes our human nature. It relates to our thrownness, fragility, and ultimately, our finiteness.

3. Machines, cars for example, are not typically vulnerable in the same way as people are. Machines may become damaged or break down. They do not usually bear the typical consequences of being wounded: bruising, bleeding, pain, frustration, and eventually healing – even if we call them vulnerable with reference to attacks as mentioned above.

4. The human-computer interfaces can be a point of vulnerability. This is true for tendinitis emerging from overexertion, for example from excessive mouse movements or keystrokes. It is also true for a more cognitive and emotional type of vulnerability where humans become open to being hurt from what they read, watch, or listen to. People can suffer from being exposed to graphic images, watching too much porn, or being insulted or belittled in dialogues even with computers.

5. There is a sense in which opening up and becoming vulnerable at the interface is not fully voluntary. Where we have to use computers to partake in economic, or social, or administrative matters, we are necessarily exposing ourselves and become vulnerable.

6. It has long been argued within compute science, and more recently in the philosophy of technology that humans are susceptible to overestimating the capabilities of computers, dialogue systems, and AI in particular. It has therefore also been argued that we need to design these systems such that they cannot be mistaken for what they are not, i.e. humans. Otherwise, this leads to the exploitation of vulnerabilities that are unavoidable at the human-computer interface.

7. The human-computer interface and its design therefore poses a challenge from an ethics of care perspective. Where we encounter vulnerabilities in our environment, we are obliged to respond with care and compassion.



Panel 23. Human-AI feedback loops in platformized consumption

Convenors:

Massimo Airoidi, *Università degli Studi di Milano*

Alessandro Caliendo, *Università di Pavia*

Alessandro Gandini, *Università degli Studi di Milano*

Gabriella Punziano, *Università di Napoli, Federico II*

Keywords: AI, consumer culture, feedback loop, platformization, recommendation systems

Platform users absentmindedly interact with proprietary AI systems recommending a variety of personalized content (e.g., social media posts, music, news, people, products). Scholars have highlighted how such recursive and generally opaque human-machine interactions are at the core of platforms' extractive business model, and discussed their social and political implications through conceptual lenses such as "filter bubble" (see Bruns, 2019), algorithmic "power" and "resistance" (Bonini and Treré, 2024), "traps" (Seaver, 2022), "hypernudging" (Yeung, 2017), "diversity" and "confinement" (Roth et al., 2020).

This panel encourages the study of platformized human-AI interactions in light of another notion, that of "feedback loop". From a cybernetic perspective, feedback mechanisms make learning possible to both humans and machines. When platform users and recommender systems interact, feedback-based learning regularly happens both ways: on the one hand, AI recommendations expose users to selections of content they "may also like", orchestrating their digital consumption habits; on the other, based on users' datafied behaviour, machine learning systems iteratively update their parameters, aiming to better anticipate future consumption desires. Hence, personalised recommendations end up shaping the very behavioural data on which they are computed, producing a techno-social circuit raising big sociological questions (Beer, 2022).

What are the effects of human-AI feedback loops on platformized consumption and "consumer culture" more broadly (Caliendo et al., 2024)? How does the accelerated temporality of online content consumption habits intersect with the predictive habits (and habitus) of machines (Airoidi, 2022)? In what ways can we trace and interpret the recursive interactions between the users of TikTok, Instagram, YouTube or Spotify, and the opaque recommender algorithms at work within such data-intensive infrastructures? These are some of the questions this panel aims to address by selecting theory-driven, empirically sound and methodologically innovative contributions that are attentive to the social and cultural dimensions of platformized feedback loops, beyond technologically deterministic simplifications.

Contributions may cover, but are not limited to, the following topics:

- feedback loops, AI recommendations and the platformization of consumer culture;
- the interplay between platform personalization and (more-than-human) habits;
- how feedback loops vary across social categories and platformized cultures;
- market infrastructures and the engineering of feedback loops;
- platform-based feedback loops in music streaming and cultural consumption;
- cross-platform analyses of human-AI feedback loops;
- innovative methodological solutions in the study of platformized consumption.

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11 JUNE 2025 14.30 - 16.30 **SESSION 1** **ROOM B5.1**

ID 660 - Exploring Feedback Loops with the Lens of Autonomy

Minna Ruckenstein, Helsingin yliopisto

Keywords: algorithmic system, autonomy, feedback loop

When people talk about their interactions with algorithmic systems, they often bring up their concerns about autonomy. How can we maintain autonomy amidst persuasive machinic agencies? Despite these widely shared concerns, autonomy is a much less explored and discussed value than privacy, for instance. One reason might be the fluid and paradoxical nature of autonomy: the concept simultaneously points to self-governance yet requires support for its fulfillment. Autonomy is also constantly negotiated, and it can never be fully resolved. In our earlier work (Savolainen and Ruckenstein, 2024), we differentiate between four dimensions of autonomy in human-algorithm relations, aiming to clarify how autonomy becomes restrained and how it can be guarded or strengthened. At its best, autonomy can be activated as reflective and informed choice. This aim can be enhanced by means of technical mastery and algorithmic literacy. Yet, human-autonomy relations also operate in the realm of the intimate, where affective aspects of autonomy become activated when algorithmic systems creep closer to our minds and bodies. This is a much more difficult realm to maneuver, and it raises questions of how to protect what we call 'breathing space' in human-algorithm relations.

In this talk, I will offer a quick overview of the four dimensions of autonomy and discuss how they relate to the notion of feedback loop. The concept of feedback loop refers to a cyclical process where the output of a system is fed back into the system as input, influencing subsequent actions and decisions. In the context of algorithmic systems, feedback loops can manifest in various ways—through user interactions that shape algorithmic responses or through the data generated by users that inform future algorithmic behaviour. These loops can either reinforce user autonomy or undermine it, depending on how they are designed and implemented. Feedback loops can provide inspiring insights and control over interactions with algorithmic systems. Other kinds of feedback loops can lead to felt losses of autonomy. When algorithmic systems manipulate feedback in ways that nudge users toward specific behaviours or choices—often without their awareness—individuals may find their autonomy compromised.

By examining the active ways in which autonomy and feedback loops intertwine, we can better understand the ethical and political implications of algorithmic systems, guiding us toward issues of specific importance. The focus on feedback loops teaches us to think of the longer-term implications of algorithmic relations where users are not fully aware of how their data is being used or how their interactions are being shaped by algorithmic influences. From this perspective, autonomy is never merely a theoretical concern; it is also a service design aim and a publicly shared value that must be actively cultivated within the feedback dynamics of human-algorithm relations.

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11 JUNE 2025 14.30 - 16.30 **SESSION 1** **ROOM B5.1**

ID 461 - User Autonomy in Human-AI Feedback Loops: A Study of the Rednote Platform

Yiran Gao, University of Illinois at Urbana-Champaign

Keywords: user autonomy, AI, feedback loops, social media, rednote

This paper investigates user autonomy within the human-AI feedback loops on the Chinese social media platform Rednote, exploring how its unique interface and functionality, combined with AI-powered personalized content recommendations, provide users with a heightened sense of control over their digital



experiences. Rednote's distinct blend of features—mixing elements from Instagram, TikTok, Reddit, and X/Twitter, its engagement-by-choice browsing interface, and its quick AI training response time—creates a platform where user agency is central to its design. With a low entry bar and a welcoming posting environment, Rednote fosters a community-driven space that prioritizes sharing and discussion over influencer-centric content.

Through the lens of autonomy bias—a psychological theory applied to mediated experiences that suggests individuals derive greater satisfaction from choices and processes they perceive as under their control—this paper examines how Rednote's feedback loops promote a sense of autonomy and agency among its users. The platform's mix of search, browsing, and discovery mechanisms enhances user autonomy by allowing users to explore content without feeling entirely tethered to algorithmic predictions. The immediate feedback provided by the AI—shifting recommendations based on user interactions—reinforces users' sense of control, as they see the direct impact of their choices on the content they encounter.

However, the recursive nature of these feedback loops also raises important questions about how autonomy is mediated by algorithmic processes. While users are presented with a broader range of options and agency in shaping their content discovery, the AI continues to refine its suggestions based on accumulated data, potentially narrowing the scope of user experience over time. The use of autonomy is essentially a "feel-good" experience. This paper argues that by combining autonomy bias with AI-driven feedback mechanisms, Rednote creates a platform where user control is both empowered and constrained, illustrating the complex interplay between user agency and algorithmic influence.

Through theoretical analysis and empirical observations, this paper explores the sociocultural implications of autonomy in platformed environments, highlighting how Rednote's design navigates the tension between user empowerment and the risk of algorithmic determinism. In doing so, it offers new insights into how feedback loops shape user autonomy in contemporary digital spaces.

11 JUNE 2025 14.30 - 16.30

SESSION 1

ROOM B5.1

ID 534 - The sanitisation of data in AI-driven market research

Laura Bruschi, *Università degli Studi di Milano Statale*

Keywords: Market research, ethnography, artificial intelligence, consumer data

In mainstream marketing literature, AI is often presented as both a solution for managing large volumes of data (Campbell et al., 2020; Gabelaia, 2024) and a means to achieve fast, accurate, and objective data analysis while predicting future trends (Haleem et al., 2022; Ma & Sun, 2020). However, critical scholars have highlighted how the increasing reliance on algorithms also increases the opacity of market research. In this sense, not only do claims of algorithmic neutrality and transparency remain alleged (Airoldi, 2022), but they become even more concerning when they are developed by private companies and remain largely "immune from scrutiny" (Pasquale, 2015, p. 5).

Hence, this study examines the growing role of AI in marketing by investigating how consumer data is processed and analysed in AI-driven market research. To do so, it draws on data collected during a seven-month ethnographic study conducted in a market research agency that has developed its own AI-system to analyse consumer data, generate marketing insights, and forecast market trends.

In particular, this research introduces the concept of sanitisation, an AI-driven process in which (consumer) data is filtered, categorized, and refined to remove potentially disruptive elements, ultimately producing "clean" marketing insights. This work, therefore, aims to (1) define and conceptualize sanitisation, (2) identify the key elements that underpin this process, and (3) explore its broader implications for contemporary marketing and consumption practices. Furthermore, in alignment with the panel, the presentation will reflect on the existence of a loop of sanitised data wherein fieldwork findings indicate that market research agencies collect and analyse data that is already aligned with sanitised and corporate-approved standards. As a result, rather than offering a more comprehensive understanding of consumer behaviour, AI-driven



market research may instead reinforce a narrow, sanitised vision of the market.

Moreover, this conceptualisation represents the evolution of principles that have shaped market research since its inception. It builds upon Arvidsson's (2004) analysis of the containment paradigm in early market research, where the ABCD system was used to reduce consumer complexity—shifting the focus away from consumers themselves and toward providing "scientific legitimacy" to speculations about consumer behaviour. Sanitisation thus emerges as an updated, automated continuation of this process.

Beyond the case analysed in this work and its relation to the inherent opacity that AI brings in the socio-technical construction of marketing insights, the concept of sanitisation has broader applicability for platformised consumer culture at large (Caliandro et al., 2024), but also with black boxing, and the reliance on categorisations and classifications inherent in machine learning algorithms.

Finally, the concept of sanitisation has broader implications for platformised consumer culture (Caliandro et al., 2024) and critical AI studies, that expand its significance beyond the specific case analysed in this work and its relation to the inherent opacity that AI introduces in the socio-technical construction of marketing insights.

11 JUNE 2025 14.30 - 16.30

SESSION 1

ROOM B5.1

ID 231 - The Scope of Algorithmic Fairness and What Lies Beyond: On the Sociotechnical Affordances of Recommender Systems.

Bernhard Wieser, Technische Universität Graz

Keywords: fairness, recommender systems, affordance, power asymmetries

Recommender systems are a central element of platformized consumption. The core component of such algorithms is the analysis of previous user behaviour [6], [3]. In this way, consumers become enrolled into sociotechnical networks, rendering behavioural feedback for the refinement of recommendations that these technologies allow to compute [4].

This contribution draws on a study conducted within the framework of a research project on "fair recommender systems." Fairness is a concept that has gained particular prominence in computer science, addressing recognized problems such as the under-representation of individuals or social groups, reduced visibility, and even discrimination [1], [2]. Additionally, fairness refers to the avoidance of various types of biases causing adverse effects in the performance of AI technologies. Research in computer science not only evaluates AI-related fairness problems but also proposes methods to mitigate identified fairness concerns [5].

This contribution aims to critically reflect on such techno-centric operationalizations of fairness. Accordingly, we ask: What lies beyond the scope of algorithmic fairness, and what is required for a comprehensive understanding of inequality, exclusion, and social injustice in platform economies and their computational instruments?

To answer these research questions, we will address the material affordances of recommender systems and the infrastructure they require. Secondly, we will address the invisible human labour behind AI technologies—work that is poorly paid or not compensated at all. Thirdly, we will address the power asymmetries resulting from the monopoly position of global platforms. Fourthly, we will look into the ways in which recommender systems pre-structure choices. Against this backdrop, we show how fairness issues can be addressed through computational methods, but also what lies beyond the scope of algorithmic mitigation and thus requires a more comprehensive analysis of inequality, exclusion, and social injustice in platform economies.

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Acknowledgement:

AI-based Recommender Systems: Fairness, Transparency and regional added value" funded by "Zukunftsfonds Steiermark", PN 1610.

11 JUNE 2025 14.30 - 16.30

SESSION 1

ROOM B5.1

ID 675 - When feedback fails: broken loops in insurance and healthcare

Maiju Tanninen, KU Leuven

Keywords: Feedback loop, data, algorithm, insurance, healthcare

This paper examines how the ubiquitous promises of optimization, predictability and seamlessness – supposedly achieved through digital feedback loops – manifest when data-driven feedback systems are implemented beyond tech firms, social media or streaming services. Digital feedback loops create an interactive and mutually influential relationship between an algorithmic technology and a user, in which the actions and interventions on one side impact the other (Fourcade and Johns, 2020; Mathieu and Pruulmann Vengerfeldt, 2020). This is often expected to create a seamless alignment between users and technologies, leading to optimized outcomes, efficiencies and new market opportunities. However, the recursive and predictive nature of algorithmic systems has been criticized for exerting control and potentially narrowing future possibilities, as such looping effects can amplify certain behaviours while suppressing others (Nowotny, 2021).

These concerns have been particularly relevant when the promises of algorithmic technologies are tested in established and essential fields, such as insurance and healthcare. This paper examines how the idea of a digital feedback loop is implemented in these fields using two empirical cases, with a particular focus on breakdowns in their practices. First, it discusses Finnish life insurers' attempts to collect customer-generated data for risk calculations and behavioural interventions, showing how the data loop between the policyholders and insurers dissolves at various points or is never established due to shortcomings in new technologies, regulatory barriers and aspects inherent to insurance logic (Tanninen, 2024). Second, it discusses physicians' experiences with the implementation and use of a multi-purpose patient data system in Southern Finland, highlighting the fundamental mismatch between the physicians' data labour and the system's output and the devastating effects that this misalignment has on medical practice.

The paper shows that while digital feedback loops function in some contexts, implementing similar ideas in fields with long traditions and strict regulations is difficult. It challenges the assumption that digital feedback loops emerge automatically with the right technologies – or that they are the ideal solution for all problems. Instead, the paper highlights the labour required for automation and demonstrates that, rather than achieving optimization and seamless alignment between users and systems, these cases reveal how technologies often interrupt and interfere, leading to underwhelming or even disastrous outcomes.

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ID 577 - "Where Every Need Has Been Anticipated": An Antidichotomic Account of Digital Habits and Algorithmic Prediction

Simone Bernardi Della Rosa, Università del Molise

Keywords: Predictive algorithms, habit theory, semiotics, pragmatism, postphenomenology, digital subjectivity

The rise of predictive algorithms in digital platforms has intensified the entanglement between human habits and algorithmic personalization, shaping digital subjectivity and behaviour in ways that remain undertheorized. This paper investigates the ontological, semiotic and phenomenological interplay between human and algorithmic habits, challenging the dichotomy existing in literature between human autonomy and algorithmic determinism (Chun 2016; Smith, 2020; Nowotny, 2021). While both human and machine habits operate through anticipation and prediction (Malabou 2004; Pedwell 2021; Esposito 2022), I argue that algorithmic habits are fundamentally more rigid, constrained by the phenomenological structure of the digital environment and the way algorithms process and utilize data. However, paradoxically, their influence stems precisely from their ability to exploit human habitual mechanisms—reinforcing, rather than overcoming, their own rigidity.

Algorithmic prediction differs from human habit in key ways: (1) it is historically bound, relying on past correlations rather than the context-dependent expectations of this "law of regularity" (Peirce, 1892); (2) it reduces complexity, simplifying behaviours into standardized patterns that exclude ambiguity; (3) it lacks a broader semiotic interpretative context, functioning purely through data extraction without engagement with the broader context meaning and values of our environment. However, despite these constraints, algorithms shape digital behaviours. This occurs through a 'grafting' effect, where algorithms share with habits some ontological and temporal structure (mediation, generality and anticipation) (Colapietro 2009; Määttänen, 2015) and latch onto pre-existing human routines. Through targeted notifications, personalized suggestions, and ecosystem design, algorithms foster a "digital comfort zone," shaping our daily experiences, narrowing and impoverishing the horizon of experience.

Drawing on pragmatist theories of habit (Peirce 1902; James 1892; Dewey 1922; Testa & Caruana 2020) and contemporary critiques of habit theory as predictive tool and algorithmic subjectivation (Manovich, 2013; Clough et al., 2015; Airoldi 2021; Johnson 2021; Esposito 2022; Romele 2023), this paper advances a model of co-constitution of digital experience, based on the idea of a "mediated" subject (Bernardi della Rosa, 2024). This perspective challenges the dichotomy between deterministic views of technological control over human behaviour: "the becoming machine and data of humans" (Chun 2016; Koopman 2019) while also moving beyond purely humanist critiques that assume the algorithmic influence on behaviour constitutes the betrayal of our true creative nature (Nowotny 2021; Smith 2022).

Ultimately, this analysis reveals this recursive entanglement where prediction seen as a propensity mechanism of behavioural reinforcement preempt behaviour by structuring the field of possible actions in advance (Mackenzie 2018; Amoore 2020). The semiotic and phenomenological rigidity of digital environments ensures that algorithmic habits, while structurally similar to human habits, lack the plasticity and openness that characterize lived experience (Ihde 2009; Verbeek 2011). This asymmetry has profound implications: rather than merely reflecting user preferences, predictive systems actively participate in shaping the conditions of possibility for action, perception, and decision-making. By foregrounding habit as a site of co-constitution, this paper challenges both deterministic accounts of algorithmic domination and humanist pre-assumptions, arguing instead for a nuanced understanding of how digital infrastructures subtly condition the temporal, cognitive, and affective rhythms of contemporary subjectivity.



ID 631 - Adding fuel to the fire: Feedback loops and platformized cultural production

Tuukka Lehtiniemi, Helsingin yliopisto

Laura Savolainen, Helsingin yliopisto

Hanna Reinikainen, Helsingin yliopisto

Jesse Haapoja, Aalto-yliopisto

Keywords: cultural production, emotions, platformized work, pleasing algorithms

We employ feedback loops to analyse the production side of platformized consumption, namely the human-AI interactions of cultural producers creating content on digital platforms. Our contribution is based on interviews with professional influencers and musicians, focusing on their beliefs, experiences and practices related to algorithmic visibility. We particularly sought to understand how they speak of and engage in practices of 'pleasing algorithms' (Haapoja et al., 2024) – an increasingly relevant vernacular in platformized cultural production discourse – and its outcomes for digital culture and platformized work.

In our analysis, we employ emotions connected with 'pleasing' in the context of platformized human-AI interactions as an analytical entry point for producing algorithmic knowledge (Ruckenstein, 2023). What emerges is a view on not just one but a plethora of feedback loops. Attempting to create virtuous cycles around their own content's visibility, cultural producers continuously incorporate feedback about datafied audiences, learning not only about their tastes and desires, but also about psychological vulnerabilities and weaknesses. Further, producers do not act in a vacuum, but observe how other content creators respond to algorithmic rules and patterns, and consult industry experts such as influencer agencies or record labels to hone strategies. The output of algorithmic governance – behavioural change – becomes instantly assimilated to further fine-tune competition.

As the above illustrates, feedback loops are not merely external: self-evolving patterns unfolding in and through data, and relating users, content, platforms and cultural industries in techno-social circuits. They are also internal, reaching their potential by working through and on subjectivities. Indeed, unless cultural producers were so creative in responding to and imitating observed patterns, platforms' notoriously 'addictive' algorithms would be much less efficient in hooking or engaging consumers. When producers learn to please algorithmic dynamics, they may feel a momentary sense of control, but they are simultaneously adding fuel to the fire.

A focus on subjective mediation allows tracing how our interlocutors attribute agency, blame, and responsibility, while locating sources of success, frustration, and stress in platformized cultural production. Attributions of agency do not follow simple distinctions between technology and humans, such as assigning powerful influence to algorithms, or autonomous agency to humans (Siles et al., 2024). Instead, agency and responsibility shift and intermingle ad infinitum: what at surface appears as a direct outcome of algorithmic optimization or platform policy, also hinges on how cultural producers both individually and collectively interpret and respond to algorithmic amplification of consumer behaviour.

Our case then suggests that algorithmic feedback loops work on different scales, directions and across boundaries, tying together different actors, be they human, organisational, or technological. Emotional responses connected with pleasing the algorithm illustrate how feedback loops are also deeply problematic. Their seemingly self-perpetuating and dynamic character creates a movement towards a dystopian condition for both content producers and consumers – yet one that cannot be easily stopped or slowed down.



11 JUNE 2025 17.00 - 19.00

SESSION 2

ROOM B5.1

ID 616 - Cultural filter bubbles? The effect of personalized recommendations on cultural diversity and inequalities on a music streaming platform

Samuel Coavoux, Institut Polytechnique de Paris

Keywords: digital platforms, recommendation, filter bubble, audience

Filter bubble theory states that the personalization of content on the internet, linked with the use of recommendation algorithms, traps users into narrow cognitive spaces. In these bubbles, users are only exposed to material they are familiar with, while challenging ideas and products are filtered out of their view. Streaming platforms are accused of producing such bubbles, but empirical research on cultural platforms is rare, and often at the aggregate level, e.g. country-level consumption. Moreover, diversity is a polysemic term. The main study on this topic considers aesthetic diversity, where aesthetic proximity is measured through how often two tracks are present on the same playlists.

In this paper, I measure the effect of the use of recommendation on a large panel of metrics of individual diversity of consumption. I use a longitudinal dataset, a digital log of the detailed music consumption of a random sample of 16,794 paying subscribers of music streaming platform Deezer, followed for eight years (2017-2024). The dataset comprises 509M unique events over 531k artists after cleaning. From this, I compute for every user and every week, the rate of use of recommendation, and various diversity metrics that account for variety (number of items consumed) and balance (proportion of consumption given to each item). I also rely on data from musicbrainz to measure artists' gender and country of origin. To analyse the data, I use two-way fixed effects models, regressing diversity on the use of recommendation, controlling for the log volume of play. The individual fixed effect removes time-invariant confounders, such as users' demographics or individual propensity towards diversity, and the time fixed effect removes the effect of fluctuating markets. All effects must thus be understood as follows: when a user increases their use of recommendation, compared to their own individual average, diversity increases (positive effect) or decreases (negative effect) compared to own individual average.

I find that the use of recommendation have mostly positive effects on diversity. First, it has a very large, positive effect on artist diversity (number of artists one is exposed too and balance between artists). Second, it has a fairly large, positive effect on country and genre diversity: the artists added to one's portfolio are from different genres and different cultures than those from organic listening. Third, it has a small, positive effect on the share of time spent on longtail artists (defined as artists in the bottom 90% of popularity); however, it also tends to favor more popular artists on average. Fourth, it has a small negative effect on gender diversity: recommendations favor male artists. Finally, editorial recommendations are associated with more diversity than algorithmic recommendations, except for artist diversity.

Overall, this study finds evidence against a filter bubble hypothesis, but also some dimensions, gender and average popularity, where we might see bubbles emerge.

11 JUNE 2025 17.00 - 19.00

SESSION 2

ROOM B5.1

ID 195 - Adapting the Futures Cone for platformized human-AI feedback loops found in FemTech apps

Jennifer Pybus, York University

Pushpi Bagchi, Edinburgh Futures Institute

Adam Jenkins, King's College London

Keywords: Menopause, health data, mobile infrastructures, AI profiling

This paper presents the novel participatory method, Futures Cone, to examine how user health data feeds human-AI feedback loops in FemTech – a portmanteau for 'female technology.' Over the past few years,



FemTech has undergone rapid growth, catalysed by its promise to provide women with more agency over their health and to close the 'gender data gap', the gendered disparity in data collection and analysis which overlooks women's specific health needs. The rapid expansion of this marketplace raises regulatory considerations and concerns about how women experience and perceive having their intimate data—highly sensitive information about women's bodies, health, sex, gender, sexual orientation, and close relationships (Citron 2022)—routinely extracted by a range of actors without explicit awareness or consent. Indeed, a recent ICO (2023) study highlights that data sharing from FemTech apps is likely a key factor behind why 17% of women received 'distressing' targeted advertisements linked to their in-app activities.

To address the production of intimate feedback loops, we have adapted the Futures Cone framework into an interactive board game that examines the impact of large technology platforms that provide embedded tracking infrastructures for most applications. The Futures Cone, developed by Voros (2003), is a framework that categorises potential futures, ranging from probable to possible. Typically, it is visualised as a cone expanding outward from the present. Probable futures occupy the narrowest inner section, and possible futures form the widest outer boundary, enabling stakeholders to explore a spectrum of future scenarios. In this study, we employ the Futures Cone approach to investigate scenarios about the impact of having user health data feed directly into human-AI feedback loops, making these dynamics more tangible and accessible to our participants.

The workshop builds participant understanding and confidence to engage with embedded data practices that connect FemTech applications with platform infrastructures. By employing the Futures Cone approach, the workshop fosters knowledge about how platforms mediate data flows, shape algorithmic decision-making, and reinforce power asymmetries in digital health ecosystems that relate to our participants' bodies. A key innovation of this methodological approach lies in its emphasis on scenario production as a means of foregrounding human agency in shaping preferred digital futures. By framing the future as a dynamic space of possibility rather than a predetermined trajectory, the workshop enables participants to move beyond passive acceptance of data extraction, towards the proactive development of novel policy solutions that challenge existing asymmetries in data governance. This participatory framework creates a discursive space in which AI-driven feedback loops—particularly those built on intimate health data—can be critically examined for more equitable digital futures.

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11 JUNE 2025 17.00 - 19.00

SESSION 2

ROOM B5.1

ID 711 - Algorithmic Medias Res: A Longitudinal Study of Platformized Consumption on YouTube

Illir Rama, Università degli Studi di Milano Statale

Andrea Russo, Università di Pavia

Keywords: AI, algorithms, YouTube, consumption, sociotechnical

Digital platforms have influenced and reshaped the consumption of culture, entertainment, news. This re-mediation by the hands of digital platforms is empowered by a variety of artificial intelligence and machine learning algorithms recommending, sorting, and overall regulating the flows of content within digital environments. The sociotechnical nature of algorithmic and AI systems has led to a variety of approaches



to study the intersection of digital consumption and digital environments: some focused on the power that algorithmic systems have in guiding consumption, by emphasizing, for example, their ability to recommend targeted content to individuals, or by structuring environments aggregating similar points of view and social affinities; others on the agency that individuals have in resisting, manipulating, and repurposing the algorithmic systems of platforms and social media. Less attention has been given to the iterative nature of sociotechnical and algorithmic systems, and their link with consumption, such as by focusing on the feedback loops structuring the interaction between humans and AI. Thus, it accounts for the algorithmic infrastructure of digital platforms, focusing on how the flow of content is partly based on pre-existing patterns of consumption, embedded within machine learning algorithms in the form of training data, and reinforced by in situ interaction between user and platform. However, empirically accounting for the human, social, and technical factors affecting consumption is complex, due to the difficulties to access both granular individual consumption patterns as well as comprehensive platform-level data.

In this article, we contribute to the debate on the tension between the social and technical factors affecting consumption by proposing a longitudinal analysis of YouTube. We do so based on data involving individual-level behaviour on the platform, collected through donations from a representative sample of 107 Italian respondents, comprising over three million data points over a decade. We analyse the evolution of consumption patterns across respondents, including data around content consumed and a variety of video-level metadata, as well as interactions with the platforms in the form of search queries and subsequent videos watched. More specifically, we trace how viewing patterns vary over time, considering changes in content categories, viewing frequency, users' search behaviour, and access to content. By triangulating users' searches and consumed content, we account for how individuals navigate and respond to algorithmic sorting and recommendations provided by the platform, for example by considering the proportion of content watched following a search or recommended by YouTube's algorithmic system. Additionally, we cross this data with platform-level changes, accounting for different versions of the algorithmic recommendation and sorting systems, the introduction of new affordances, and the changes in policies of the platform. This allows us to map the diachronic evolution of aggregated consumption patterns on YouTube, considering both social factors in themselves and their relationship to broader technical changes on the platform. By doing so, we offer insights into the mutual influences between social and technical factors, accounting for human-AI feedback loops and their effects on platformized consumption.

11 JUNE 2025 17.00 - 19.00

SESSION 2

ROOM B5.1

ID 832 - Technoscience of cultural taste

Robert Bobnič, Univerza v Ljubljani

Keywords: taste, recommender systems, technoscience

According to Bourdieu, the sociological science of taste begins with a transgression: one must dissolve the boundary between the aesthetic sphere of high culture and popular culture in order to uncover the patterns of cultural consumption and their roles in social power dynamics. In the introduction to his landmark study of cultural taste in late-1960s-70s French society, he writes that the sociological "science of taste and cultural consumption begins with a transgression that is in no way aesthetic: it has to abolish the sacred frontier which makes legitimate culture as a separate universe, in order to discover intelligible relationships which unite apparently incommensurable 'choices,' such as preferences for music and food, painting and sports, literature and hairstyles" (Bourdieu 1984, pp. xxix).

In an era of pervasive recommender systems—where user preferences are continuously recalculated to generate personalized functionalities and curate selections on online media platforms—the science of taste involves a different kind of transgression: we must erase the divide between the human formation of cultural taste and its computational modeling.

While there has been extensive debate about the social implications of automating cultural consumption, including the ways such automation shapes cultural tastes, this presentation focuses on how these pro-



cesses transform the science of taste. If we understand this science as the techno-scientific mathematization of taste via computational systems, then alongside the technological and platform affordances highlighted in contemporary sociologies of taste, the epistemology of coding taste into computer systems becomes crucial.

Drawing on a review of key works on the development of recommender systems—from early collaborative filtering algorithms in the 1990s to more recent implementations of artificial neural networks—I will explore how the science of taste has evolved at the data and technological levels over the past three decades. I will examine how cultural taste is abstracted in computer systems, the theoretical influences (computer science, cybernetics, behaviourism, statistics) that inform algorithmic design, and the conceptual assumptions and problems embedded in recommender systems, such as how they handle the diversity of choices.

In doing so, I will draw on Beniger's framework from *The Control Revolution* (Beniger 1986), which addresses how communication and information technologies have historically managed consumption, culminating in the advent of the computer. At the same time, Beniger underscores that the computation within these technologies represents an epistemological shift. While modeling consumption through datafication, measurement, and psychological studies is not new—given that analytics have powered cultural and media businesses throughout the twentieth century—recommender systems mark a distinct juncture by beginning with the computer-based recoding of human taste.



12 JUNE 2025 14.00 - 17.00

ROOM B2.2.5

Panel 25. At the borders of biomedicine: How health and care are reconfigured as do-able problems beyond biomedical expertise

Convenors:

Stefano Crabu, *Università di Padova*

Caragh Brosnan, *The University of Newcastle*

Federico Neresini, *Università di Padova*

Pia Vuolanto, *Tampereen Ammattikorkeakoulu*

Keywords: health responsibility; Alternative healthcare practices; Biomedical boundaries; Individualization of health

In contemporary societies, neoliberal economic arrangements and the rise of consumerism have significantly reshaped cultural expectations and representations of the body, framing health as a highly individualized and morally charged responsibility. Individuals are expected to seek knowledge, exercise moral judgment, participate in healthcare decisions, and minimize health risks through personal choices. This emphasis on personal responsibility is reflected not only in public health discourses but also in knowledge domains that sit at the epistemic boundaries of biomedicine. Consequently, it is important to explore how these new public health discourses have created space for alternative practices—such as meditation, nutritional therapies, dance therapy, and healing methods drawn from naturopathy and homeopathy—to enter the healthcare arena. These practices are supported by an increased emphasis on individual choice, therapeutic pluralism, and associated funding packages.

Approaches that encompass health and wellness practices that lie outside and are not accepted within biomedicine, otherwise labeled as "refused knowledge", do not simply reflect an alleged opposition to biomedical advice stemming from health illiteracy or distrust of medical practitioners. Instead, they signify a demand from citizens, consumers, and patient advocacy groups to become more informed and accountable in their relationship with biomedicine. This trend involves "opening the black box" of biomedicine, critically assessing its inner workings. Further research is needed to explore how alternative knowledge systems challenge biomedical boundaries and contribute to shaping contemporary understandings of health and care.

This panel aims to bring together multidisciplinary STS research to deepen our understanding of the social and epistemic conditions under which health and care are discursively and materially enacted as "do-able problems" at the margins of biomedical science. It seeks to analyse the extent to which such enactment may reduce individuals' reliance on prevailing medical practitioners by promoting activities such as self-care, health enhancement, chronic disease management, and the acquisition of diagnostic and therapeutic skills, thereby increasingly shifting medical expertise and responsibility to the individual.

We invite scholars and practitioners to submit theoretical, empirical, and/or methodological contributions that explore how forms of health and care emerging at the boundaries of science reshape biomedical authority while becoming entangled in contemporary politics of life.

We especially encourage a focus on the intersection of knowledge-making practices and individualization processes, and how these processes are enacted in relation to bodily experiences, health, and care management, particularly with regard to the emphasis on personal and moral responsibility for health.

Contributors may focus on the following dimensions:

- Analyse how health and care are practiced at the boundaries of biomedical sciences.
- Examine classification systems, technical objects, therapeutic practices, care relationships, self-experimental techniques, evidence production, and public communication strategies that either reinforce or challenge the narratives and normative stances framing health as an individualized moral responsibility and personal duty.



- Explore knowledge legitimization strategies employed to frame health and care as do-able problems beyond biomedical expertise.
- Provide methodological reflections on the importance of maintaining a non-normative, symmetrical perspective when studying health and care practices beyond the biomedical, while also considering the researcher's positionality in the field.

12 JUNE 2025 14.00 - 17.00**ROOM B2.2.5**

ID 259 - Navigating the Boundaries of Biomedicine: Pro-Vaccine Choice Communities and the Ideal of Pure Science

Barbara Morsello, Università degli Studi di Padova

Federico Neresini, Università degli Studi di Padova

Keywords: refused knowledge, vaccine hesitancy, public understanding of science

In contemporary societies, the rise of consumerism and neoliberal health discourses has emphasized health as an individualized moral responsibility, reshaping how knowledge and care practices are legitimized and enacted. Within this context, alternative knowledge systems have gained prominence, particularly in domains sitting at the epistemic boundaries of biomedicine. Our research focuses on Italian pro-vaccine-choice Refused Knowledge Communities (RKC), which challenge mainstream biomedical authority while adhering to an idealized vision of "pure science". These communities do not outright reject science but instead critique what they perceive as its political and economic entanglements, advocating for a more trustworthy and unbiased form of scientific knowledge. From January 2020 to July 2021, we conducted qualitative case studies using digital ethnography across online platforms (e.g., Facebook, YouTube, webinars, and instant messaging) and engaged with prominent pro-vaccine-choice associations, such as Comilva and Corvelva, along with European partners like the European Forum for Vaccine Vigilance. This was complemented by 21 qualitative interviews with vaccine-hesitant individuals in Italy.

Our findings reveal that these RKC employ three key strategies to construct and validate knowledge aligned with their "pure science" ideals: (1) recruiting scientists and referencing scientific papers; (2) constructing evidence by mimicking scientific formats and narratives; and (3) intertwining experience-based knowledge with "pure" science. These strategies exemplify how RKC challenge the boundaries of biomedicine by asserting alternative epistemologies and reframing health as a do-able problem through personalized, community-driven knowledge practices. Far from being anti-scientific, these communities reflect broader societal shifts toward individual choice, therapeutic pluralism, and critical engagement with institutional authority. By emphasizing self-directed inquiry and localized forms of care, RKC enact health and wellbeing in ways that reposition responsibility onto individuals while simultaneously demanding greater accountability and transparency from institutional science. We argue that such dynamics not only challenge conventional biomedical boundaries but also illuminate how lay critiques of science intersect with broader trends of individualization in health care. By exploring how pro-vaccine-choice RKC navigate the interplay between institutional rejection and personal responsibility, our research contributes to a deeper understanding of how health and care practices at the margins of biomedicine reshape epistemic authority and contemporary politics of life.



ID 413 - Just a little more different than the others: neurodivergence and the re-articulation of knowledge production in autism research

Alessandro Cazzola, Università degli Studi di Trento

Lorenzo Beltrame, Università degli Studi di Trento

Keywords: Neurodivergence, biomedical and clinical research, styles of thought and styles of reasoning, diagnostic categories

Since its first conceptualization in the early 20th century as infantile schizophrenia, autism has represented a category in constant evolution, not exclusively within what is commonly referred to as "scientific practice" but in continuous interaction across various domains of knowledge. It is impossible to examine the history of autism without considering the role of situated knowledge - first from parents of autistic children and later from autistic individuals themselves - in constructing understanding on the subject. Not coincidentally, an initial conceptualization of autism as rooted in biological factors was developed in opposition to the psychoanalytic theory of "refrigerator mothers," shifting parents from being viewed as the cause of the condition to becoming its most knowledgeable advocates. The paradigm of neurodivergence, that is not only shaping public discourse and perception about autism, but is also gaining traction among researchers and medical experts, has emerged from autistic individuals themselves, who claim autonomy in defining their condition and needs, often opposing the idea of a cure advocated by many parents groups.

Building on these observations, this paper analyses how the paradigm of neurodivergence, originated outside inner scientific circles, is currently shaping categorizations and practices in autism diagnosis, behavioural and cognitive treatments, neurocognitive rehabilitation and also neurobiological and genomic research. Building on notions of 'style of thought' (Fleck, 1979) and 'styles of reasoning' (Hacking, 1992), and on historical analysis and semi-structured interviews with researchers active in the field of biomedical and clinical research on autism, this paper shows how the acknowledgement of cerebral individuality and diversity is involved in a process of re-articulation of diagnostic categories and practices. Moreover, the paper shows how neurodivergence as a style of thought is also informing the post genomic approach on genetic bases of autism: having abandoned the idea of the "autism gene", researchers have started to search for polymorphisms associated with different autism sub-types in connection with a diagnostic and clinical redefinition of neurodivergent categories. Our work demonstrates how research and clinical circles engage with the evolving concept of neurodivergence in different ways: some integrate it into the production of autism knowledge, diagnosis, and clinical practice, reshaping these fields accordingly; others adopt neurodiversity rhetoric strategically; while in some cases, the paradigm is openly contested. We will show that the production of knowledge on autism and categorization of autistic subjectivities remains deeply political, situated, and contested. While the growing recognition of cerebral diversity reflects a broader shift toward valuing individuality, it simultaneously reinforces biomedical paradigms that prioritize modulation and control or management over holistic inclusion. As classifications continue to be redefined and negotiated, the study highlights the necessity of critically examining how these shifts both challenge and perpetuate entrenched logics, paving the way for more nuanced and inclusive understandings of autism within and beyond clinical and biomedical frameworks.

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12 JUNE 2025 14.00 - 17.00

ROOM B2.2.5

ID 493 - Researching at the borders of biomedicine: positioning ourselves, and being positioned, as social scientists studying complementary and alternative medicine

Caragh Brosnan, University of Newcastle

Jenny-Ann Brodin Danell, Umeå Universitet

Pia Vuolanto, Tampereen yliopisto

Keywords: contested knowledge, complementary and alternative medicine, reflexive methodology, the challenge of symmetry

Studying contested knowledge fields presents theoretical, methodological and ethical challenges for social scientists. The principle of symmetry is advocated in STS, whereby researchers treat knowledge claims equally, investigating the processes that allow some to stabilise as facts and others to remain contested, rather than establishing which are 'true'. How to maintain this stance in practice, especially when engaging directly with epistemic communities through fieldwork, is not straightforward. The implications of remaining neutral are also increasingly complicated as scientific expertise is publicly contested in the so-called 'post-truth' era. These quandaries have recently been grappled with by social scientists studying conspiracy culture (Harambam 2020), refused knowledge communities (Morsello 2024; Neresini and Crabu 2024) and contested illness (Dumes 2020).

In this paper, we extend the discussion by analysing our experiences as sociologists/STS scholars studying complementary and alternative medicine (CAM). CAM comprises a broad range of practices and professions concerned with enhancing health beyond the borders of biomedicine. Its popularity and alternative, individualised philosophy of health are seen to threaten biomedical authority, making CAM highly contested in medical spheres, and well-studied in sociology. At the same time, some CAM types are gaining gradual acceptance within medicine and academia.

Each author has studied various aspects of CAM over the past decade, including its status and trajectory within the academy. We have navigated similar challenges around managing our own positioning and position-taking, captured in our ethnographic fieldnotes, interviews with CAM actors, and discussions and written reflections we have shared with each other. Drawing on this material, we analyse three aspects of our experiences:

How we have negotiated access to participants, and the need to establish credibility, noting that this credibility is 'vulnerable', especially when engaging with those in biomedicine;

Once in the field, finding that sociology is already deeply entwined with CAM professions' self-image and strategies – as per the 'looping effect' (Hacking 1995) and the 'double hermeneutic' (Giddens 1984). This entanglement affects our positioning as researchers and CAM actors' expectations of us as potential allies;

How researching CAM positions us in the wider academic field. For example, fearing that collaboration with CAM actors risks our own 'contamination', and considering how to manage these relationships beyond fieldwork.

The call to take a symmetrical, agnostic stance to studying knowledge implies a detached approach that does not account for the complexity of relationships in fieldwork. These relationships can invoke emotions such as guilt and sympathy that throw researcher neutrality into question. In CAM, there is an existing relationship between the CAM professions and social science, meaning researchers may already, inadvertently, be positioned in the field they hope to study. Another challenge is that the knowledge legitimization strategies used by CAM actors include attempts to enrol social scientists and/or our publications into networks where CAM's legitimacy is being established – a tension unlikely to be replicated on the side of established biomedicine. Our analysis suggests that although these positions and relationships pose a challenge to symmetry, they are also what makes research with CAM communities possible.



12 JUNE 2025 14.00 - 17.00

ROOM B2.2.5

ID 500 - The Academisation of Complementary and Alternative Medicine

Pia Vuolanto, Tampereen yliopisto

Caragh Brosnan, University of Newcastle

Jenny-Ann Brodin Danell, Umeå Universitet

Keywords: academisation, scientific/intellectual movements, complementary and alternative medicine, epistemic authority

Complementary and alternative medicine (CAM) is a controversial topic that triggers heated debate in the media, and among health care practitioners, particularly among medical doctors. The issue has become more contentious as CAM aims to enter academic institutions. Currently, CAM is establishing itself as a research field through conferences and networking, but also through a growing number of publications and the establishment of specific CAM research institutions at universities. According to the World Health Organisation there are over 70 CAM research centers around the world. About 4-5000 publications on CAM are being produced annually. Despite these developments, the academisation of CAM has thus far been analysed very little, which leaves underexplored both CAM's significance in transforming knowledge production institutions and the ways in which CAM is shaped by knowledge production structures.

In this presentation, we will critically analyse the development of CAM as an academic field by looking at its nascent developments in the frame of science and technology studies (STS). In particular, we will explore the potential of Frickel and Gross's (2005) general theory of scientific/intellectual movements (SIM). We are interested in the extent to which CAM could be understood as a SIM, that is, a movement that aims at transforming the academic landscape. Also, we are keen to provide understanding on why and how CAM has been able to, despite its controversial starting points, succeed with its aims or has it, in fact, rather not succeeded but failed, or else developed some low-status areas within established disciplines at some university systems rather than in others.

By this analysis, we hope to contribute to the theoretical discussion about SIM and also to the analysis of the contestations of epistemic authority, struggles for the ownership of legitimate knowledge, and the boundaries of the academic 'battlefield' (Bourdieu 1975, Gieryn 1999). A growing body of research is examining how marginalized and emerging academic groups in the health research domain are struggling to gain legitimacy by challenging the hegemony of the medical randomized controlled research method and put forward the epistemic value of their own forms of research (Albert et al. 2017; Eakin 2016). We complement this work by focusing on the legitimising strategies used by CAM health professionals to enter the academic health research domain. It has become topical to understand the reasons why and how certain societal groups arise to alter the academic landscape as it deepens our understanding of the underlying processes shaping academic transformation (Frickel & Gross 2005).

12 JUNE 2025 14.00 - 17.00

ROOM B2.2.5

ID 512 - Back and Forth, Inside and Out: Plural Healthcare-Seeking Practices and Entangled Actor Networks of Tibetan Medicine in Qinghai

Jin Chen, 大阪大学 (Osaka University)

Keywords: Tibetan Medicine, Medical Anthropology, Medical Pluralism, Actor-Network Theory

Tibetan Medicine (བོད་རྒྱ་གསལ་བ་རྩེག་པ།, TM), with over 2,300 years of history, is one of China's most significant Indigenous medical traditions. Rooted in Buddhist philosophy and a holistic understanding of the body, mind, and spirit, facilitated by Qinghai Province's strategic modernization efforts, it has emerged as not only a way of ethnic revitalization, but also an increasingly popular medical practice. Qinghai Province, a region marked by centuries of multiethnic coexistence, provides a unique setting for examining medical practices in a complex network.



Drawing on ethnographic fieldwork in Qinghai Province, this study explores how Tibetan and Han Chinese patients navigate their healthcare choices, practices, and beliefs. Padma, diagnosed with a "mental disorder" due to her ability to see supernatural beings, constantly seeks ways to "restore peace" by consulting advanced psychiatric hospitals, receiving rituals from lamas, and taking medicines prescribed by traditional medical monks. Yang, who has suffered from rheumatoid conditions since 2011, chooses to receive treatment at a modernized Tibetan hospital while remaining deeply skeptical of the latest biomedical immunosuppressants. Meanwhile, when seven-year-old Blo-Gros and nine-year-old Sam-phel both contracted an adenovirus, their parents started a search for treatment from everywhere - informal medical monks, small private clinics, regional hospitals, recognized medical monks, and public Tibetan hospitals.

These individuals move fluidly between seemingly contradictory options—at times embracing "rational" biomedical treatments while at others turning to Buddhist rituals; adhering to state-sanctioned, science-based medical guidelines while simultaneously challenging dominant norms; remaining within the comfort zone of their lived traditions or venturing into unfamiliar healthcare alternatives. While exercising agency in the pursuit of health and well-being, they are also subject to structural constraints.

By unique stories from multiple patients, this study demonstrates the interactions between individual medical choices and the design of public healthcare systems, addressing three key dimensions:

1. The tensions between the contemporary advocate on personal health responsibility, shaped by China's "science-first" discourse, and the top-down control exercised by an authoritarian state.
2. The coexistence of official TM institutions and marginal, non-official healing spaces within Tibetan medical practice, as well as the dynamics of inclusion and exclusion between the two.
3. The interactions and often ambiguous boundaries between "scientific" biomedicine and "non-scientific" religious healing, particularly in the context of the Chinese government's secularization policies.

Using Actor-Network Theory and intersectionality as analytical frameworks, this study reveals the complex dynamics under the concept of "individualized health responsibility", as well as the underlying political visions behind medical practices, rectifying the proneness towards essentialization or oversimplification within this topic. By introducing a multiethnic perspective and ethnographic case studies, this research not only contributes to the understanding of TM's modernization but also enriches discussions on health and care by incorporating knowledge systems and personalized practices beyond biomedical expertise. The goal is to expand the conceptual boundaries of "medicine" itself by demonstrating how TM challenges and reshapes contemporary discourses on health and care.

12 JUNE 2025 14.00 - 17.00

ROOM B2.2.5

ID 567 - Advancing Patient Engagement in Pain Research: Insights from Science and Technology Studies

Anja K. Ruess, Technische Universität München

Elisabeth S. May, Technische Universität München

Laura Tiemann, Technische Universität München

Paul T. Zebhauser, Technische Universität München

Alena Buyx, Technische Universität München

Ruth Müller, Technische Universität München

Markus Ploner, Technische Universität München

Keywords: patient engagement, public engagement, pain research, embedded ethics and social sciences

Patient engagement has received growing attention in pain research in recent years. While a growing number of researchers and clinicians recognize the importance of incorporating patients' perspectives into pain research, there are still significant challenges in how to engage with their perspectives in meaningful ways. These challenges are increasingly discussed among pain researchers, who have begun to develop

guidelines to reconfigure emerging challenges as do-able problems. For instance, IMMPACT recommended considerations on patient engagement in clinical research (Haroutounian et al., PAIN, 2024), proposing a set of practical guidelines to plan, implement, and evaluate patient engagement at all stages of clinical pain research. In this paper, we both critically discuss and further the implementation of patient engagement in pain research by adding an STS perspective to the IMMPACT considerations as well as the broader field of pain research. While the IMMPACT considerations provide a comprehensive roadmap for patient engagement, STS expertise points to a range of caveats that our contribution addresses. In particular, we leverage STS expertise and insights from our ongoing empirical work as embedded social scientists to elaborate on three aspects: Firstly, the challenges of integrating different forms of knowledge, such as patient experience and expert knowledge. Secondly, it is necessary to manage expectations carefully for all stakeholders involved. Thirdly, patient engagement is not always inherently beneficial, but requires continuous and context-specific reflection to avoid inequalities in pain research and healthcare contexts. By specifying and discussing these challenges, we provide a research agenda for patient engagement and trace the practical implications for pain researchers who want to integrate patients into their research practices. Our contribution builds upon the experience with an interdisciplinary research initiative dedicated to using neurotechnology to diagnose and treat mental health conditions, including chronic pain, at the Technical University of Munich. In doing so, we hope to add a valuable viewpoint to the ongoing discussion on implementing patient engagement in pain research and highlight potential synergies between STS expertise and recent discussions in pain research.

12 JUNE 2025 14.00 - 17.00**ROOM B2.2.5**

ID 570 - Awareness as diagnosis, responsibility as therapy. Mindfulness as a rehabilitative practice from drug addiction

Lorenzo Urbano, Università di Roma La Sapienza

Keywords: addiction, rehabilitation, responsibility, mindfulness, illness experience

Calls to "be responsible" permeate the common discourse on drug addiction – a condition that is usually framed as the product of a deliberate (and "irresponsible") choice of the addict. "Responsibility" is represented as both the recognition of one's role in becoming an addict, and of the necessity of taking charge of one's own healing process. However, "responsibility" is also often seen as the inversion of the key aspects of the addict's character – being that of a person who is by definition "irresponsible" in their choices, towards others and towards themselves, unable or unwilling to face the problems of everyday life. To overcome addiction, even more than undertake pharmacological therapy, the addict must "become responsible" for themselves, for their choices, for their life. This representation is far from confined in common discourse on addiction; it's also present in the narratives of institutions and organisations that work with addicts, and underlies many of their therapeutic practices. Both inside public health and outside (such as in therapeutic communities and self-help groups), the representation of responsibility as a pillar of rehabilitation produces different kinds of intervention that reject the primacy of pharmacological therapy – and, in this way, argue for a particular conception of addiction and rehabilitation.

This contribution focuses on one such kind of intervention, based on the practice of mindfulness, and more specifically on mindfulness-based stress reduction (MBSR) and mindfulness-based relapse prevention (MBRP). Grounded in ethnographic research on rehabilitation practices in and around Italian public health Services for Addiction, the aim of this paper is twofold. On the one hand, mindfulness as a practice of presence and awareness suggests a non-biomedical (or non entirely biomedical) way of "diagnosing" the roots of the problem of addiction. If this is a "pathology of avoidance", a refuge from the difficulties of the everyday, mindfulness as a technique for returning to the present moment and for becoming "aware of oneself" can allow the addict to better identify the bodily and emotional states associated with addiction. On the other hand, mindfulness as a way of "managing the emotions" can be used as a practice of self-discipline in the rehabilitation process. In particular, the practice of MBRP aims to be a (again, non strictly biomedical) instrument to manage emotional states associated with abstinence, and to reduce the risk of relapse.

Through an exploration of a few specific instances of the use of mindfulness in rehabilitation, I argue that these two dimensions together not only redefine addiction on the basis of personal, bodily experience, but can also serve as a bridge that connects the "moral" representation of addiction, centred on responsibility, and the biomedical representation that underpins public health interventions on this pathology.

12 JUNE 2025 14.00 - 17.00

ROOM B2.2.5

ID 643 - Early-Life Adversity, Epigenetics, and Parenthood: New Familial Responsibilities?

Mary Jones, Technische Universität München

Georgia Samaras, Technische Universität München

Prof. Ruth Müller, Technische Universität München

Keywords: Environmental epigenetics, early life adversity, responsibility for health, discourse analysis

Environmental epigenetics suggest that socio-material experiences, such as nutrition, toxicants, stress and trauma, influence our phenotypes through chemical modifications to our DNA, potentially leading to adverse health outcomes over the life course. In contrast to genetic mutations, scientists assume that epigenetic changes are reversible, which opens up a promising space for biomedical and lifestyle-related interventions to counteract adverse health trajectories or treat physical and mental diseases. Furthermore, environmental epigenetics leaves pressing questions for how responsibility for maintaining health and managing illness is conceptualized. Whether or not epigenetic modifications are permanent or plastic further obfuscates the question of how certain one's epigenetic fate may be. In this transition between laboratory and lived experience lies a multitude of confounding factors, sociopolitical influences, and potential for STS intervention.

Over the past two decades, environmental epigenetics has been increasingly used to explain how stressful experiences early in life alter DNA expression, leading to developmental changes and ultimately disease and providing a molecular mechanism for how adverse childhood experiences (ACEs) "get under the skin". Our project "Early Life Adversity, Epigenetics, and Parenthood", funded by the Bavarian State Ministry of Science and Art, explores how ACEs are reconfigured as do-able problems through conceptualizing them as being mediated by epigenetic modifications. ACEs, as an epidemiological concept, emerged in the 1990s as public health researchers in the United States established a dose-response correlation between forms of child maltreatment and household dysfunction and physical, mental, and behavioural health risk. The ACE framework has been extrapolated to other fields such as criminology, education, and economics; social science criticism has been introduced into this discursive landscape, including questioning its lack of consideration for structural forms of adversity.

Building on these debates, our project aims to unpack the scientific and social discourse on the long-term health effects of ACEs in Germany. In this talk, we will first present our findings from an analysis of the print media landscape and discuss how the relationship between ACEs and long-term health effects is discursively constructed, including commonly used narratives and allusions to responsibility for health. We will additionally share initial insights into our ongoing work on the academic discourse, informed through interviews with ACE researchers and analysis of relevant publications. These findings will depict how social conditions and events are reflected in the scientific discourse, including explicit and implicit influences on ACE knowledge-production in Germany. These various data points allow us to investigate how responsibility for long-term health in light of ACEs are constructed at either the individual, familial, or structural level as well as the interventions, both within and beyond the biomedical realm, discussed as possible solutions. With do-able solutions for the prevention and treatment of adversity's health effects plausible, whether those be through emotional resilience or pharmacological mechanisms, critical perspectives differentiating between responsibility and accountability on this emerging body of knowledge are needed. In analysing the biomedicalization of adversity, we explore how the boundaries of epidemiological and clinical medicine are blurred and brought into the home.



12 JUNE 2025 14.00 - 17.00

ROOM B2.2.5

ID 653 - Care strategies and sleep problems in Uruguay: within and beyond the limits of biomedicine

Andrea Bielli, Universidad de la República

Lauren Predebon, Universidad de la República

Virginia Rodríguez Otero, Universidad de la República

Keywords: Sleep disorders, Biomedical boundaries, Alternative healthcare practices

Since the early 1980s, sleep medicine has gained ground as a field of expertise in various sleep disorders. Its primary objective is not only to facilitate optimal therapeutic interventions for inducing and sustaining sleep but also to address pathologies characterised by excessive sleep. Additionally, sleep medicine has played a pivotal role in promoting the significance of sleep for maintaining optimal health and well-being. The celebration of the World Sleep Day since 2008, supported by the World Association of Sleep Medicine, is a clear example of the efforts made to promote the benefits of good sleep among the population and to fight what the association defines as a contemporary epidemic of insomnia and sleepiness that threatens people's health. Despite these efforts, sleep problems remain common as many therapeutic interventions are not always effective.

In this paper, we will address the limitations of the biomedical approach to sleep in Uruguay, where sleep medicine is underdeveloped, but where it has recently been claimed that the population has serious sleep problems. To do this, we will draw on the experiences of men and women over the age of 18, residents of Montevideo, who consider themselves to be affected by sleep problems. We conducted 50 qualitative interviews to explore the different coping strategies used to deal with sleep disturbances and their expectations of a cure.

We have found that the field of sleep problems emerges as a preferably individual experience of discomfort in which the subject tries to deploy a series of strategies in which biomedicine - through consultations with general practitioners, psychiatrists and the use of hypnotic drugs and a few clinics specialising in sleep problems - is articulated with alternative medicine, home cures, meditation or yoga.

We conclude that subjects deploy trajectories of care in which different kinds of care intertwine, transcending the boundaries of biomedicine, challenging the medical authority, and creating a network in which hypnotic drugs, non-medical strategies and human experience come together to sustain an expanded and paradoxical vision of hope in sleep medicine.

12 JUNE 2025 14.00 - 17.00

ROOM B2.2.5

ID 858 - Of heatpads and femtech apps: Law, vulnerability and the making of women's health as a 'do-able' problem beyond medical expertise

Nayeli Urquiza-haas, Lancaster University

Emilie Cloatre, University of Kent

Keywords: contested knowledges, women's health, regulation, vulnerability

State and biomedical institutions have been accused of neglecting and abandoning women to their fate when it comes to sexual and reproductive health problems. Brushed off and unseen or given unsatisfactory answers that do not address their situated knowledge, women have turned to a wide range of self-healing techniques and self-help practices to deal with debilitating conditions, from endometriosis to dysmenorrhea and maternal mortality. Within this context, the use of unregulated unproven and contested therapies and techniques has proliferated, arguably reshaping subjectivities and the relationship between individuals and the State's obligations to uphold citizen's right to health. However, tensions arise when some of these practices and techniques become branded as 'misinformation' or 'fraudulent' schemes



exploiting vulnerabilities in the absence of adequate healthcare delivery but also limited regulations. If regulators feel pressured to intervene, the range of interventions vary greatly, sometimes encroaching heavily on personal freedoms, and at other times, reinforcing historical patterns of discrimination against disadvantaged groups.

In this paper, we explore the conceptual, methodological and regulatory tensions that emerge when women's health and care is reconfigured as a 'do-able' problem beyond medical expertise. What problems and challenges arise when State authorities labeling some practices and techniques as 'misinformation' and not others? But also, how do users respond to misleading, unproven and disproven health claims? For example, patient advocacy groups claim medical misogyny is to blame for the disinformation around sexual and reproductive health, leading to greater dependence to health tracking apps. At the same time, one of the effects of this displacement is that users are increasingly expected to be vigilant about misleading, unproven or disproven health claims¹. But decisions about when and how to intervene against contested health-related claims have considerable implications. Understanding these boundary-making processes also call a critical examination of the subordination of class, gender and race, in the context of modern biomedical institutions, and their relationship to the State.

Methodologically situated between Socio-Legal Studies and Science and Technology studies, our aim in this paper is to unpack and question the usefulness of the label of 'misinformation,' but also the effects this has on conceptualizing women's reproductive and sexual health as a do-able problem beyond biomedical expertise. Indeed, the labeling of some claims as risky and women's bodies as vulnerable subjects calling for further regulatory interventions. These effects are potentially more insidious where health illiteracy is assumed, as in the case of indigenous midwives, or where conditions have been assumed to be of a psychological origin.



12 JUNE 2025 14.00 - 17.00

ROOM B2.2.15

Panel 26. Dialoguing Species: Dialoguing Disciplines

Convenors:

Lara Giordana, Politecnico di Torino

Elisabeth Tauber, Libera Università di Bolzano-Freie Universität Bozen-Università Lieda de Bulsan

Alvise Mattozzi, Politecnico di Torino

Secil Ugur Yavuz, Libera Università di Bolzano-Freie Universität Bozen-Università Lieda de Bulsan

Micol Rispoli, Politecnico di Torino

Lisa Maria Zellner, Libera Università di Bolzano-Freie Universität Bozen-Università Lieda de Bulsan

Keywords: ecological complexity, more-than-human collaborations, multispecies dialogues, transdisciplinary encounters

In recent years, an intense and systematic dialogue between different fields (natural and social sciences, technical, design and artistic knowledges) has emerged around environmental preservation from a more-than-human and multispecies perspective. Many collaborative projects have been carried out to address the issue of (non-harmful) coexistence among species (an example is "Dialoguing Species: Designing Common Worlds through Ethnographies – DSooE", a project in which the organizers of this panel are engaged). Indeed, the multiple eco-social crises we are facing highlight that coexistence does not concern only humans but involves all beings – both living and non-living – that are part of the biosphere's ecosystems.

Within this framework, the specific focus of this panel lies on the modes of collaboration between the various figures/disciplines involved in these projects, particularly on the frictions and opportunities that arise from encounters between different fields of expertise, perspectives, and languages. Above all, what understandings of the "good" do these various figures/disciplines bring into play, and how, and for whom, do they aim to do "good"? How do these different understandings dialogue with one another?

Furthermore, it is crucial to take into account the various social, ethical, economic, and political aspects involved in decisions about who or what should benefit from these actions. Specific power dynamics influence the prioritization of needs: for example, which species or entities are considered more vulnerable and thus in need of the intervention of a "good technoscience"?

As the general theme of the conference invites us to do, we must question our methodologies and concepts, interrogate our epistemological and ethical frameworks, and examine our practices. In this sense, what are the truly transformative potentials of these encounters between different figures/disciplines? To what extent can these projects, rather than merely establishing connections between well-defined fields, give rise to productive transdisciplinary hybridizations?

This panel aims to offer a space for reflection and discussion, and a laboratory for further investigation and exploration of these issues. We invite papers, as well as other presentation formats – such as performances, small hands-on activities/workshops, prototype testing – that engage with, reflect on, and discuss the following topics (among others):

- Interspecies co-design;
- Critical reflections on the concept of "nature conservation and restoration";
- Care for neglected more-than-human actors;
- Ethical issues regarding allochthonous/ autochthonous species;
- Dismantling modernity and returning to ecological complexity;
- Potentials and frictions in transdisciplinary encounters;
- Questions of epistemic (in)justice in environmental protection;
- Neglected indigenous and local knowledges in environmental protection;
- Power dynamics in environmental protection.



12 JUNE 2025 14.00 - 17.00

ROOM B2.2.15

ID 388 - Aqueous Logic: Understanding Nature Interconnectedness through Freediving.

Beatrice Maggipinto, Carnegie Mellon University; Universidade de Lisboa

Valentina Nisi, Universidade de Lisboa

Nuno Nunes, Universidade de Lisboa

Jessica Hammer, Carnegie Mellon University

Keywords: Posthuman HCI, Hydrocommons, More-than-human, Autoethnography

In recent years, scholars in Posthuman HCI and sustainable design have explored noticing as a method for shifting design research beyond anthropocentric perspectives toward more entangled ecological understandings. Through an autoethnographic freediving practice incorporating embodied underwater observations, journaling, and photography, we examine how freediving can reshape human perceptions of and connections to the ocean. We propose freediving as a method of fostering interconnectedness, where breathwork and sensory immersion enhance awareness of more-than-human interactions, ultimately informing ecological design considerations.

Freediving—the act of diving underwater on a single breath—has roots in ancient fishing practices and has recently regained popularity as a recreational sport. Research highlights its positive effects on physical and mental well-being. The practice engages the mammalian dive reflex (MDR), a set of physiological adaptations that optimise survival underwater. These include breath suspension, a slowed heart rate, and redistributed blood circulation, ensuring oxygen supply to vital organs. While essential to marine mammals such as dolphins and whales, MDR also exists in humans, particularly in children, though it diminishes with age and must be re-trained in adulthood.

This bodily adaptation challenges anthropocentric views of human-nature separation, aligning with environmental scholars such as Haraway and Tsing, who call for an Ecocene—a reorientation that acknowledges the entanglement of human and more-than-human systems. Naimanis' concept of hydrocommons further underlines water's shared role across species, raising questions about the fluid boundaries of human bodies and ecological responsibility.

Building on the notion of aqueous logic as a means of rethinking kinship and adaptability, we explore how freediving benefits not only individual well-being but also ecological awareness, connecting human and more-than-human bodies through water. Through an autoethnographic account of freediving, we demonstrate how the practice can contribute to posthuman perspectives in HCI, encouraging a decentering of anthropocentrism in design research.

12 JUNE 2025 14.00 - 17.00

ROOM B2.2.15

ID 400 - Needs Match Method: Dialoguing Disciplines for an interspecies design impact

Francesco Cantini, Università di Firenze

Keywords: Biodesign, Interspecies design, Urban design, Bioreceptive design, urban biodiversity

In the context of climate and ecological crises, urban environments with significant historical and artistic heritage, such as Florence, present a unique challenge: balancing the conservation of cultural heritage with the urgent need for ecological regeneration. The following research operates within this tension, proposing a multispecies design approach that fosters dialogue between disciplines to create a more inclusive, biodiverse, and resilient urban spaces.

The city is a shared environment where human and non-human actors coexist. To preserve this coexistence we need to integrate Nature-Based Solutions (NBS) with interspecies culture principles to address



urban environmental challenges such as air pollution, the heat island effect, and urban biodiversity loss. By employing a transdisciplinary methodology that merges urban design, natural science, material technologies, and environmental humanities, the following research explores novel ways of promoting multispecies cohabitation. The central question of the project concerns how different disciplines collaboratively shape urban landscapes to enhance coexistence between different species and well-being.

The "Need Match Method" proposed here, fosters an active dialogue between design, scientific and social disciplines. This five-step approach begins with defining the system boundaries (e.g., city, park, neighborhood), followed by identifying the needs of human and non-human communities through interdisciplinary collaborations. These needs are then translated into design questions that balance both ecological and cultural conservation imperatives. The final steps involve generating interspecies design responses and assessing their impact through scientific and participatory methodologies.

An example of this approach is the application of bioreceptive materials (Cruz & Beckett, 2016) integrating traditional local materials, such as Impruneta terracotta and embedding them with bioreceptive properties that can impact on urban biodiversity loss.

The method proposed here has been tested and evaluated within the NatCult interdisciplinary Summer School "Across Nature and Culture: the city of Florence as a case study for natural-cultural conservation and preservation issues" funded by the EUniWell program and in particular within the workshop/seminar "Multispecies Design in the urban context: between heritage and nature conservation". The project can count on the interdisciplinary collaboration of the two Research Units of the University of Florence: "Biodesign" and "ABC-Lab - Interdepartmental Laboratory of Aesthetics and Environmental Humanities for Biological Conservation".

The results of the application of the method were then tested through surveys submitted to the participants of the workshop belonging to the departments of natural sciences, philosophy and design. These have highlighted critical issues and opportunities of collaboration between disciplines.

This participatory model challenges traditional conservation paradigms, advocating for a shift from mere preservation to regenerative design, where cultural and natural heritage evolve symbiotically.

By engaging with questions of regenerative design, citizen science, and the ethical considerations of interspecies interventions, the research interrogates the role of technoscience in fostering multispecies urbanism. It critically examines the concept of "good" within technoscientific interventions, questioning whose needs are prioritized and how decision-making processes incorporate the voices of non-human entities.

The method proposed here wants to trigger the transformative potential of dialogue between disciplines, demonstrating how collaborative design processes can reconfigure urban environments to support both human and non-human well-being.

12 JUNE 2025 14.00 - 17.00

ROOM B2.2.15

ID 133 - Awkward animals and uneven solutions: insects and invasive species as alternative proteins in dog food

Carly Baker, Cardiff University

Keywords: invasive species, insects, alternative proteins, sustainability, dog food

The premium pet food industry began implementing insects and 'invasive' fish as alternative proteins into dog food in response to environmental crises and concerns for dog health. I conducted a shadow ethnography and followed these animals through the supply network to determine how human actors frame these animals to create a market niche and how this impacts multispecies relationships. Both types of nonhuman animals are marketed as nutritionally superior to other products and being 'actually' sustainable. However, the definition of sustainability changes depending on the animal and their characteristics, attracting humans with different political, economic, and ethical values. This influences the technologies



adopted into the network and vice versa. The objective for insects is a sustainable supply chain in which insects are controlled in-place and 'optimized' for continuous production. Insect-based supply chains actors are driven by technological innovation rather than need. As such, insect networks attract more finance, research, and infrastructure. The objective for fish-based products is to create an unsustainable supply chain in which 'wild' caught, out-of-place species are harvested until extinction. Actors in this network are motivated by need – to conserve ecologies and economies – rather than innovation. The inherent unsustainability of the supply network means there is less investment in infrastructure, research, and relationships. Drawing from the natural and social sciences, I demonstrate that this impacts supply network actors in uneven ways even if both networks share an objective of social and ecological wellbeing. While both animals are ultimately killed and processed into food to care for the dog, insects are being cared for through/with industrialization because of their 'low environmental impact' and fish are being cared for through killing. Still, all three categories of animals hold structural agency as the networks build around them. This raises questions on the ethics of multispecies relationships and environmental protection: Is the use of these historically neglected species as food the best way to co-exist with omnivorous dogs in the face of environmental crisis? Is one technological advancement more ethical than the other?

12 JUNE 2025 14.00 - 17.00

ROOM B2.2.15

ID 407 - Beyond "Participation": Local Knowledge and Scientific Research in the Northeastern Brazil

Mateus Oka, Universidade Estadual de Campinas ; Max-Planck-Institut für Wissenschaftsgeschichte

Keywords: Anthropology of Science, Local community, Lay participation, Primatology

In various biological disciplines, particularly those related to conservation, integrating local communities into research has become an increasing concern. In a small rural area in northeastern Brazil, a group of primatologists from the University of São Paulo has been studying capuchin monkeys' tool use for the past two decades. This place, known as Boa Vista, has been inhabited by small-scale farmers and cowherds for over a hundred years, according to oral histories. With the community's authorization, the researchers built a field station in the area, and local residents began working with them—providing lodging and meals, as well as being hired as field assistants. Over time, this collaboration expanded to include photographers and filmmakers documenting the lives of these capuchin monkeys, which have been using stone tools for hundreds of years.

My research reconstructs the history of this relationship between scientists, monkeys, and the local community while also examining, from an ethnographic perspective, the knowledge of the men who work as field assistants for the primatologists. This presentation explores the controversies surrounding this history, questioning what it truly means to achieve "better participation of local communities" in a context like Boa Vista—where, from the outset, it has been the local people who make scientific research possible. As in many field-based biological sciences, field assistants spend more time in the forest than the scientists themselves, collecting data alongside the animals under study. Consequently, they develop an intimate knowledge of the monkeys—predicting their movements, recognizing their habits, and identifying them individually.

Despite their critical role, local field assistants are often acknowledged by scientists only in terms of "logistical support" or "auxiliary services," commonly described as people who "do everything." However, it is necessary to rethink what this "doing everything" truly entails, as it often falls under the vague category of mere "assistance." This presentation aims to highlight the history of scientific collaboration in Boa Vista, where negotiations between scientists and capuchin monkeys, the local community and capuchin monkeys, and scientists and the local community have been central to the production of knowledge that has gained significance in international primatology. More broadly, it challenges the idea of "improving community participation in science," given that, as the case of Boa Vista—and many others—demonstrates, local people have always been deeply involved in the research process.



12 JUNE 2025 14.00 - 17.00

ROOM B2.2.15

ID 442 - Transdisciplinary by nature: Galls as multispecies encounters in motion

Tiziana Nicoletta Beltrame, Università degli Studi di Padova

Luca Tonetti, Università degli Studi di Padova

Keywords: Gall Herbaria, Boundary collections, Multispecies encounters

Galls are plant excrescences that develop in association with other living organisms such as insects, mites, bacteria and fungi. These "marvelous metamorphoses" have fascinated naturalists for centuries and led to the birth of 'caecidology' at the end of the 19th century, a distinct field of research on the boundary between botany, entomology and mycology. The aim of this talk is to discuss the ongoing collaboration between different disciplines that has resulted from the study of a gall herbarium now held in the Botanical Museum of the University of Padua, Italy. This collection is currently the focus of the study interests of a research group composed by anthropologists and historians of science in relation with geneticists, curators and botanists. This herbarium represents a boundary collection in motion to understand our relations to the heritage of biodiversity: the gall is a biodeposit of scientific, social and cultural knowledge and sensibilities; as well as to understand the transdisciplinary nature of the research and conservation practices of these multispecies objects.

Drawing from research materials, including gall herbaria, literature, and archives, we explore the shift from viewing plant tissues pathologically to seeing galls as microcosms that reveal intricate ecological relationships and transformations of their inhabitants. Rather than focusing on individual organisms, we emphasize the multispecies relations and the mutual dependence of life forms. In this ecological framework, galls are not seen as harmful to plants but as opportunities to explore coexistence and symbiosis. Galls, once considered as anomalies, now represent an ordinary way of coexistence in the natural world.

12 JUNE 2025 14.00 - 17.00

ROOM B2.2.15

ID 683 - Multispecies, hybrid and multidisciplinary. The field of bioregenerative life support systems science at the crossroad between disciplines, technologies and ecologies

Marco Serino, Università di Napoli Federico II

Ilenia Picardi, Università di Napoli Federico II

Keywords: Outer space, bioregenerative life support systems, controlled environments, multispecies perspective, hybrid systems

The science of bioregenerative life support systems (BLSSs) is a multidisciplinary field that brings together different disciplines to study how human life can be sustained over long periods of time in environments other than Earth. BLSSs can provide humans – such as space crews on a mission to the Moon or Mars – with water, oxygen and food, recycle their waste and thus function as closed, self-sufficient systems. Including humans, plants and microorganisms, these systems are inherently multispecies, even if the interactions between the different species are largely engineered and admittedly human-centred. Therefore, BLSSs can only be designed with the joint effort of various scientific expertise and different competencies. The complexity of the task implies that different sciences cooperate in order that different species can live together and benefit from each other. In addition, hybrid systems are at issue in that the different technologies necessary to set up the controlled environments interact with the species that must be assembled in a loop consisting of different compartments where bacteria, higher plants and human crews stand in mutual physicochemical relationships. Therefore, BLSS are designed as hybrid assemblages and this hybridity calls for new ecological relationships that are essential for these systems to successfully operate. The present proposal thus aims to show how the multispecies, hybrid and multidisciplinary context



of BLSSs is going to set forth new ecological perspectives thanks to the encounter between engineering, biochemistry, biology, chemical engineering, ecology, cybernetics, physiology, medicine, and agricultural science (Skoog, 1985), along with considerations on life in space settlements from a "space and society" perspective (e.g. Verseux et al., 2024). The proposal focuses on the MELiSSA (Micro-Ecological Life Support System Alternative) project, co-funded by the European Space Agency (Lasseur et al., 2010). Inspired by terrestrial ecosystems, MELiSSA aims to produce vital resources for the crew through interspecies interactions engineered in the loop – the closure of which is one of the project's ultimate goals to support human life beyond our home planet. Drawing on concepts from STS and Social Studies of Outer Space (SSOS), the proposal aims to explore the scientific challenges and ecological and ethical implications of BLSSs, whose future will depend on the collaborative efforts of scientists and the extent to which different species can be successfully integrated in a closed system, whether on Earth or in a space settlement. Moreover, the fields of architecture and ecological design help to frame the physical infrastructure for these systems, which would turn out to be closed worlds (Kallipoliti, 2018). Recalling Bruno Latour's late reflection that we live "inside" a planet – more precisely, in its "critical zone", the study of which is itself multidisciplinary – and not "on a globe" (Aït-Touati and Latour, 2022), the proposal also wants to address the condition of a closed and controlled environment, which is assumed in the concept of BLSS, in order to cope with both environmental crises on Earth and future scenarios of life in outer space.

12 JUNE 2025 14.00 - 17.00**ROOM B2.2.15**

ID 704 - From Data to Care: Design-Driven Infrastructures for Multispecies Heritage

Riccardo Mercuri, Università di Bologna

Simona Colitti, Università di Bologna

Elena Formia, Università di Bologna

Keywords: Heritage Continuum, Digital Archives, Multispecies Commons, Participatory Archiving

The Anthropocene has led to increasingly fluid boundaries between human and nonhuman actors in heritage landscapes, necessitating innovative methodologies for preserving and interacting with cultural and natural ecosystems. This article examines how data-driven design and multispecies storytelling can contribute to the development of new approaches to heritage care, enhancement, accessibility participation, and management. Building on the approaches of Transition Design (Irwin, 2015), Posthuman Design (Forlano, 2016), and Multispecies Ethnography (Kirksey & Helmreich, 2010), the study proposes an alternative model for heritage infrastructure. This model integrates co-design practices, advanced data visualization, and participatory archiving to redefine the roles of human and non-human agents in the co-creation of heritage.

The research is part of the Heritage Continuum framework (Lupo, 2023), in which digital repositories, open archives and speculative mapping mediate relationships between tangible and intangible, cultural and ecological assets. To explore how design-driven infrastructures can foster new forms of engagement, the research carried out by the CULT-UP project (funded by the European Union - NextGenerationEU through the Italian Ministry of University and Research under PNRR - Mission 4, Component 2, Investment 1.1., cod. P2022FZAEA) examines the intersection of upcycling and heritage as a means of promoting participatory and educational practices by making the language of semiotics and design interact. This perspective aligns with the need to rethink heritage as a multispecies commons (Tsing, 2015), questioning static paradigms of preservation and positioning heritage as a shared and evolving entity. Through an interdisciplinary approach, experimental workshops, and digital archiving practices, the study critically explores how responsible innovation (Formia et al., 2023) and participatory governance models (Manzini, 2018) can transform heritage into a platform for multispecies dialogue and planetary care. By interacting with heritage as a complex social-ecological system (Jakob, 2009; Kowarik & Körner, 2005), this approach moves beyond traditional anthropocentric preservation models and promotes a relational, adaptive, and co-constructed



perspective. In addition, the study contributes to the discourse on postnatural studies (Institute for Post-natural Studies, 2023) by advancing the idea of hybrid archives, in which memory, data, and ecosystem interactions converge into a new form of collective intelligence. References:

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12 JUNE 2025 14.00 - 17.00

ROOM B2.2.15

ID 705 - Queering Urban Ecologies through Drag and Multispecies Participatory Design for Public Spaces

Laura Galluzzo, Politecnico di Milano

Francesco Vergani, Politecnico di Milano

Valentina Ferreri, Politecnico di Milano

Keywords: Queer, more-than-human, public spaces, coexistence, plurality

Public spaces ought to be a place for all, open to a variety of actors, activities and opportunities (Gehl, 2013; Groth & Corijn, 2005), accessible, inclusive, safe and able to accommodate the plurality of different life forms it hosts, promoting social cohesion and coexistence among human and more-than-human inhabitants.

It has been argued in philosophy, feminist and queer studies that public spaces may be produced and regulated to maintain social order (Foucault, 1977; Lefebvre, 1991; Butler, 1993; Grosz, 1994) in a not neutral way, being designed to support and facilitate traditional and binary gender roles (Kern, 2021). The perspectives of non-conforming subjectivities that diverge from the androcentric view of the "male as norm" (Kotthoff and Wodak, 1997), namely the cis-gender heterosexual able-bodied white man, are marked both as invisible and as "space invaders" (Puwar, 2004), because of their divergence from the dominant framework.

This issue is not limited to human communities. Public spaces are also constantly lived by non-human agents, whether biological or synthetic, which equally contribute to the life of public spaces. Their presence is usually tied solely to human well-being, where plants and other organisms are viewed as resources (Sandler, 2018) essential for human survival. Both queer subjectivities and non-human agents fall victim to a Cartesian dichotomy (Fry, 2020) rooted in anthropocentric and predominantly Western thinking (Coccia, 2018). In this sense, public urban spaces designed without a plural range of perspectives can fail to address the needs of both human and non-human marginalized communities.

Drawing from these premises, this paper explores how transdisciplinary dialogues between queer theory, urban ecology, and participatory design can generate frictional yet generative encounters that challenge established epistemological and ethical frameworks. The project "Regime di Periferia" (RDP) coordinated by



a local group of theatre actors specialized in Drag (one of them has a background in botany), has activated in 3 urban outskirts of Milan a transdisciplinary dialogue between drag queens, researchers in Design, the Municipality, local associations and citizens, with the aim to foster plural reflections on the intersections between queerness, ecology, and territorial

regeneration. Employing a hybrid methodology, combining site-specific drag performances, participatory co-design workshops, collaborative interspecies mapping, and laboratories about both ecological practices and queer performances in public spaces, the project questions dominant paradigms of what constitutes a "good" or "preferrable" future for urban regeneration of public spaces. By engaging citizens, the experimentation "Plural Public Space", within the project RDP, explored speculative scenarios for multispecies coexistence in three peripheries in Milan, embracing a diversity of both human and non-human perspectives to co-create and reimagine public spaces. By collectively reflecting on the individual and shared needs through co-design sessions and role-playing activities, participants ultimately designed and prototyped temporary furniture/solutions, inspiring new uses and behaviours within public spaces, embracing frictions between conflicting/contradictory perspectives, needs and desires, rather than seeking consensus. The authors argue that this transformative methodology highlights the political stakes of urban ecological futures and redefines participation as a contested yet generative space for negotiating between disciplines, species, subjectivities, and power relations.

12 JUNE 2025 14.00 - 17.00

ROOM B2.2.15

ID 706 - Good for the bears, good for the people. Epistemological frictions on "human dimension" within a interdisciplinary research on coexistence

Nicola Martellozzo, Università Ca' Foscari, Venezia

Gabriele Orlandi, Università Ca' Foscari, Venezia

Roberta Raffaetà, Università Ca' Foscari, Venezia

Keywords: brown bears, conservation biology epistemological frictions, human dimension

Thirty years after the reintroduction of brown bears in Trentino (northeast Italy), a significant part of the local communities perceive this initiative as threatening their safety and livelihoods. In such a context, a collaborative project between conservation biologists and anthropologists has been set up, aiming to grasp the foundational but less visible socio-cultural reasons for this perception (Martellozzo 2024). These give way to relevant epistemological and methodological frictions, at the heart of which lies the notion of "human dimension" in the human-wildlife conflicts.

For conservation experts, the human dimension is often framed as a set of measurable variables (e.g.: attitudes, risk perceptions, behaviours, personal knowledge) that can be systematically incorporated into conservation policies to reduce conflict between communities and wildlife. Within this perspective, the ethnographic work risks to be perceived (and reduced) to a data-gathering tool aimed at optimizing conservation outcomes. As such, within collaborative projects, conservation experts may initially expect anthropologists to provide "ready-made" insights while disregarding the critical dimensions of their work. Conversely, anthropologists consider the human dimension as relational and contextual stake, and ethnography as deeply intertwined with theoretical stances.

These frictions also reveal different ways of conceiving the "good" in this coexistence scenario. Conservation experts tend to prioritize biodiversity preservation, assuming that scientific expertise can objectively determine the best way of managing brown bears. Anthropologists, however, emphasize the multiplicity and the complexity of moral ecologies at play (Scaramelli 2019): depending on the point of view of local stakeholders, the "good" might coincide with the given-for-granted preservation of material and immaterial heritage, or with their collective negotiation within a more-than-human community.

Following this, our paper aims to explore the ethical, socio-cultural and epistemological conundrum and opportunities of anthropological involvement in conservation expertise, considering, in particular, the



power dynamics that shape such collaborations and define objectives, research priorities and epistemic differentialities. In critically addressing the technicalization (Ferguson 1990) of the "human dimension" as a trans-disciplinary notion mobilized in "good (conservation) technoscience", the paper contributes to broader debates in environmental anthropology, critical understandings of expertise, epistemic conflicts and negotiations in wildlife management projects.

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12 JUNE 2025 14.00 - 17.00

ROOM B2.2.15

ID 716 - Designing Bespoke Tools for Critical Design Inquiry: The Case of Sheep Biography

Merve Bektaş, Libera Università di Bolzano – Freie Universität Bozen

Seçil Uğur Yavuz, Libera Università di Bolzano – Freie Universität Bozen

Keywords: Critical Design, Design Probes, Materiality, Sheep, Local Wool

Why do sheep matter when discussing wool and why and how should design take sheep into account? As planetary change accelerates in the face of multiple crises, local wool production as well as its ecologies are becoming increasingly vulnerable. The rise of synthetic fibres and the dominance of irresistibly soft merino wool, driven by global market dynamics, are putting local realities – human and nonhuman – at risk. Design, however, can serve as a catalyst for uncovering the relational aspects of our material world and rendering visible the invisible connections. Designers working with materials often overlook their relational aspects with the ecosystem they belong to, leading to a disconnection from a more holistic and systemic understanding. By considering sheep and alternative ways of knowing and making, we rethink the materiality of wool as a matter of care and wellbeing, attuned with the environment, seasons, and all the other entities they are entangled with. In our project *Feral Wool*, we challenged this perspective by focusing on the often-invisible dynamics involved in wool production, in particular the relationship between sheep and humans. By inquiring how the care for the sheep is intertwined with the wool they grow, we ask: can noticing new ways of relating in design would turn unwanted wools into precious matters? Through a bespoke tool we designed—the sheep biography probe—we invite local actors to participate in exploring how care for sheep can be traced and reimagined. The probe, designed as a paper template, collects more-than-human data that represents the profile and conditions of the sheep. It also attempts to reveal sheep's imagination by asking: What do sheep dream of? The collected data is then made visible through an infographic. By acknowledging probes as provocation for critical thoughts, the sheep biography was designed as a two-fold object, on one hand provides data for researchers to reveal invisible aspects of a material, on the other hand functions as a reflection tool for participants to look at their own practices of care and try to shift their perspective towards other beings. Moreover, the designed probes are opening questions on how relational design can be materialized in the future.

Along with the sheep biography probes, various wool samples were collected to materialize the data and highlight the intangible values of local wool, focusing on each piece's uniqueness shaped by factors beyond fiber quality. Currently, the samples are on display at an exhibition, where they come forefront with public in a meaningful way. The probe serves as a critical tool for relating to the animal, encouraging a broader, more holistic view of materiality. This, in turn, challenges the dominant narrative of unwanted and



often discarded materials, opening up possibilities for alternative critical inquiries and design practices. The sheep biography exemplifies how more inclusive, relational, and bespoke design methods and probes can be imagined, and how they can form new ways of knowing, doing and materializing.



11 JUNE 2025 09.00 - 11.00

ROOM B3.2

Panel 27. Problematizing Science, Technology, and Culture through 'Cultured Food'

Convenor:

Fatih Tatari, Politecnico di Milano

Keywords: Cultured food, biotechnology, cellular agriculture, cultured meat, food science, nature/ culture

This panel aims to discuss the science and technology behind what has been called "cultured food". Isolating microorganisms and multiplying them in order to "culture food" in the laboratories have become an increasingly widespread practice in different parts of the world for many decades. After years of biotechnological engineering in food sciences, the rise of "cellbased food" and "cellular agriculture" have recently been shaping the cutting-edge research. "Cultured" or "artificial" meat and dairy products are at the heart of these emerging technosciences. While these food technosciences are promoted as one of the key solutions to the contemporary problems of climate change, unsustainable food systems, and food safety, they are yet far from being accessible as well as "effective" or "successful" – not only due to the premature research and development efforts or profitability concerns of the companies but also a significant public opposition fueled by various social movements, and the legislative actions already taken by different governments to prohibit the production and circulation of "cultured food". From an STS perspective, these food technosciences offer a fruitful empirical ground to address the controversies in our field, such as the nature/culture divide, agency of nonhumans, power relations shaping science and technology, complex interplay between scientific knowledge and policymaking, among others. Problematizing the "culture" in "cultured food", this panel welcomes contributions in form of traditional presentations that reflect on how food has been cultured by scientists, engineers, designers, and companies.

Topics may include, but are not limited to, the following:

- History of scientific knowledge production on and technosciences of culturing food
- Visions and concerns shaping scientific research on cultured food
- Ethnographic research on the practices of culturing food in laboratories
- Political economy of cultured food and cultured meat
- More-than-human communities of scientific research on cultured food
- Non-human agency in culturing food
- New perspectives on the food safety and/or food sovereignty of culturing food
- Ethical issues in culturing food
- Reactions and resistances to the cultured food

11 JUNE 2025 09.00 - 11.00

ROOM B3.2

ID 678 - Meat Without Bodies: Ontologies, Ecologies, and the Culture of Cellular Agriculture

Elisabeth Abergel, Université du Québec à Montréal

Keywords: Ontologies, Cultured Meat, Cellular Agriculture, meat imaginaries, biotechnologies, cellular and tissue economies

This paper explores the political ecology of cultured meat, drawing from my recently published book, *Dead Meat: Cellular Meat Imaginaries, Competing Vitalities, and Anthropocene Diets*. Cellular agriculture, often positioned as a technological fix to the environmental and ethical crises of industrial livestock production,



operates at the intersection of biotechnological innovation, capitalist food regimes, and meat imaginaries. Through a critical examination of the culture of cultured meat, this presentation interrogates how cellular meat is not merely a scientific artifact but a socio-political project embedded in specific visions of nature, life, and sustainability.

Using a political ecology framework, I analyse how cellular meat reconfigures relationships between humans, non-human animals, and the environment. The discourse surrounding cultured meat frequently promises a future of "clean" meat, free from the ecological devastation associated with traditional animal agriculture. However, these narratives often obscure the extractive dynamics underpinning the production of cellular meat, including the reliance on monocultures for growth media, energy-intensive bioreactors, and the perpetuation of techno-solutionist logics that depoliticize structural issues related to food systems and environmental degradation.

Far from being a disruptive industry, cellular agriculture relies heavily on established technologies from the biomedical field and fermentation techniques that have been adapted to food production. Despite these adaptations, the industry faces significant technological and funding hurdles, challenging the promises and optimistic projections often associated with its growth and scalability.

This presentation also engages with the ontological implications of cellular meat as a form of "lively capital," drawing on science and technology studies (STS) and critical food studies. By examining the commodification of cellular life, I argue that cultured meat represents not a break from industrial food paradigms but an intensification of biocapitalist processes where life itself, via cellular and tissue economies, becomes a site of extraction and accumulation. As a result, the promise of post-animal bioeconomies is pitted against rural livelihoods as forms of competing vitalities. The ontological status of animals is particularly complicated in the context of cultured meat. While it promises to eliminate the need for slaughter, it simultaneously reduces animal life to biological raw materials—cells harvested, cultured, and optimized for human consumption. This abstraction of animality raises profound questions about the erasure of animal agency and the ethical implications of disembodied life forms, reinforcing the instrumentalization of animals within capitalist food systems.

Methodologically, this research is grounded in three years of participant observation at cellular agriculture conferences in the United States, combined with discourse analysis of industry narratives, policy documents, and scientific publications. This approach reveals the environmental and food future imaginaries and contested politics that shape the emergence of cellular meat, challenging the dominant techno-utopian visions and eco-modernist frames that portray it as a neutral or inherently sustainable and desirable innovation.

Finally, exploring the culture of cultured meat requires a critical engagement with both the material and immaterial dimensions that sustain its development, illuminating the contradictions and tensions inherent in techno-solutionist responses to the Anthropocene.

11 JUNE 2025 09.00 - 11.00

ROOM B3.2

ID 728 - Pasteurized Pastoralist Food Technologies; Ferments, Value and Collective Life in Mongolia

Björn Reichhardt, Humboldt-Universität zu Berlin

Keywords: Ferments, Microbes, Pastoralism, Biowealth, Mongolia

In this paper, I investigate dairy ferments as sources of wealth in Mongolian pastoralism. By drawing on ethnographic and scientific fieldwork, I discuss how dairy starter cultures generate multispecies well-being in face of severe challenges stemming from global trade networks, neocolonial food systems, bio-engineering, and environmental destruction.

Recent literature in anthropology and STS addresses how localized heritage biowealth becomes integrated



into the dynamics of global capitalism and biopolitics, often resulting in the alienation of these valuable biosocial entities (Livingston 2019; Yates-Doerr 2017; Tsing 2015). In Mongolia these dynamics seem to be inverted. Human-microbe interactions rooted in dairy pastoralism are slowly undermined by the introduction of allegedly superior ferments from large European biotech companies. These European starters are considered superior because they are standardized and thus considered more stable and profitable. Homemade ferments, to the contrary, are devalued by being considered too sour, unstable, and unclean, echoing orientalist tropes figuring pastoralism as "backward".

Against these tropes, I investigate standardized and pastoral dairy ferments within capitalist modes of production vis-à-vis multispecies timescapes and gendered biosocial knowledge systems. I argue that pastoral ferments embody stability and continuity by being neatly incorporated into domestic micro-ecologies, maintained by the often-unacknowledged meticulous work of herder women.

11 JUNE 2025 09.00 - 11.00

ROOM B3.2

ID 774 - Culturing Meat: Enacting naturecultures with care

Mehmet Fatih Tatari, Politecnico di Milano

Keywords: cultured meat, care, nature, culture, natureculture, history of science

Many scientists and start-up companies support cellular agriculture and the technoscience of lab-grown food as the emerging solution or technological fix to the disastrous ecological effects of our global food systems. Yet some countries like Italy have already banned the commercialization of "cultured meat." This presentation relies on my ongoing research on scientific knowledge production on "cultured meat." Relying on the history of science that paved the way for the contemporary technosciences of cultured meat, I problematize the natureculture of the lab-grown meat. Through ethnographic research in Italy, I investigate the ways in which scientists and engineers continue to work on developing this technology despite the national ban on the commercial products of cultured meat. I analyse the narratives of the scientists who highlight the stark contrast between public reactions to the biomedical application and the public reactions to the food technosciences of tissue engineering. In this working paper, my analysis focuses on 1) the ways in which scientists' practices in the laboratories enact 'nature' and 'culture' of the culture meat, 2) what practices of 'care' in the laboratory circumvent the notion of 'care' employed by the proponents and opponents of the cultured meat.

11 JUNE 2025 09.00 - 11.00

ROOM B3.2

ID 897 - In search of the Microbial Path to Terroir. Technoscience for Good (Natural) Cheese

Elise Demeulenaere, Centre Alexandre Koyré d'Histoire des sciences et des techniques

Keywords: food

At the crossroads between food studies and science and technology studies, this presentation analyses the role of laboratories located within traditional cheese territories in the ecologization of cheese microbiology in France at the turn of the twentieth century. I argue that their connectedness with Protected Designation of Origin (PDO) raw-milk cheese organisations advocating for a strong understanding of terroir played a key role in challenging the modern strain-by-strain approach and fostering a shift towards a new research object: microbial communities in their ecologies. Modernization and standardization in cheese production from the 1950s onwards laid indeed on the improvement of hygiene to get "cleaner" milks, and on lab research on microbial strains to develop selected starter cultures. This led to a dramatic loss of microbial abundance within raw milks, which progressively provoked milk processing issues, as well as a loss of cheese typicality, an issue for "place-based cheeses". To face it, the modernist approach promoted more lab research on microbial strains to develop new starter cultures and the creation and diversification of

microbial collections, within an ex-situ conservation framework. In contrast, microbiologists conducting applied research for raw-milk terroir cheeses investigated environmental microbial reservoirs, microbial fluxes, as well as farming practices that favor "natural seeding" (formerly called by modernists, "contamination"), and enrich milk native microflora. Together, these changes in cheese microbiology contributed to the construction of a new approach, namely "practice-driven microbial ecology" (écologie microbienne dirigée), which enacts the dynamic and ubiquitous properties of microbial life. The paper offers a situated account on the "microbial (ecology) turn" described by other authors, highlighting the original path that applied scientists in France followed to solve the puzzle of microbially impoverished milks: in their own terms, "the microbial path to terroir".

In the frame of this STS Italia conference dedicated to "technoscience for good", I propose to interpret this path both as a repair work to mitigate the side-effects of farming modernization (biocultural standardization), and a caring work for microbial ecosystems and associated farming practices.

In the frame of a panel dedicated to "culturing food", I propose to view it also as a path towards ecologizing food production. I will open a discussion about the partial connections between this French move with the Italian Slow Food movement for Natural Cheeses.

11 JUNE 2025 09.00 - 11.00

ROOM B3.2

ID 901 - Reimagining Cultivated Meat: Addressing Animal Futures in the Debate for a Just Food Transition

Arianna Ferrari, Austrian Institute of Technology

Keywords: cultivated meat, socio-epistemic practice, ethical implications, STS, foresight, sustainable food transition

The rise of cultivated meat and fish, hailed as a transformative innovation to address the ethical and environmental issues associated with traditional animal agriculture, has sparked both enthusiasm and significant controversy. While advocates present this technology as a potential solution to global food security, health challenges, and animal welfare concerns, its political, social, and ethical dimensions remain highly contested. This paper critically examines cultivated meat as a socio-epistemic practice, exploring how it reshapes ethical norms and mobilizes conflicting political alliances, such as those between animal rights organisations and conventional meat industries. While these alliances may seem pragmatic, they expose deeper ethical compromises and raise vital questions about the true implications for animal welfare in the emerging food system (Ferrari and Lösch, 2017).

The debate over cultivated meat's potential to facilitate a sustainable food transition positions it as a key innovation within the expanding field of alternative proteins. Despite advancements in bioreactor technology and cost-reduction strategies, such as animal-free cell media, significant challenges persist—especially in scaling production and securing regulatory approvals. The early commercial rollout of cultivated meat in Singapore (2020), followed by its introduction in the US and Hong Kong, initially generated optimism. However, increasing political and social resistance—evidenced by bans in Italy, the US, and proposed initiatives across Europe—highlights the deep-rooted opposition to changes in agricultural practices. This resistance is often rooted in a refusal to acknowledge the ecological impacts of animal food production in the context of climate change and biodiversity loss, as well as a defense of animal husbandry as a cultural heritage that maintains a connection to nature through practices like transhumance tourism and the protection of locally sourced products (Ferrari, 2024).

In the midst of the hype and political contestation—where defenders of industrial livestock farming and their lobbying power clash with progressive calls for change—critical ethical dimensions are often overlooked. The debate on cultivated meat remains largely confined to theoretical or speculative discourse, with insufficient focus on the evolving, practical implications of the technology—particularly in terms of its ongoing reliance on animals in production processes. This paper identifies a significant gap in the dis-



course: the lack of a comprehensive assessment of the impact on animal bodies and the future of animals still implicated in the production of cultivated meat and fish (cf. Dutkiewicz, J., Abrell, 2021). This oversight distorts our understanding of the normative dimensions of this innovation, presenting an incomplete picture of its consequences.

To address these gaps, the paper proposes integrating Science and Technology Studies (STS) and foresight methodologies with a specific focus on the implications for nonhuman animals. Such an approach ensures that the roles and futures of animals are central to ethical and policy frameworks, encouraging more thorough and nuanced discussions about the role of cultivated meat and fish in a just and sustainable food transition.



12 JUNE 2025 09.00 - 11.00

ROOM B2.2.9

Panel 28. Transportation Ethics

Convenors:

Alessandro Piazza, Politecnico di Milano

Fabio Fossa, Politecnico di Milano

Keywords: Accessibility, Justice, Sustainability, Transportation Ethics, Urban Mobility

Several unprecedented challenges are forcing cities to rethink how transportation systems are designed and governed, whom they serve, and how they impact urban life. Demographic growth and rapid urbanization are straining the capacity of transport systems to move an increasing number of people. Climate change and rising temperature require us to radically reshape urban environments and move towards a more sustainable mobility. Economic inequalities and urban gentrification contribute to residential segregation, creating disparities in access to key services, amenities, and opportunities.

Moreover, technological innovation has introduced profound changes. Vehicle electrification offers a promising solution for reducing emissions, yet it presents a range of challenges, including the need for extensive charging infrastructure, the necessity of radically transforming energy systems, and the environmental implications of battery production and disposal.

Autonomous vehicles promise further transformations, yet they raise pressing questions about responsibility, safety, and governance. The rise of platform companies for ride-hailing and micro-mobility is altering the way people and goods move through cities. The gig economy introduced new dynamics, with couriers often facing high traffic risks and inadequate labour protections.

Concurrently, transportation agencies continue to be shaped by powerful groups such as real estate developers, car manufacturers, and tech corporations, who often influence decisions on urban mobility according to their agendas. This raises important questions about how to democratize the governance of transport, making it more inclusive and equitable for all the stakeholders involved.

How can we navigate these challenges and identify viable solutions for the future of urban mobility? This is not a simple question, as urban mobility is a contested space, with competing visions of what a "good" transportation system should look like.

Centring on the intersection of moral values and transport, Transportation Ethics can provide useful insights to such a multidisciplinary debate. It raises important questions about what values and principles should underpin our transportation systems, how we can balance competing interests and priorities, and how we can ensure that all voices are heard in the decision-making process. It challenges us to consider who benefits from transportation policies, how to address structural injustices, and what responsibilities we have toward current and future generations in shaping sustainable, equitable, and inclusive urban mobility. It examines the responsibilities of administrations, planners, and engineers in promoting traffic safety, advocating for a shift from an individualistic to a collective understanding of accountability for traffic risks. It addresses trade-offs between safety and individual autonomy, as well as the pervasive use of surveillance technologies and their implications for personal privacy. It challenges the widely held belief that the primary role of transport planners is to solve congestion problems, emphasizing instead the importance of ensuring sufficient accessibility for all citizens to essential services, amenities, and opportunities.

We encourage submissions for 20-minute talks that discuss the ethics of transportation from these different angles and perspectives, with the aim of kickstarting an interdisciplinary conversation on this much needed, but still quite under-researched field of applied ethics.



12 JUNE 2025 09.00 - 11.00

ROOM B2.2.9

ID 153 - Travelling on the edges: marginalisation and hierarchy in transportation systems

Daniel Guillery, London School of Economics and Political Science

Keywords: Transportation ethics, road systems, relational equality, marginalisation

Road spaces (understood broadly) are vital yet highly unequal spaces. The dangers of road travel and costs of associated pollution are distributed highly unequally (DfT 2022; WHO 2022; Sheller 2018 26, 68; Bullard 2004), as is the access to space and opportunities that road systems enable (Hine 2011; Lucas 2011). This paper aims to provide one theoretical basis for moral diagnosis and assessment of these inequalities. It argues that an ideal of relational equality constrains the conventions that organise road systems when the latter exist within a regime of private property in land. And more specifically, it will suggest that in road systems we have good reasons to be concerned about one particular form of relational inequality (not hitherto the focus of much of the philosophical literature on relational equality), namely marginalisation.

The argument begins from the observation that private ownership of land restricts movement (Ripstein 2009). Justification of private property depends on its not frustrating a basic interest in an adequate capacity for movement. To achieve this, a property regime depends on a system of publicly accessible roads governed by shared conventions (needed to keep the roads passable), enabling movement between privately owned land. In other words, groups of people operating or imposing a regime of private property are morally required to maintain a substantial relationship, of road-convention creation and upholding, with each other.

The ideal of relational equality, which has gained prominence in the political philosophy of recent decades (Anderson 1999; Kolodny 2023; Schemmel 2021) objects to social relations characterised by unjustified hierarchy or distinctions of social status. Where a group of people share a road-convention-maintaining relationship, there are relational egalitarian reasons to avoid forms of hierarchy it might produce. One distinctive form of relational inequality, this paper argues, is marginalisation, the involuntary confinement of some members of a relationship to its peripheries, the denial of 'centrality' in the relationship. The paper adopts an account of marginalisation, according to which it can take two forms: 'participation marginalisation', where some are denied opportunities to participate in the forms of social activity most central to the shared relationship, and 'control/influence marginalisation', where some are denied proportionally equal opportunity to influence the shape or course of the relationship. There are grounds for objection to a system of road conventions, then, where it has the effect of denying access for some to the most central aspects of shared life or where it is established or organised in a way disproportionately responsive to the voice or interests of a subgroup of those subject to the conventions. Road systems that enable movement (and hence social participation) primarily for those with the economic means to access a private care, for instance, look likely to marginalise in the first way, while those that are subject to capture by powerful interest groups or managed in a way that responds primarily to purchasing power, look likely to marginalise in the second way. The paper explores some of the implications of this ideal for existing road systems.

12 JUNE 2025 09.00 - 11.00

ROOM B2.2.9

ID 347 - Ethical Issues in Philanthropic Engagement in Global South Road Safety Work

Henok Girma Abebe, Kungliga Tekniska högskolan

Karin Edvardsson Björnberg, Kungliga Tekniska högskolan

Keywords: Philanthropy, Road Safety, Public Health, Global South

Each year, nearly 1.3 million people die, and approximately 50 million are injured in road traffic crashes, with over 90% of these casualties occurring in low- and middle-income countries. To address this crisis,



the United Nations has proposed a set of evidence-based road safety measures. However, a critical funding gap persists, hindering their implementation. Private sector contributions—including funding from businesses, insurance companies, and philanthropies—have been proposed as a solution. In response, several philanthropic organisations and charities, such as Bloomberg Philanthropies, the FIA Foundation, and the Global Road Safety Facility (GRSF), have become key players in global road safety in recent years. Their growing influence reflects a broader shift in global public health governance, where private actors increasingly assume roles traditionally held by national governments and international organisations.

While philanthropic involvement in public health and development has been widely debated, its ethical implications in road safety remain underexplored. This paper addresses this gap by examining whether philanthropic engagement in global road safety initiatives is ethically problematic, particularly in the Global South, where state and corporate funding are insufficient. We identify three key aspects of philanthropic involvement with significant ethical implications.

First, concerns arise regarding how philanthropies acquire their wealth, particularly the impact of their income-generating activities or investments on road safety. The road safety community has often criticized philanthropies with ties to tobacco and alcohol industries. We argue that similar scrutiny may be warranted for philanthropies connected to the car and motorcycle industries, given potential conflicts of interest, and the many moral problems associated with car ownership and driving in many countries in Global South.

Second, ethical issues pertain to the role of philanthropic actors in policymaking and implementation, specifically whether their involvement aligns with fundamental moral and political values such as justice, equity, transparency, accountability, and democracy. A key concern is the extent to which philanthropic actors influence policy agenda-setting and whether their priorities genuinely reflect the needs, values, and concerns of Global South countries and their communities.

Finally, concerns emerge from the specific road safety strategies and interventions philanthropies promote, particularly regarding their efficiency and effectiveness.

By evaluating these concerns, this paper contributes to a deeper understanding of the ethical dimensions of private sector involvement in global road safety.

12 JUNE 2025 09.00 - 11.00

ROOM B2.2.9

ID 554 - Who Gets to Move Sustainably? Mobility Justice and the Socio-Technical Landscapes of School Escorting in Padova, Italy

Jacopo Targa, Università degli Studi di Padova

Paolo Giardullo, Università degli Studi di Padova

Keywords: mobility justice, sustainable mobility practices, school escorting, socio-technical systems, spatial inequalities

One of contemporary cities' main goals, inspired by the aim of shifting away from the dominant use of the automobile, is the promotion of what are defined 'sustainable mobility practices'. These refer to an abstract vision of the city where the majority of the dwellers move by foot, bicycle or public transportation. However, this vision rarely becomes a reality, highlighting the limited effectiveness of the policies that consider only the provision of infrastructure to enact this goal. In our contribution, we argue that the field of transportation ethics can serve as a guide to better understand the pitfalls that dominant infrastructure-centred policies approaches present.

Starting from these assumptions, this study employs an STS perspective to raise questions related to access, capabilities and ethics of mobilities, such as "How is mobility connected to the idea of justice? Who is included/excluded from sustainable mobility practices? How does the agency of the infrastructures play a role in allowing/constraining sustainable mobility?". To do so, we draw on Mimi Sheller's (2018) concept



of mobility justice to highlight how the interplay between social inequalities, infrastructural design, and everyday practices plays a role in shaping the different forms and conditions of mobilities. Mobility justice hence aims to offer a framework for analysing both exclusionary mechanisms and pathways toward equitable futures.

To ground this theoretically informed approach, we focus on the empirical results of the SCHOOLNET research regarding walking/cycling school escorting attitudes in schools in Padova. Through a mixed-methods analysis of questionnaires and interviews with parents, we identified three key findings: 1) Proximity to walking/cycling accessible environments correlates strongly with active mobility practices; 2) Shorter daily travel distances (e.g., routine commutes) enable higher rates of walking/cycling escorting; 3) Flexibility in work schedules and access to support networks further incentivize non-motorized mobility. These results highlight how spatial, temporal, and relational inequalities—transcending infrastructure alone—mediate participation in sustainable practices, disproportionately excluding those in car-dependent neighbourhoods, with rigid schedules, or lacking social capital.

The presented reflection hence aims at examining how the concept of mobility justice is fundamental to the field of transportation ethics. It can be applied to inquire the roots of such inequalities by adopting a socio-technical framework that transcends conventional notions of “transportation justice,” which often overlook the embodied, infrastructural, and temporal dimensions of mobility. However, at the same time, we critically examine the limits that this concept has, and the difficulties it presents when it is translated empirically.

Nevertheless, we conclude that centring the analysis on how agency is unevenly distributed across infrastructures and actors is the starting point to foster more effective and equitable mobility policies.

12 JUNE 2025 09.00 - 11.00

ROOM B2.2.9

ID 617 - Socio-material networks and ethical challenges: an STS perspective on sustainable mobility practices

Ilenia Picardi, Università di Napoli Federico II

Luca Serafini, Università di Napoli Federico II

Stefano Oricchio, Università di Napoli Federico II

Keywords: Actor-Network Theory, micromobility, shared mobility, electric vehicles, low carbon practices

Mobility and transportation systems are a fundamental pillar of contemporary societies. However, climate change and the subsequent need to lower CO2 emissions are pushing these systems towards more environmentally-sound technologies. Transportation is indeed currently responsible for over the 20% of carbon emissions worldwide (Speizer et al. 2024), while on the European and Italian level this percentage rises up to 25% and 33% (EU Parliament 2024, EEA 2024) making sustainability an urgent priority.

This work, conducted as part of the PRIN PNRR 2022 project “PROSOCIAL-CLIMA,” is based on two types of data: (a) a Systematic Literature Review (SLR) - carried out through the standard PRISMA - on 150 scientific articles analysing low-emission behaviours in relation to micromobility, shared mobility and the use of electric vehicles; 12 focus groups conducted in four Italian regions, in which mobility habits and willingness to adopt low-emission practices were investigated among different age cohorts and in different territorial contexts (urban and suburban).

Adopting an STS framework, we analyse sustainable mobility behaviours as an interweaving of environmental and ethical practices and complex sociotechnical networks.

On the one hand, limited or uneven access to key infrastructures—such as bike lanes, EV charging stations, and digital platforms for shared services—often hinders the stabilization of sustainable practices. This challenge is particularly acute in rural and peripheral areas, where inadequate public transit systems, sparse infrastructure, and socio-spatial inequalities restrict residents' ability to transition to eco-friendly



options. The implied risk is to exacerbate existing inequalities, leaving vulnerable communities behind. As a result, ethical concerns arise regarding fairness, environmental justice, and the unequal distribution of the benefits and burdens of sustainability policies. Conversely, maintaining the material components of sustainable mobility, expanding and integrating them into broader networks (e.g. public transit systems) can foster low-carbon mobility practices by enhancing accessibility, equity and efficiency.

On the other hand, the stabilization of mobility networks also depends on policy choices in enrolling actors in co-design and participative processes. Evidence from current research shows that to involve potential users in decision-making, particularly those from underserved communities, is not only a matter of procedural fairness but also a way to enhance long-term sustainability and public trust. Expanding this approach in the assessment of transition strategies can help to re-align the expectations of the many actors involved across different social groups and sociotechnical contexts, ensuring the effectiveness and sustainability of collective choices over time.

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12 JUNE 2025 09.00 - 11.00

ROOM B2.2.9

ID 712 - Extending on Accessibility – A Reflection on the Conceptualization of Transport Justice by Fare Free Public Transport Activists

Michael W. Schmidt, Karlsruhe Institut für Technologie

Christine Milchram, Karlsruhe Institut für Technologie

Keywords: transport justice, distributional justice, recognition justice, procedural justice, activism

Literature on transport justice typically highlights the perspective from distributional justice: How are the burdens and benefits of transport distributed within a given community or society? Distributional justice, however can be interpreted in different ways: In the context of literature on transportation justice, one can see a rather narrow focus on the externalities of transport – like accidents, pollution etc. – as burdens and accessibility via transport opportunities as benefits. Indeed, both will be important elements of a comprehensive theory of transport justice. However, distributional justice – for example in the sense of John Rawls's theory of justice (Rawls 1999; 2005; 2001) – can be interpreted in a wider way that covers, at least to a certain degree, what other theorists would characterize as different dimensions of justice, which are distinct from a distributional perspective: recognitional aspects of justice and procedural aspects of justice (Schlosberg 2009). Therefore, one might ask whether these aspects should get more attention in the literature on transport justice.

We try to reflect on this question by considering the conceptualization of transport justice by activists for fare free public transport (FFPT) – which is an interesting topic on its own for transport justice. In particular, we analyse the public outreach by three FFPT activist groups: one in Canada, one in Brazil, one in Germany. These groups indeed conceptualize transport justice in a way, that highlights what one might call recog-



nition justice and procedural justice. With respect to recognition justice, they claim that there is a right to mobility for free and equal citizens. With respect to procedural justice, they claim that a more participatory or democratic governance of transport is valuable in itself or at least instrumentally indispensable. In conclusion, there is a need to rethink the scope of justice related issues concerning transportation, that transport justice as a field deals with.

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12 JUNE 2025 09.00 - 11.00

ROOM B2.2.9

ID 891 - Mapping Movement: The role of technology in shaping urban mobilities and ride-hailing driver experiences.

Isabella Jaimes Rodriguez, York University

Keywords: Ride-hailing platforms, urban mobility, algorithmic governance, digital labor, feminist STS.

This paper explores the intersection of technology, urban mobility, and ride-hailing drivers' experiences in Bogotá, Colombia. Using a sociotechnical lens, it investigates how digital platforms reshape mobility through algorithmic governance, spatial imaginaries, and embodied urban knowledge. Drawing on qualitative data from interviews conducted under the Fairwork project, this research foregrounds drivers' strategies of adaptation, resistance, and co-construction within an evolving and platform-mediated urban landscape.

By employing feminist STS approaches and theoretical frameworks of spatiality—including territory, place, scale, and networks (Jessop et al., 2016)—this work uncovers how mobility transcends its physical dimension to reflect socio-political power, cultural practices, and urban transformations. The study conceptualizes ride-hailing as more than just a transportation service; it is a dynamic socio-spatial practice shaped by digital infrastructures, labour precarity, and informal networks of care. It explores how ride-hailing drivers strategically navigate urban terrains through sensory knowledge, technological negotiations (such as GPS reliance and algorithmic management), and social solidarities. These insights demonstrate how platform workers engage in "textured mobilities" (Sheller, 2018), where movement is shaped by affect, power asymmetries, and micro-interactions with urban infrastructures.

Furthermore, this research interrogates the ways in which algorithmic governance structures spatial and economic constraints for drivers, often reinforcing patterns of exclusion and precarity. However, it also highlights how drivers mobilize socio-technical assemblages—such as WhatsApp groups, knowledge-sharing practices, and safety networks—to contest platform control and co-construct mobility beyond algorithmic logics. Their movements operate across multiple geographical scales, from the micro-rhythms of city streets to broader urban infrastructures of control and exclusion.

By engaging with debates on spatial justice, platform capitalism, and the politics of algorithmic mobility, this study contributes to feminist STS and digital labour scholarship by centering the material, affective, and contested dimensions of ride-hailing work. It ultimately argues that mobility is not simply a function of digital economies but a deeply political and lived experience, negotiated through infrastructures of control and solidarities.



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12 JUNE 2025 09.00 - 11.00

ROOM B2.2.9

ID 895 - The Role of Ethical Values in Urban Planning

Piotr Rosół, Akademia Pedagogiki Specjalnej im. Marii Grzegorzewskiej, The Maria Grzegorzewska University

Keywords: transportation, ethics

In order to achieve deeper changes in our transport systems around the world we need to combine understanding of individual daily perspectives and abstract knowledge about transportation systems. This would allow switching between different forms of urban planning and revisions in priorities in city transport systems. In order to change our cities for the better we need more engagement of communities informed by ethical evaluations of different modes of transport and conscious of consequences of planned systemic choices.

One of the biggest challenges for contemporary cities is the organisation of an efficient, fair and accessible transportation system. At the same time there is a big discrepancy between what many people consider as the best way to commute and what would be the best choice from the perspectives of community, sustainability, environment, safety and effectiveness. For many people the most comfortable way to move around the city is to use their private car. From the mentioned other perspectives this is usually an inefficient, costly and polluting choice.

The contrast between individual experience and systemic perspective helps many people to ignore arguments from the systemic level of reflection. At the same time even if engineers or high rank city councils officials try to make transportation system more ethical and sustainable they are having troubles to find a proper language to talk about it. Concentrating on statistical and technical arguments might seem a way of producing consent, but instead it seems to alienate voters. In order to provide the space of discussion and the possibility for understanding choices we face we need arguments taking into account ethical values involved, as well as the possibilities of changes in transportation systems. To search for an agreement we need to start from talking in an open and honest way about differences and conflicts. This seems to be impossible without taking into account ethical values engaged in urban planning.

In my paper I would like to use ethical reflections of Thomas Nagel expressed in his famous essay *Moral Luck* in order to search for ways to diminish the fissure between individual and systemic perspective of perceiving transportation systems. In Nagel's view, the necessary condition of our ethical evaluations is our ability to ascribe to someone capability to control events, to act differently in a given situation. When we judge someone we widen our first person perspective of looking at the world and suppose that he/she could have done differently. In other word we think that others can make decisions and control their actions in the same way that we usually think about our own actions. Restoring the possibility of controlling transportation systems might be helpful in order to evaluate different scenarios and plans concerning future organisation of cities around the world. In this picture ethical values will be useful in translating individual experiences into more generally shared evaluations, as well as in providing ethical justifications helpful for understanding and accepting recommendations resulting from systemic reflections.



11 JUNE 2025 09.00 - 11.00

ROOM B2.2.13

Panel 29. Navigating the Grey: Assemblage Thinking and Digital Artifacts

Convenors:

Kevin Carillon, *Université Catholique de Louvain*

Lilo Meier, *European University Institute*

Viadrina François Lambotte, *Université Catholique de Louvain*

Silvia Gherardi, *Università di Trento*

Keywords: assemblages, digital artifacts, digital biographies, entanglements

Rooted in the work of Deleuze and Guattari (1987), assemblage thinking underscores the interconnected and emergent nature of phenomena. While long employed in disciplines like geography (McFarlane and Anderson, 2011) and urbanism (Sendra, 2015; Kamalipour and Peimani, 2015), assemblage thinking is now gaining traction in Science and Technology Studies, particularly in the examination of big data tools, algorithms, and AI—collectively termed 'digital artifacts'— in various contexts (Tanweer et al., 2016; Lee, 2021; Schjøtt Hansen and Hartley, 2023).

Within this approach, assemblage thinking enables us to analyse digital artifacts as intricate assemblages evolving across time and space (Williams and Pollock, 2012; Hyysalo et al., 2019; Glaser et al., 2021). Moreover, it empowers us to explore broader assemblages— technical, political, social, economic, and ecological—in which digital artifacts serve as components, contributing to their sociomaterial fabric.

However, the growing popularity of assemblage thinking should not overshadow the lingering epistemological, methodological, and practical challenges associated with its application for studying technologies. Furthermore, by questioning extant epistemological and ontological dichotomies, its capacity to challenge our understanding of what constitutes 'good' technology remains largely untapped. The panel thus aims to explore, entangle, and disentangle the potentialities and pitfalls of assemblage thinking for studying digital artifacts.

We welcome submissions from various traditions in diverse and creative formats, including theory papers, essays, and empirical work. Possible venues of inquiry include but are not limited to:

- How does assemblage thinking help us move beyond a simplistic view of technology to reveal diverse perspectives on digital artifacts, particularly in terms of accountability, fairness, and ethics?
- In what ways can assemblage thinking offer an alternative perspective for recognizing and embracing our entanglements and responsibilities within interdependent relationships between humans and more-than-humans?
- What are the underlying mechanisms that govern the emergence, development, and eventual demise of assemblages?
- How do these transformations affect the very nature of digital artifacts?
- How can we bridge competing theoretical and linguistic positions in the use and discussion of assemblages and beyond?
- How can we highlight dynamics of power and domination in relation to digital artifacts and, in doing so, address the critique of "flatness"?
- How can we study assemblages, and what new methodological approaches can help highlight them?
- How can assemblage thinking provide new tools for critiquing the development, deployment, and use of digital artifacts?

This panel invites participants to share their empirical cases, approaches and theoretical reflections on the conceptual toolbox of assemblage. The goal is to create a temporary space for collective exploration, discussion, and critique of the limits and potential of assemblage thinking in studying digital artifacts. Collectively, we seek to develop an evolving knowledge base for approaching digital artifacts through the lens of assemblages.



11 JUNE 2025 09.00 - 11.00

ROOM B2.2.13

ID 434 - The evolution of platforms as socio-material assemblages

Davide Tanto, Università degli Studi di Milano - Bicocca

Keywords: Platforms, Actor-network Theory, Controversies, Assemblages, Web 2.0

Twenty years ago, the term "Web 2.0" was coined to describe the radical transformation of the way the Internet was structured. A new model for digital companies based on the implementation of platforms, complex online infrastructures managed by algorithms, emerged. Users became the main actors in the novel paradigm thanks to their activity as creators of the content populating platforms. A centrality that generated great hopes about the final overcoming of many of the traditional barriers to people's engagement in the public sphere. The passage from a web of publishing to an Internet of participation was heralded.

The optimism, however, faded away very soon. The growing commercialization of platforms led to a rethinking of the role of users, now seen as prosumers and as mere sources of behavioural data. Previously conceived as spaces of possibilities and interaction, platforms become architectures of extraction where people's activities are monitored and datafied for the sake of companies' economic profit. Although it reveals the dynamics of exploitation currently taking place on the Internet, this narrative is too unidirectional in describing this transformation. The development of platforms appears, indeed, to be fully guided by the imposition of corporations' capitalistic logic upon users by means of its inscription into powerful and ruling algorithms.

This contribution aims to advance an alternative understanding of this evolution premised upon the theorization of platforms as socio-material assemblages. According to it, the current shape of digital platforms in terms of practices, policies, and infrastructure emerges from the relationships between users, companies, and algorithms and their continuous redefinition. Platforms, thus, become fields of constant negotiations between companies' race for profit and users' interests in performing their digital activities according to their needs.

This approach entails an original strategy of research that recognizes the fundamental role played by users and algorithms in the Web 2.0 paradigm without limiting its focus on digital companies' logic. Platforms' economic model is based upon network effect and, thus, cannot work without users' central activity as content creators. This confers great bargaining power to them because corporations cannot lose them and, so, must adapt their policies to their requests and concerns. At the same time, the role of algorithms cannot be reduced to mere intermediaries of companies' will. Surely, specific aims are inscribed in their design, but, when deployed in the assemblages, they modify in unpredictable ways the social reality due to users' often unexpected perception and adaptation to them. Therefore, adopting a concept of actor-network theory, they can be defined as mediators. Following these acknowledgments, to understand the evolution of platforms is fundamental to look at the relationships established between these three elements. In particular, as suggested by actor-network theory, the focus must be on controversies, namely on the moments where these links are contested and redefined. The study of these crucial events not only can highlight the distributed agency in the shaping of platforms but can also explain and compare the different evolutions of digital assemblages and of the practices there performed.

11 JUNE 2025 09.00 - 11.00

ROOM B2.2.13

ID 645 - "Unpacking the Digital Border: Accountability and the Assemblage of Power in Contemporary Border Governance"

Ismini Mathioudaki, Scuola Normale Superiore

Keywords: border assemblage, digital border, artefacts

This research investigates the digital border through the lens of materiality and multi-sited infrastructure, proposing that digital borders should not be seen as immaterial or purely abstract constructs, but as an



assemblage of interconnected, material and non-material components. Drawing from the idea that these systems possess a dual nature, being both socially constructed and society-shaping, this article examines the digital infrastructure of the contemporary border as socially constructed artefacts interacting among themselves to achieve specific objectives. By drawing on the "polychora" metaphor, this study argues that the digital border is not a monolithic entity, but a fluid, multi-dimensional space, emerging through a complex web of technological, spatial, and temporal dynamics. This assemblage includes not only the digital technologies employed in border management—such as biometric systems, risk assessment algorithms, and surveillance infrastructures—but also the actors and institutions operating them, including developers, border authorities, policymakers, and those subjected to them. These diverse elements interact across multiple layers and locales, contributing to a dispersed, yet highly territorialized, border regime. In contrast to conventional depictions of digital borders as 'black boxes'—opaque, inscrutable systems that evade scrutiny and accountability—this research argues that approaching the digital border as an assemblage enables a more robust framework for identifying the actors involved and their respective responsibilities. Automated systems for sharing information across large-scale IT infrastructures often obscure lines of accountability, allowing those responsible for decision-making—whether designers, developers, or border enforcement agencies—to evade scrutiny for the impacts of their actions.

The study contends that by reframing the digital border as an assemblage, we can begin to map out the multiple, interconnected layers of decision-making, enabling a clearer delineation of responsibility across both human and non-human actors. This approach challenges the prevailing notion of the digital border as a singular, de-territorialized space by emphasizing its material and spatial multiplicity. Hence, by highlighting how the digital border, far from being a static or immaterial phenomenon, is shaped by the tangible infrastructures that mediate it, spanning both physical and digital realms, and mapping out the various actors involved, can render the accountability gap smaller. This framework thus pushes for a rethinking of how we understand accountability within the digital border context. By acknowledging its materiality and complexity, we can better address the opacity of current systems and move beyond simplified portrayals of borders as unchanging, fixed, or invisible entities. Instead, we recognize the digital border as a dynamic, multi-sited infrastructure—a "hybrid border"—in which the interplay of human, technological, and legal forces plays a crucial role in governing mobility and shaping societal boundaries.

Through this lens, the research offers a more nuanced, multi-dimensional understanding of the digital border as a highly contingent and ever-evolving assemblage, with responsibility and accountability distributed across a complex network of actors and components.

11 JUNE 2025 09.00 - 11.00

ROOM B2.2.13

ID 805 - Talks like an object, walks like an assemblage. Let's talk about PDF

Mace Ojala, Ruhr-Universität Bochum

Keywords: assemblages, digital artifacts, infrastructure, format

The Portable Document Format, the PDF, is everywhere. For example, the call for papers this abstract is responding to is a 4.6 kB PDF file downloadable from the STS Italia conference website. Academia is one of many sites of high PDF intensity, and so are bureaucracies, travel arrangement, commercial exchanges, contractual situations, death, citizenship, libraries and archives, and when megacorps trawl the web for training their models. What is going on in your Downloads folder, within which this legacy format tends to accumulate? The PDF was originally developed at Adobe thirty years ago. As such, it is an very interesting example of an old technology, a digital artifact which gives surprisingly much shape to what is possible today and in the future. PDF has been in the custody of the International Standardization Organisation (ISO) since 2008 as the ISO 32000-1:2008. The association with Adobe is still strong, not least because of Adobe products such as Acrobat Reader, which I dare to bet is installed on the computers of most participants of STS Italia 2025.



This banal, everyday technology is understudied and undertheorized, as is the case with so often with infrastructures which tend to recede to the background (Star 1999). Study of infrastructure has a strong tradition in STS. Formats are a productive object of STS research, and some of this work has already been started in media studies (Jancovic, Volmar, Schneider 2020; GfM 2020). An influential, longer format study was Sterne's 2012 MP3. The Meaning for a Format.

The chapter 12 of A Thousand Plateaus (Deleuze and Guattari, 1987/2005) provide a classic critique of hylomorphic schema (Ainsworth, 2024), offering assemblage thinking as an alternative to it. In their expansion of containment from "holding within" to "holding together" Schoot and Maher (2022) already offer a bridge from forms towards assemblages (Angerer et al, 2024). I would like to use the opportunity of the Navigating the Grey: Assemblage Thinking and Digital Artifacts panel at STS Italia 2025 to develop assemblage thinking of the PDF file format as an alternative to PDF as a form/format, and offer some insights from my ongoing excavations into PDF files.

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11 JUNE 2025 09.00 - 11.00

ROOM B2.2.13

ID 826 - Assembling Sustainable Development: Constructing a Multi-Layered Framework for Analysing SDG Dashboards

Koen Borghys, SMIT

Rob Heyman, Vrije Universiteit Brussel

Koen Borghys, Prof Dr Rob Heyman

Keywords: Assemblage thinking, SDG dashboards, socio-technical imaginaries, actor-network theory, critical data studies

This paper develops a multi-layered theoretical framework for analysing how SDG dashboards shape the localization of Sustainable Development Goals (SDGs) in the Brussels-Capital Region (BCR). Drawing on assemblage thinking (Deleuze & Guattari, 1987), actor-network theory (Callon, 1987; Iliadis & Russo, 2016; Latour, 2007), and critical data studies (boyd & Crawford, 2012; Dalton et al., 2016; Iliadis & Russo, 2016; Kitchin & Lauriault, 2014) this paper conceptualizes SDG dashboards as sociotechnical artifacts that actively shape, reinforce, and challenge dominant understandings of sustainable development.

While SDG dashboards present themselves as neutral data infrastructures, they are embedded in political priorities, governance structures, and technological constraints that influence how sustainable development is defined and measured (D'Ignazio & Klein, 2020; Kitchin & McArdle, 2017). By integrating concepts from sociotechnical imaginaries, data assemblages, ANT, and affordance mechanisms, this framework provides a multi-layered approach for critically analysing how SDG indicators are selected, visualized, and interpreted through digital infrastructures like data dashboards.

This framework is designed to support an in-depth investigation of three key questions: 1) How is sustainable development renegotiated between global frameworks and their local interpretation? 2) How do data infrastructures mediate and reshape understandings of sustainable development? 3) How is sustainable



development reframed to fit the medium of dashboards?

Using the BCR's SDG monitoring practices as a case study, this paper contributes to ongoing debates on assemblage thinking by demonstrating its potential to reveal the context-dependent, relational, and evolving nature of digital artifacts like data dashboards. It extends assemblage thinking by showing that SDG dashboards are not passive measurement tools but dynamic governance mechanisms that actively shape sustainable development implementation, policy and decision-making and monitoring.

By critically engaging with the epistemological and methodological challenges of assemblage thinking, this study provides an analytical tool for future empirical research, enabling a more nuanced examination of local SDG monitoring tools and frameworks.

11 JUNE 2025 09.00 - 11.00

ROOM B2.2.13

ID 881 - Assemblages of security for public gatherings

Roger Von Laufenberg, VICESSE Research GmbH

Michaela Scheriau, VICESSE Research GmbH

Keywords: Security, Public Gatherings, desire, Surveillance

The occurrence of tragic incidents with mass casualties at public gatherings – such as the Hillsborough disaster in 1989 in Sheffield or the Loveparade disaster in 2010 in Duisburg, as well as a general trend of securitization and the fear of terrorism following 9/11 has significantly contributed to an increased focus on how to purposefully design public gatherings of all kinds – concerts, fairs, sport events, demonstrations – which emphasise the provision of security and safety for the attendees of these events. Ranging from accurately placed barriers for so called crowd management, over increasingly digitized and 'intelligent' means of surveillance in the forms of CCTV (with or without facial recognition), drones and others, to the wider architecture of the venue in which careful security design decisions have been undertaken. Crucial for the security design of these measures is that they operate as assemblages of technologies – increasingly shifting to the digital realm, infrastructures and human actors such as police and security personnel in order to be able to provide for security.

While many of the developments towards the security assemblages for public gatherings contributes to the good for most, there is ample evidence that these developments can be hostile for others. Based on case studies of the surveillance and security of public gatherings in Europe, we turn the focus to the instances where safety and security assemblages at public gatherings also create hostile environments with exclusionary characteristics. We discuss in our contribution, how the framing on security and safety is largely done through an anticipatory and preventive logic, in which desire for security is a main driver for developments towards digitalized security assemblages. This means that potentially insecure and unsafe events are desired to be secured and hence require a future oriented, anticipatory logic, to mitigate any instance of such events to occur and for security personnel to be able to act before a state of insecurity is attained. This particularly shows in 'intelligent' and digitalized surveillance assemblages, where security risks are generally defined and operationalised through the 'suspicious behaviours and characteristics' of certain individuals, which need to be identified to be able to act on.

Assemblage thinking, which has a long tradition in the field of surveillance studies (Haggerty & Ericson 2000) contributes significantly in the analysis of both the multiplicity of the (digitalized) security assemblages that are brought into place as a means for securing public gatherings, as well as thinking of power structures in these assemblages as the desire to exert power (Patton 1998; Deleuze and Guattari 1987). With our contribution, we want to shine light on these multiple assemblages of digitalized security, their powers and desires, and how these create instances which puts certain groups, such as young male migrants, under increased scrutiny or even more so, purposefully keeps them out of public gatherings. Concluding we aim to discuss the ambiguous and mutable nature of safety and security assemblages in creating the desire for both good environments, while also being exclusionary and hostile.



12 JUNE 2025 14.00 - 17.00

ROOM B2.2.12

Panel 30. The Intersection of STS and Video Game Studies: Exploring Recuperation, Reconfiguration, and Regeneration within and beyond the Social through video games

Convenors:

José David Gómez-Urrego, Abertay University

Stefano De Paoli, Abertay University

Keywords: Video games, digital media, making kin, new sociotechnical imaginaries

This panel seeks to explore the interactions between STS and video game studies, focusing on case studies of recuperation, reconfiguration, and regeneration that may encompass socioeconomic, ecological, cultural, organisational and spiritual dimensions. As a form of digital media and technoscientific practice, video games and their arenas of creation offer rich sites for examining how complex socio-technical systems can be reshaped, reimagined, and even resisted by players, developers, and wider assemblages alike (Gray, 2020; Jensen & DeWinter, 2021). While traditionally viewed as a form of entertainment, video games are also powerful tools for social and political critical engagement, raising questions about who defines 'good' technoscience, why video games should be reduced to entertainment, and how video games can serve as a medium for imagining and triggering processes of social and ecological transformation (Tudor, 2017; Voorhees, 2018; Shaw, 2014).

This panel invites papers that consider the following questions, or other questions that explore the intersection of video games and STS:

- How do video games and their arenas of creation open opportunities for social recuperation, where marginalized or excluded groups use digital spaces for healing, resistance, and reasserting agency?
- In what ways do video games and game development practices facilitate or resist the reconfiguration of technoscientific norms and values, especially in terms of ethics, fairness, and inclusivity?
- How do games contribute to social and cultural regeneration, not only by imagining new worlds but by offering frameworks for rebuilding societal relations and infrastructures in the face of socioecological crisis?
- How do organisations appropriate video games and how do video games influence organisations and organisational change?

By linking STS with video game studies, this panel aims to uncover the technoscientific potentials and challenges posed by gaming practices and technology. It will engage with concepts of epistemic justice, making kin, care, practice, repair, and the politics of artifacts, asking how video games might offer alternative visions of technoscience, and sociotechnical imaginaries, or expose the limitations of technoscientific developments that fail to serve diverse communities (Haraway, 2017; Ruberg & Shaw, 2017; Wagner & Gatuszka, 2020). This interdisciplinary conversation will draw on both theoretical and empirical studies of gaming, video game communities, and historical studies of video game clusters, to rethink the role of digital media in human and non-human processes of recuperation, reconfiguration, and regeneration.

This panel will consist of traditional paper presentations followed by an open discussion. However, we encourage experimental contributions, such as interactive demos, short gaming sessions, or collective discussions.



ID 221 - Antiquity for Sale: Game Engines, Asset Stores, and the Platformization of the Classical Imagination

Kevin Wong, Harvard University

Keywords: Game Engines, Asset Stores, Platformization, Classical Antiquity, Game Development

Ancient Greece and Rome offer an influential imaginative frame for the videogame industry. Games that explicitly adapt the classical world and its mythology—including well-known titles like *Assassin's Creed Odyssey*, *Hades*, and *God of War*—continue to attain widespread acclaim and commercial success. Besides these more direct examples, classical antiquity is constantly adapted, in tandem with other cultures and histories, into source material for more generic fantasy worldbuilding—for instance, throughout the long-running *Final Fantasy* franchise. Encountering antiquity as it is reflected in its visual and narrative in-game representations (as classicists who work on games have tended to do—see Lowe 2009; Rollinger 2020; Clare 2021), however, brings us face-to-face only with the end products of a long and often opaque process of creation. This presentation ventures a glimpse behind the curtain—to examine the sociotechnical processes by which these visions of antiquity are integrated into the commercial realities and creative possibilities of modern game development.

To this end, I examine the production and sale of game assets in the Unity Asset Store and Unreal Engine Marketplace, where representations of the ancient world take form as neatly packaged commodities for business-to-business transactions, sold by asset artists to game studios as tools for efficient game development. The commodification of antiquity within what is, in effect, an online marketplace has transformed asset stores into important sites where culture and history undergo commercialization. I argue that the sociotechnical processes underlying asset stores (i.e. modes of asset classification, search algorithms) lead them to generate selective visions of 'the classical' within contemporary videogame development. Accordingly, they do much more than mechanically facilitate the sale of classically-inspired game assets; they actively mediate the flow of historical material, trafficking in cultural signals of demand, availability, and imaginative possibility.

This paper engages, on one hand, with the active field of research exploring how commercial path dependencies have channeled creative production onto dominant and hegemonic platforms like Unity and Unreal Engine (Foxman (2019) 2; Nieborg and Poell (2018); Nicoll and Keogh (2019); Chia et al. (2020); Young (2021)). Conversely, it also explores how game developers challenge and reconfigure those prevailing technological affordances through an intentionality about representing lesser-known aspects of the classical world.

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12 JUNE 2025 14.00 - 17.00

ROOM B2.2.12

ID 345 - The Reappropriation of Arcade Video Games in Italy: A Platformisation from Below?

Sergio Minniti, *Universitas Mercatorum*

Keywords: platformisation, user innovation, retrogaming, arcade video games

The presentation explores the intersection of Science and Technology Studies (STS) and Game Studies by analysing the reappropriation of arcade video games in Italy. It conceptualises the practices developed by arcade video game enthusiasts over time as "platformisation from below," emphasising user-driven transformations of (obsolete) gaming technologies beyond institutional platformisation. By critically linking STS and Game Studies, the presentation offers insights into the role of users in (retro)gaming and (retro) innovation, providing an alternative perspective on platformisation that foregrounds grassroots technological engagement. It argues that bottom-up initiatives can drive alternative processes of platformisation, reshaping gaming ecologies and socio-technical infrastructures. Drawing on STS perspectives that focus on user innovation, it shows how arcade video game enthusiasts are reappropriating and reinventing past technologies to construct new social worlds. By doing so, the presentation aims at extending the discourse on the platformisation of gaming beyond its original institutional dimension. Drawing on qualitative data and analysis, the presentation identifies three phases of reappropriation of arcade video games, which together contribute to a complex platformisation process: (1) software adaptation through emulation and preservation; (2) material reappropriation of arcade cabinets; and (3) reconstruction of arcades as community spaces. These practices illustrate how users generate new socio-technical configurations and develop complex, multi-layered platforms from below, fostering both continuity and discontinuity in gaming cultures and technologies.

12 JUNE 2025 14.00 - 17.00

ROOM B2.2.12

ID 438 - Defusing toxicity by disclosing vulnerability: the role of Twitch communities in changing gaming culture

Roberto Carradore, *Università degli Studi di Milano - Bicocca*

Tiziana Pirola, *Università degli Studi di Milano - Bicocca*

Keywords: gaming culture, toxicity, vulnerability, Twitch.tv, online multiplayer gaming, sociology of knowledge, cyberspace, cyberplace

Gaming is an embodied activity that takes place across a variety of sociotechnical assemblages, characterized by specific cultural codes that are the result of complex interactions between technological affordances and an emergent, collectively produced, ethos. In our contribution, we examine online multiplayer gaming and Twitch.tv as cyberspaces (digital contexts made of artifacts, interfaces, affordances and infrastructures) and cyberplaces (relational and semiotic contexts made of actors, discourses, values) (Galimberti et al. 2011). Together, they represent the key sites where current gaming culture is produced and transformed: online multiplayer games are the main arena for experiencing the social dimension of play and competition, and the lattice on which eSports are built, while Twitch is where gaming becomes a spectator activity and communities form around the experience of watching someone live-streaming their gaming.

Many studies showed that online multiplayer games can feed a toxic environment characterized by harsh competition, trash talking and even harassment (Kim & Ortiz 2024; Zhang et al. 2024; Beres et al. 2021). On the other hand, despite the presence of toxicity on Twitch (Han et al. 2023; Kim et al. 2022), it represents a space that nurtures the formation of social ties between viewers and the development of communities (Taylor & Romine 2018). We previously analysed female streamers' strategies to deal with sexism and cre-



ate healthy communities (Authors 2022), described how streamers face uncertainty and precariousness in building a career within a platform they have no control over (Authors 2024a) and discussed how Twitch represents the new battleground for long-standing conflicts in gaming culture (Authors 2024b).

Here, we argue that there is a change in attitudes towards toxicity in gaming culture that can be read, from the perspective of the sociology of knowledge, as a shift from "negative knowledge", where certain topics are treated as illegitimate and rejected, to "non-knowledge", where unknowable topics become legitimized as worthy of being discussed (Gross 2010).

We contend that Twitch has become a place where vulnerability and disclosure on the part of streamers carve out pockets of agency and resistance against the toxic traits of gaming culture, giving voice and visibility to issues such as sexism, mental health and LGBTQ+ identities, that in turn transform the conversations around these issues in the wider gaming community. Self-reflexive conversations foster inclusive communities that question the dominant ethos in gaming culture, which frames toxic behaviours as harmless and immaterial and as an individual problem.

Bringing together insights from the literature on toxicity in online multiplayer gaming and Twitch, we propose a theoretical framework to shed light on this process of change and suggest new avenues for research on the perception of well-being and self-care and the acceptance of discourses on mental health issues in gaming communities.

All of these relational and discursive transformations can be thought of as a step towards embracing the materiality of the body, beyond the dream of escaping its constraints that characterized the techno-utopian ethos of geek culture.

12 JUNE 2025 14.00 - 17.00

ROOM B2.2.12

ID 476 - Reconfiguring the Ecological Science of Videogames Beyond (Photo) realism

David Harold Ten Cate, Queensland University of Technology

Keywords: ecological science, photorealism, mesocosm, compositionist manifesto, Latour

In increasingly pernicious times of the climate crisis, the ecological reimagination of society is more urgent than ever. Videogames have a marginal yet profound impact on global carbon emissions – 0.04% according to estimates (Abraham 2022) – but, perhaps as importantly, communicate to billions of gamers around the world. Games are, in this sense, for better or worse, important mediators of encounters with ecological issues.

According to Alenda Chang (2019), games are innately ecological artifacts. Chang calls games mesocosms, or "mini-ecosystems" – functional arenas of a size usefully intermediate between field experiments and laboratory conditions, which replicate select aspects of the surrounding world" (Chang 2019, 19-20). Chang's definition reveals that games' established technoscientific potential (Harvey 2011; Dudo et al. 2014) naturally extends to ecological science. By modelling the physical world, games can engage players in thinking about physical processes, particularly those associated with the climate crisis.

Yet, with Chang's approach comes the question: what kind of games may negotiate the ecological crisis effectively? The recent history of videogames tells a pessimistic story, with games generally objectifying the environment (Abraham and Jayemanne 2017), and incorporating natural processes according to ideologies of colonialism (Mukherjee 2024) or extractive capitalism (Op de Beke 2024). What's more, the regressive politics custom to many mainstream games are exacerbated by their representational properties, which continue to portray the environment as inert. These forms of representation have become widespread due to standardized game development practices, and tend to prefer realistic look over realistic interaction (Chang 2024).

This paper explores the regimes of representation in mainstream games as constitutive of their potential



for (re)configuring ecological science. Particularly, the representational ideal of (photo)realism in games is considered central to regressive ecological politics. By pursuing realistic representation in game design, games fall into normative models of representation that are wont to both increase environmental cost – due to increased graphical prowess – and objectify natural processes in games. Bruno Latour's (2004) analysis of 'nature' as an objective category of science should be invoked here, as according to photorealism, 'nature' is encountered insofar it is measured in detail. Therefore, the question of games as ecological science should be to politicize natural processes rather than take them for an increasingly detailed objective fact.

To do so, games must politicize scientific representation itself. Following Latour's compositionist manifesto (2010), which provides an alternative approach to science that embraces its subjective construction and inherent instability, games should embrace the subjective construction of themselves as mesocosms. A straightforward path to pursue this purpose is to renounce purely photorealist drives and make the game's contents correspond to a more idiosyncratic interpretation of visual representation (cf. Hemraj 2024). This paper exemplifies how a 'compositionist drive' in game design has the potential to reconfigure science ecologically, through case studies of *Untitled Goose Game* (2019), *Alba: A Wildlife Adventure* (2020) and *The Legend of Zelda: Tears of the Kingdom* (2023).

12 JUNE 2025 14.00 - 17.00

ROOM B2.2.12

ID 521 - Gamification and Citizen Participation: A Reconfiguration of Engagement Dynamics Inspired by Games?

Tisserand Carole-anne, Mines Paris – PSL

Keywords: gamification , role play , video game , participation , public innovation

This presentation, based on my doctoral research, explores how gamification transforms citizen participation practices by drawing on game mechanics. Through the study of the Smart team of the regional council, which develops a collaborative innovation approach called co-construction, I analyse how the gamification of learning and participation shapes the engagement of both citizens and innovators. The use of persona sheets (fictional characters designed, in this case, to represent different types of citizens in participatory processes), role-playing-inspired simulations, and experiments with digital participatory platforms illustrate the influence of games—both video and non-video—on the structuring of co-construction as a collaborative type of innovation. Drawing on Science and Technology Studies (STS) and game studies, we will discuss how these participatory practices reconfigure interactions between institutional actors and citizens, while also questioning the effects and limitations of gamification. By combining empirical and theoretical perspectives, this contribution seeks to examine the role of play in contemporary participatory mechanisms and the sociotechnical imaginaries they convey.

12 JUNE 2025 14.00 - 17.00

ROOM B2.2.12

ID 583 - Fighting over the past in the digital realm: between transnational reconciliation and weaponized exclusion in publicly supported historical digital games

Olga Kalashnikova (University of Turin), Jakub Šindelář (Univerzita Karlova)

Keywords: historical games studies, digital public history, technopolitics of memory, national histories

Video games can be part of reactionary exclusionary rhetoric and politics, as shown by the misogynist-ridden phenomenon and harassment campaign of #Gamergate (Mortensen, 2018). Moreover, due to its interactive nature, this medium can also function as a powerful tool for historical storytelling, shaping public perceptions of the past through digital experiences. At the same time, digital games reflect certain societal expectations and stereotypes about the past and inevitably bear traces of socio-political and economic

contexts they are produced in. Drawing on the technosocial perspective of the STS (Winner, 1993), historical games studies (Chapman, Foka, and Westin, 2017), and public history approaches to digital games (Nolden, 2019), this paper explores how democratic and autocratic contexts shape game development, influencing the recuperation of history either as a means of inclusive negotiation of the difficult past or revisionist remediation of history.

We compare two contrasting approaches to historical recuperation in video games produced in democratic and autocratic milieus: the inclusive, anti-war, human-centred narrative of *Valiant Hearts: The Great War* (Ubisoft, 2014) and the exclusionary, state-driven historical narratives in *The Russian Counterintelligence Service – The Beginning* (Tekhnologii Replikatsii, 2022) and *Smuta* (Ciberia Nova, 2024). To do so, we examine game design choices, narrative structures, and player reception, highlighting how games can encourage critical engagement and the processing of (difficult) pasts or serve as ideological instruments to manufacture patriotic loyalty and civilizational antagonism.

We demonstrate that while *Valiant Hearts*, developed in cooperation with the French centenary umbrella organisation *Mission Centenaire*, fosters historical empathy and transnational solidarity by centering diverse perspectives on World War I, Russian state-funded historical games weaponize the past to reinforce nationalist and discriminatory rhetoric, depicting a besieged nation that defends its traditional values and sovereignty against external spiritually corrupted enemies. By contrasting these two cases, our contribution argues that video games not only reflect existing political structures but actively shape historical consciousness, either expanding or constraining the possibilities of social recuperation through digital media. The government support for all of the examined cases indicates that their potential is also recognized and utilized by the national authorities.

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12 JUNE 2025 14.00 - 17.00

ROOM B2.2.12

ID 666 - Playing with Futures: Using Game Jams to Critically Think Through Socio-ecological Transformations

Clara Valdés Stauber, Technische Universität München

Dominic Lammar, Technische Universität München

Amy Clare, Technische Universität München

Keywords: game jam, science-fiction, critical futures, pedagogy

When thinking through the grand challenges and socio-ecological crises we face today, turning to the intersection between art and science can be one productive avenue of critical engagement and pedagogy. As lecturers at the Technical University of Munich (TUM), we have turned to video games and science fiction as tools to think through the complexities of the 21st century with our students. The course „A Different Kind of Game Jam: Reflecting Science, Technology and Society through Game Design“ is a recurring project week at the TUM Center for Culture and Arts. It is open to all study programs and brings together students from fields as diverse as Games Engineering and Science and Technology Studies. Students receive input on Science and Technology Studies perspectives, highlighting the possibilities for using the medium of video games as a creative means for reflexivity. The students develop a video game concept in interdisciplinary teams, supported by ongoing mentoring to additionally provide organically emerging input from STS and the arts.



In this talk, we foreground our experiences using dystopian science-fiction narratives as a starting point for students to critically reflect on - and play around with - the design choices behind science-fiction narratives they are familiar with - be it from movies, games or literature. Science fiction, long a site for speculative engagements with technoscience, provided a shared framework for participants to explore how dystopian and utopian imaginaries shape understandings of the present and possible futures.

Using specific examples, we traced the narrative decisions shaping these worlds, identifying the contemporary developments they extrapolate and the social, political, and ethical values they inscribe. Drawing on these sensitizing exercises, we then asked students to develop their game ideas featuring a dystopian world of their own making.

Our experience highlights the potential of video games as a heuristic for engaging interdisciplinary groups of students in critical discussions about the future. As sites where technoscientific possibilities are imagined, negotiated, and contested, video games offer a dynamic space for questioning dominant narratives of progress, innovation, and crisis. By making game mechanics and world-building decisions explicit, students can reflect on the values, assumptions, and exclusions shaping technological imaginaries and experiment with alternative trajectories. This approach fosters critical engagement with science and technology and creates a collaborative, creative environment where diverse disciplinary perspectives can intersect—encouraging students to collectively explore more just and inclusive futures.

In this talk, we describe what happened when we used video games in a practical context where an interdisciplinary group of students could develop ideas (world-building) to critically engage with the values, norms, and socio-ecological dimensions of contemporary technoscience. From this experience, we want to raise broader questions relating to how to combine theory and practice with video games, how formats of game jams can be used as a format of public participation (e.g. for vision modulation and technology assessments), and how can these efforts be sustained beyond the classroom?

12 JUNE 2025 14.00 - 17.00

ROOM B2.2.12

ID 708 - The house that YellOw and BoxeR built: Gaming houses as organisational spaces and their role inside the esports ecosystem

Alessandro Franzó, Università degli Studi di Milano Statale

Keywords: esports, organisation spaces, digital ecosystems, playbour

We live in a "ludic century" (Arlt & Arlt, 2023; Zimmerman & Chaplin, 2013), where video games influence our thinking, relationships, and working patterns (e.g., Abend et al., 2019, 2021). While this impact has often been examined through "gamification" (Deterding, 2012), this work focuses on competitive gaming or esports. We aim to demonstrate how gaming has become "workified" (Ahlström & Fors, forthcoming) alongside other leisure activities (Duffy, 2017; Ferrer-Conill, 2018; Yuan & Xie, 2024). Our analysis gets underway from the empirical ground of gaming houses, which exemplify how these environments operate as organisational spaces interwoven with digital ecosystems (franzó & Bruni, 2023). They represent complex socio-material assemblages where human and non-human actors collaborate, transforming "play" into "work" (Taylor, 2012). Gaming houses now play a pivotal role in the professional esports landscape, fostering competitive gaming (Can, 2018; Johnson & Woodcock, 2021; Skubida, 2016). These structures provide living and training spaces for professional gamers and embody organisational frameworks that cultivate their "playbouring" careers (Can, 2018; Johnson & Woodcock, 2021). By integrating digital infrastructure with physical and social elements, gaming houses evolve into sophisticated units that shape gaming practices into formal professional roles, such as pro players. This professionalisation has redefined e-athletes' engagement with their craft, blending entertainment with competition. However, many find themselves in exploitative conditions, caught between being "infrastructured" as prosumers (Bruni & Esposito, 2019; Ritzer & Jurgenson, 2010) or treated as depleting resources (Johnson & Woodcock, 2021; Scholz, 2019). Moreover, gaming houses act as hubs for diverse stakeholders, incorporating human resources like phys-



iotherapists and brand managers to sustain business models that drive esports organisations (Alaimo & Kallinikos, 2019; Franzó & Bruni, 2023). The esports ecosystem benefits from the networking and diversification facilitated by gaming houses, providing pro players with essential support and resources for career advancement. The unique characteristics of these houses hinge on their dependence on vital infrastructures, including stable power supplies and high-speed internet, necessary for optimising player performance. The materiality of gaming houses also significantly impacts their function; they are equipped with spaces designed for work and leisure, enhancing player capabilities while positioning these environments as key hubs for attracting success-oriented content creators. Thus, gaming houses illustrate a dynamic intersection of material and social aspects, continuously balancing work and play. They not only serve as organisational "containers" (Wilhoit, 2018a, 2018b) but can be seen as lively spaces contributing significantly to the broader gaming ecosystem through their role in organising competitive and lucrative gaming activities. In other words, their evolving nature highlights the complex interactions between virtual and physical realms, underscoring their role as influential actors within the esports industry.

12 JUNE 2025 14.00 - 17.00

ROOM B2.2.12

ID 896 - Queer Trauma, Temporal Collapse and the Politics of the Digital

Diana Cage, University of California, Davis

Keywords: The Tearoom

This article examines the role of police surveillance in shaping queer temporalities through an analysis of Robert Yang's *The Tearoom*, a game that reenacts mid-20th-century restroom surveillance and arrests in the U.S.. Situating *The Tearoom* alongside the historical and affective aftermath of the 2009 Eagle raid in Atlanta, I explore how the game collapses past and present forms of surveillance, demonstrating how queer trauma is retriggered by contemporary policing practices. Drawing on Katherine Hayles' concept of the "cognitive nonconscious," I analyse how *The Tearoom* represents surveillance not only as a visible force—through police presence and arrests—but also as an embedded, automated process that alters behaviour on a nonconscious level. The game's procedural design mimics the ways surveillance infrastructures function hegemonically to normalize the regulation of queer bodies.

Ultimately, this article argues that *The Tearoom* foregrounds the mechanics of queer temporality and surveillance in digital play, illustrating how games can serve as critical interventions in histories of oppression while also imagining alternative queer futures through subversive gameplay and historical reenactment.



Panel 31. AI & Democracy: A discourse demanding plurality

Convenors:

Ilaria Mariani, Politecnico di Milano

Marzia Mortati, Politecnico di Milano

Francesca Rizzo, Politecnico di Milano

Marco Deseriis, Scuola Normale Superiore di Pisa

Keywords: AI-enhanced democracy, Democratic engagement, Mediated participation, Public discourse, Sociopolitical implications

Context. In the contemporary technoscientific arena, the rapid development and integration of digital technologies such as AI, data analytics, and automation present a paradox of progress and peril. These technologies herald transformative potential for societal advancement yet provoke substantial fears concerning their impacts. They shape new public spheres and redefine democratic engagement, but also challenge the frameworks sustaining democratic societies. The emergence of genAI illustrates this dichotomy, presenting profound capabilities whose impacts on democracy are yet to be fully realised.

Challenge. AI promises to bolster democratic processes by enhancing the accessibility, dissemination, graspability and digestibility of information, potentially leading to more informed citizenry and participatory engagement. AI-enhanced tools can facilitate the aggregation of public opinion, streamline decision-making, and offer new modalities for citizen interaction with governments and institutions. However, the very attributes that make AI a boon for democratic processes also render it a potential threat, risking to undermine the very foundation of democratic societies. The erosion of public discourse through the proliferation of disinformation, the rise of algorithmic intermediaries that obscure transparency, and the opaque nature of algorithmic decision-making processes pose significant risks. Furthermore, the pervasive integration of AI in digital platforms can subtly shape political behaviours and opinions through mechanisms that prioritise engagement over accuracy, often amplifying sensationalist or divisive content.

Objective. This dual nature of AI places it at the heart of a critical discourse on the future of democracy. This panel engages with these themes, exploring how AI can both bolster and undermine democratic values and processes. It aims to bring a multitude of voices to the stage to represent a spectrum of disciplines. It invites contributions from philosophy of technology, sociology, democratic theory, AI engineering, and the design of democratic practices and tools, aiming to challenge the status quo and enrich the discourse, critically evaluate the ethical implications and practical applications of AI in democratic contexts.

Format. The panel welcomes contributions addressing two specific questions that will be discussed individually: (1) AI impacts on democratic processes; (2) Envisioning the future of AI-enhanced democracy. Experts from theoretical and practical spheres are encouraged to submit their proposals, as we aim at a panel that bridges gaps between theory and application, ultimately contributing to a more informed and thoughtful view on how to implement AI technologies in democratic settings. This format is designed to foster a series of comprehensive and enriching conversations, facilitating a robust debate that deeply explores the nuances and complexities of the topic.

Publication. This panel is the starting point for an international publication on the topic of AI and democracy, specifically in the form of an edited volume featuring contributions from the speakers. This book aims to expand the dialogue initiated during the panel and provide a lasting resource on the topic.



ID 744 - Social justice implies a plurality of technologies that preserves the contingency of future

Teresa Numerico, Università Roma Tre

Keywords: Social Justice, pluralism, Algorithmic interpretation, decision-making procedures, discretionality of rule-following practices

Automated procedures rely on structured sets of instructions that render associated actions both predictable and inevitable. This approach seeks to transform complex tasks into computable operations, facilitating clearer anticipation and comprehension of their logic. Automation is often regarded as a means to reduce subjective discretion and mitigate the risk of discriminatory bias, particularly in decision-making processes that affect individual rights and opportunities, such as welfare distribution, loan assessments, hiring practices, recidivism risk evaluations, and insurance premium determinations (Numerico 2021).

For automation to function effectively, several foundational activities must be undertaken to establish the standards that guide various aspects of the process. Key elements requiring careful evaluation include: the formalized, quantifiable representation of the problem to be solved; the objective function that defines the optimisation criteria; the dataset used for machine training; the algorithms and latent spaces employed to predict future data patterns; and the similarity function used to align training data with the specific problem at hand (Hildebrandt 2021). These elements are neither purely objective nor strictly rationally definable; rather, they involve discretionary and variable choices (Arrow 2012). Automated systems shape the organisation of pattern research via algorithmic interpretation, that functions as an opaque decision-making entity, shaping interactions in ways that are not purely mathematical but rather the result of a series of undisclosed, discretionary choices (Longo 2023).

Lorraine Daston's *Rules* (2022), drawing on Wittgenstein's *Philosophical Investigations* (1953), underscores that following a rule inherently requires interpretation. Likewise, in machine learning applications, the pre-definition of numerous variables is a prerequisite for making predictions. Wendy Hui Kyong Chun's *Discriminating Data* (2021) highlights how algorithms cluster individuals based on correlated traits, often disregarding the historical and systemic factors underpinning these traits.

This analysis highlights the necessity of a situated, context-sensitive approach to judgment – one that ensures accountability, particularly when automated decisions shape individuals' futures and influence their ability to reclaim their rights. To uphold democratic principles, equity, and social justice, it is crucial to recognize the inherent power dynamics and positionality embedded in every decision. A genuinely democratic decision-making process must embrace a plurality of perspectives and intersectional subjectivities, rather than relying on ostensibly neutral computational methods. True justice demands politically accountable, negotiated choices rather than the illusion of objectivity provided by probabilistic and statistical models. The reliance on artificial intelligence as a universalistic decision-making framework risks reinforcing systemic biases and undermining the democratic imperative for transparency and responsibility.

Ultimately, decisions affecting individuals must acknowledge explicitly value-laden criteria that ensure accountability and recognize the uniqueness of each citizen—acknowledging that everyone is inherently singular, incomparable, "queer" in their irreducible singularity.

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ID 165 - Framing Democracy in the AI Era: Media, Privacy, and Ethical Governance

Federica Fornaciari, National University, San Diego

Keywords: AI ethics, privacy, democratic engagement, framing, technological sublime.

What happens when the tools we create to solve problems begin to redefine the problems themselves? This presentation investigates the research question: How do media frames shape public understanding of the challenges and opportunities emerging in the AI era? The study uses critical discourse analysis (van Dijk, 2015; 2023) to explore how media narratives emerge and their potential to influence public opinion on privacy, governance, and societal inequalities.

Integrating artificial intelligence (AI) into societal landscapes can reshape public discourse, privacy, and citizen engagement, driving structural transformations that illuminate the complex interplay between AI, democratisation, and autocratisation. Research shows that AI-driven transformations can restructure political power, alter citizen-state dynamics through hyper-personalisation, deepen polarisation and apathy, and intensify global competition between democratic and authoritarian regimes over technological capabilities and governance norms (Cupać, Schopmans, & Tuncer-Ebetürk, 2024). Building on these premises, this presentation examines AI's dual role in enhancing participatory governance while exacerbating privacy commodification and societal inequalities. Drawing on longitudinal research into privacy in media narratives (Author, 2018; Author, 2024) and sociopolitical contexts, it critically assesses the ethical and democratic challenges posed by AI's rapid development, investigating how these issues are framed in media coverage.

Media narratives have historically shifted from framing privacy as a fundamental right to portraying it as a transactional commodity (Author, 2018; Campbell & Carlson, 2002; Fried, 1990; Moor, 1997; Warren & Brandeis, 1890). This commodification reflects an individualistic, interest-based perspective on privacy, reducing personal data to a quasi-economic asset (Allmer, 2011; Gavison, 1980). AI accelerates these trends, enabling large-scale data aggregation, predictive analytics, and behavioural targeting. The resulting erosion of privacy is compounded by AI's ability to shape public opinion through algorithmically curated content that often prioritizes engagement over accuracy. How are media narratives framing these evolving challenges?

Through the lens of the "Technological Sublime" (Nye, 1994), this presentation explores society's simultaneous awe and unease toward AI. This duality mirrors broader cultural narratives, where technological advances inspire optimism about progress and fears about their implications for autonomy, equality, and democracy. Technologies such as deepfakes and algorithm-driven misinformation further erode public trust, highlighting the urgent need for robust media literacy initiatives and regulatory safeguards (Chesney & Citron, 2019; Diakopoulos & Johnson, 2021; Meskys et al., 2020).

The presentation underscores the need to renegotiate ethical frameworks to address the challenges posed by evolving technoscientific landscapes. It advocates for a multidisciplinary approach—drawing on sociology, media studies, and AI ethics—that prioritizes transparency, accountability, and the intrinsic value of privacy as pillars of democratic resilience (Allmer, 2011; Gavison, 1980; Warren & Brandeis, 1890). Emphasizing the importance of balancing AI innovation with ethical governance, inclusive design, and systemic bias mitigation, the presentation highlights strategies to ensure AI serves as a tool for democratic empowerment rather than control. By situating the commodification of privacy within broader socio-political shifts, this work contributes to critical discussions on privacy, AI ethics, and democracy. It calls for reimagining privacy not as a transactional commodity but as a collective right essential to sustaining democratic engagement in the AI era.



13 JUNE 2025 09.00 - 11.00

SESSION 1

ROOM B3.1

ID 624 - Journalism and AI: an ethnographic study of negotiating practices in knowledge production

Marco Rosichini, Università Cattolica del Sacro Cuore di Milano

Keywords: Algorithmic gatekeeping, Knowledge production, Journalistic ethics, Democratic implications, Ethnography

AI is fundamentally reshaping the timing and production practices involved in newsmaking, challenging the traditional role of journalists as intermediaries and gatekeepers of information. This shift has significant implications for democracy and citizen activism. The emergence of algorithmic gatekeeping alongside traditional practices raises critical questions: while such systems may enhance the accuracy and diversity of news, they also risk reproducing social inequalities and biases. This, in turn, threatens journalism's normative role as a facilitator of public knowledge.

Informed by Anthony Giddens's structuration theory, this research project investigates the recursive relationship between human and machine agency, exploring how journalists negotiate, resist, and adapt to AI tools in their daily workflows. Using an ethnographic approach, the study involves participant observation in two newsrooms based in Milan, selected for their openness to algorithmic tools, engagement with AI ethics research, and editorial orientation. Semi-structured interviews, conducted through theoretical sampling, and digital media diaries further capture journalists' reflexive interactions with AI systems. The findings are expected to highlight journalists as active agents, demonstrating their ability to negotiate and influence AI systems in ways that uphold journalistic ethics and autonomy.

Since the ethnographic research will only commence in February 2025, this contribution focuses on the study's theoretical framework and methodological design, providing preliminary reflections about the dual role of journalistic gatekeeping. The research aims to deconstruct how journalistic practices mediated by AI can either empower or constrain citizens' access to public knowledge, ultimately shaping the dynamics of democratic oversight, inclusion and participation.

13 JUNE 2025 09.00 - 11.00

SESSION 1

ROOM B3.1

ID 771 - Designing for Democracy. Recommender Systems as a Challenge for Digitalized Democracies

Nikolaus Poehhacker, Universität Graz

Keywords: AI, Recommender Systems, Democracy, Publics, Discourse

Can a recommender system be democratic? And how can we understand such algorithms not only as technical, but also as social and political phenomena? Based on two projects on machine learning driven recommender systems I raise questions not only about organisational and technical implementation, but also about the possible compatibility of such an algorithmic system with democratic societies. The first project provides ethnographic insights on the development of a recommender system in a public broadcaster (Poehhacker, 2024) the second on conceptual questions about social media recommender systems for good (Lasser, 2024).

Public broadcasting is a central element of democracies (Jauert & Lowe, 2005). By distributing a broad and diverse compilation of news on political, social, and cultural events and debates, public broadcasting enables the citizens to make informed decisions and involve themselves in public debates. By doing so, public broadcasters fulfill their constitutional obligation, e.g. as defined in Art. 5 of the German constitution (Grassmuck, 2014). At the same time, the viewing habits of the citizens have changed and recommender systems are an integral part of the new media ecosystem. This creates a tension, as recommender systems are detrimental to the idea of a "diverse information diet" (Helberger, 2015). To the contrary, they are



made to filter information out and provide information that matches the users' viewing patterns. Public broadcasters are now facing the issue that they need and want to implement recommender systems, but need them to operate in a different way. At the same time, recommender systems on social media sites are built to bind users on the platform and favor emotional and extreme posts over more rational and toned-down ones. This has a detrimental effect on democratic discourse and some scholars argue that this leads to increased polarisation of the digital discourse (Stray et al., 2022). There are some efforts to build recommender systems "for good" (Helberger, 2011; Harambam et al., 2018; Poehhacker et al., 2018), but they are raising the question how we define good and more importantly, how we can root such an algorithmic design in a socio-technical theory of contemporary democracy and build recommender systems that are compatible with democratic ideals.

Based on the two outlined research projects I discuss the challenges of translating broad, ambiguous, and processual notions of democratic discourse and democracy into algorithmic design and how recommender systems challenge traditional conceptions of the public sphere. I will also touch on the question, how the formalisation of these otherwise discursively negotiated concepts, such as diversity in information provision, might create a need for modes of intervention in the changing institutionalisation of digital democracy.

13 JUNE 2025 09.00 - 11.00

SESSION 1

ROOM B3.1

ID 339 - (Dis)empowering AI? Power Dynamics in AI-Based Citizen Participation Projects

Francesco Nasi, Università di Bologna

Keywords: artificial intelligence, democracy, democratic empowerment, power, citizen engagement.

Citizens' widespread feeling of political alienation, and especially of political powerlessness, is one of the main challenges liberal democracies are facing. This refers to the perception that ordinary people's voices have no influence and that their actions cannot effect change in the political landscape. Recently, one proposed solution (or, at least, mitigation) to this issue has been the integration of artificial intelligence (AI) in citizen engagement and participatory processes. AI for democratic participation is often viewed as a means to address democratic malaise by bridging the gap between citizens and institutions. It can be incorporated into democratic practices in various ways, such as analysing crowdsourced citizens' opinions, facilitating deliberative discussions, and generating consensus on public policy issues. While some research has explored the technical aspects of these initiatives, focusing on developing tools for new forms of citizen participation, there is a significant gap in understanding these phenomena as social processes. This approach would move beyond technical considerations to examine the imaginaries, meanings, and power dynamics associated with the use of these technologies in participatory processes, attempting to understand if the use of these tools will be able to foster democratic empowerment.

Democratic empowerment is far from a straightforward process, though. As scholars such as Clarissa R. Hayward and Barbara Cruikshank have argued, any empowerment process necessitates the existence of a power structure that both limits and enables specific areas of action. For example, in deliberative processes where AI is used as a facilitator, authority must be partially delegated to the algorithm. Similarly, while AI-driven crowdsourcing amplifies individual voices, it also confines participation to specific frameworks and topics. The issue of empowerment and disempowerment is particularly relevant in light of existing discussions about the power of algorithms and the complex power dynamics involved in AI use and production, as critical data scholars suggested in their research.

This work explores the dual role of AI technologies in both empowering and disempowering citizens within participatory projects. By relying on the literature on power and democratic innovations, I developed a framework for analysing power in AI-based participatory process. I use this framework for comparing different uses of AI for citizen engagement, aiming to understand how power dynamics are negotiated within these initiatives and how they contribute to citizens' empowerment.



13 JUNE 2025 09.00 - 11.00

SESSION 1

ROOM B3.1

ID 698 - Imperfectum Prototyping and Democratic AI Design: beyond technocentric solutions

Chiara Poletti, Swansea University

Ginevra Terenghi, Brunel University

Beatrice Gobbo, Politecnico di Milano

Keywords: Imperfectum Prototyping, Democratic AI Governance, Participatory Design, Deliberative Technology

On 13 January 2025, the UK Labour party unveiled a new AI plan aimed at positioning the UK as a global leader in technology, vowing to "mainline AI into the nation's veins" to revolutionise and rescue the country's weakened public services (UK Government, 2024). This reflects a broader trend in political justifications for AI's integration into democratic processes, often shaped by AI epochalism (Leslie, 2022): a technocentric, presentist perspective that portrays AI as uniquely transformative while overlooking its socio-historical contexts. However, a tradition of research started with big data and platforms (Gillespie et al., 2020), has demonstrated that these political views often ignore the inherent uncertainty, inequity and unaccountability of AI-driven governance (Eubanks, 2018; Dencik et al. 2018).

This paper introduces the concept of imperfectum prototyping as an alternative approach to AI integration in society, borrowed from design approaches (Gobbo et al. forthcoming). Imperfectum prototyping argues that AI integration in democratic settings should be treated as an evolving, contestable process rather than a fixed technical solution. It builds on participatory design traditions (Delgado, 2023; Gourlet et al., 2024) to conceptualise AI not as a finished system but as an iterative, open-ended democratic experiment (Gobbo et al. forthcoming; Marres et al. 2024). Through participatory design methodologies, we are interested in co-creating AI governance frameworks where citizens, policymakers, and technologists can collectively shape the governance of AI systems in ways that remain open to revision and contestation. By foregrounding democratic deliberation, pluralism, and reflexivity in the adoption and implementation of AI systems in democratic societies, this contribution aims to stimulate a discussion on concepts that counteract top-down, technocentric approaches to AI governance models.

13 JUNE 2025 09.00 - 11.00

SESSION 1

ROOM B3.1

ID 772 - YouTube – a space for discussion or a tool for polarisation? The case of films starring Volodymyr Zelensky

Ilona Dabrowska, Uniwersytet Marii Curie-Skłodowskiej

Keywords: online discourse, mediated participation, social media, polarisation, bots and troll farms.

Political polarisation is an important phenomenon in today's democratic society. Understanding the degree of hermeticity of various environments allows us to determine the extent to which society is willing to discuss and seek common solutions. Modern social media is an area of operation of algorithms that lock Internet users in information bubbles. YouTube is one of the most important pillars of contemporary culture and metaculture. There are many options on this website that allow users to express their opinions - also on ideological or political topics. However, more and more often, the comments published there include the voices of not only real people, but also bots.

The aim of my presentation is to present the nature and specificity of comments posted in selected audiovisual materials presenting the President of Ukraine Volodymyr Zelensky, published on the Polish version of YouTube, and to try to answer questions about the occurrence and scale of polarisation in this area. The study used the case study method and content analysis. The scientific reflection aims to show the scale and nature of comments published on the Internet in the context of events related to Russia's armed attack on Ukraine, as well as to analyse the language used by YouTube users when posting comments.



The study covered 650 comments published on YouTube over twelve months - from May 2023 to May 2024. All collected comments were subjected to quantitative and qualitative analysis. The comments are described in terms of thematic scope. The indicated goal will be achieved by answering the following research questions: (1) Is there a clear polarisation of opinions in Internet users' comments published under selected films? Additionally: (2) Which of the comments included in the study constitute the largest percentage? (3) What are the characteristics of the comments included in the study? (4) Are comments posted by bots visible, and if so, what are their characteristics?

The study showed a clear division between pro- and anti-Ukrainian posts, with 51% of comments expressing criticism of Ukraine compared to 49% of comments expressing support. The comments included in the study include brutalisation and vulgarisation of language, as well as hate speech, which is often directed towards Ukrainian citizens. You can also see content that may have been generated by bots or internet troll farms. Thus, the discussions become specific - they intertwine the voices of real people with entries made "on request". Additionally, failure to remove comments containing hate speech means that this practice is becoming more and more common. The structure of modern social networking sites and the possibilities of conducting discussions on the Internet favor short exchanges of opinions, in which the more aggressive user usually wins the polemic - and this user more and more often turns out to be a "ghost" - an Internet user behind whom there is a computer system or a specific order.



ID 268 - Contesting AI Futures: Social Movements and AI Practices

Luigia Tricase, Università di Bologna

Alice Mattoni, Università di Bologna

Keywords: Artificial Intelligence, Social Movements, AI-Related Practices, Prefiguration

Dominant narratives about AI often come with promises of AI's potential for improving democracies, often depicting these emerging technologies as able to have a profound and positive impact on societies. In so doing, such dominant narratives sometimes frame AI as inherently revolutionary, mostly resting on the industry utopias, discursive closure and technological sublime of narratives that the tech companies behind AI development elaborate and that governmental actors also uncritically embrace.

If promises of democratic improvement are prominent among dominant narratives, they are problematized in the grassroots political arena. Civil society actors often develop critical accounts of how institutional actors, including governments, parliaments and public administration bodies employ – or plan to employ, AI technologies. Furthermore, they develop contentious and re-politicized visions of AI technologies, putting into question their overall revolutionary value for societies. Despite their relevance in challenging mainstream understandings and employments of AI technologies, grassroots political actors' takes on AI are yet to be explored in a systematic empirical manner, also concerning their ability to put forward novel ways of understanding the role of emerging digital technologies, such as AI, in sustaining and reshaping democracy.

This paper draws on empirical ethnographic research revolving around participant observation and in-depth interviews with activists to address this gap. Starting from the case study of a social movement network active in two Italian cities throughout 2023 and 2024, we observed and inquired about AI-related practices. Our aim was to discover to what extent AI permeates activist spaces, how it does so, and what alternative meanings about AI activists construct and embed in their AI-related practices. In so doing, we also evaluate the potential of AI-related practices to contest dominant promises and visions of AI, both at the individual and collective level of contention.

While individual AI-related practices were discussed with research participants during interviews, participant observation allowed us to explore collective AI-related practices. The analysis casts light on two types of collective AI practices: those oriented towards the present and those oriented towards the future. Through the former, activists in the social movement network under study elaborate alternative systems of meanings concerning existing forms of AI and its current value in societies, gathering in assemblies to collectively discuss existing AI errors in many sectors of societies, including labor, journalism, human rights and migration, and environmental impact; Through the latter, activists foster the prefiguration of potential AI futures through hands-on experimentation during workshops and labs, in which they not only imagine alternative forms of desirable AIs but also engage in its development through the platforming of prefigurative AI projects. While these AI practices are quite situational and far from implementing long-term alternative forms of desirable AI, their prefigurative orientation brings with it a rethinking of activists' grassroots political participation and engagement with democracy. Indeed, they contribute to combining critiques of dominant, commercially-driven sociotechnical imaginaries of AI with the experimental use of novel forms of AI capable of empowering activist and citizen engagement in AI-infused societies.



ID 513 - AI and climate action: strengthening democratic engagement

Beatrice Gobbo, Politecnico di Milano

Maximiliano Ernesto Romero, Politecnico di Milano

Keywords: climate change adaptation, deliberation processes, artificial intelligence

As part of its mission to foster inclusive, sustainable, and scalable climate adaptation and resilience solutions, the EU-funded project NEUROCLIMA (GA 101137711) explores the intersection of artificial intelligence (AI), climate adaptation governance, and deliberative democracy. By leveraging digital tools and participatory frameworks, NEUROCLIMA aims to enhance citizen engagement and support decision-making, ensuring that AI-driven climate solutions are transparent, equitable, and democratic.

Climate adaptation has long served as a testing ground for deliberative democracy, with structured public engagement mechanisms—both online and onsite—such as citizens' juries, deliberative polls, and climate assemblies playing a crucial role in shaping policies. Examples include ClimAdaPT in Portugal, European initiatives like Europolls, and global multisite consultations such as World Wide Views. More recently, participatory frameworks such as the Brighton and Hove Climate Assembly highlight the continued relevance of deliberative democracy in climate governance. These initiatives offer valuable insights into how deliberative frameworks can shape adaptive strategies that integrate public concerns and scientific evidence into policy processes.

AI-supported systems are transforming climate governance by enhancing early warning mechanisms, risk management, and resource optimisation across sectors such as agriculture, public health, and energy. However, despite advancements, AI-driven climate governance faces critical challenges, including digital (and climate) literacy gaps, stakeholder coordination issues, and the need to build public trust—an essential factor for engagement, policy adoption, and the effective integration of AI. NEUROCLIMA seeks to address these challenges, ensuring that AI technologies foster participatory and democratic decision-making rather than reinforcing hierarchical governance structures.

A priority of NEUROCLIMA is bridging individual and collective climate action. AI-powered tools can help individuals track their carbon footprints and adopt sustainable behaviours, while AI-driven platforms aggregate public opinion, facilitate social interactions, and inform policymakers. By leveraging machine learning and natural language processing (NLP), AI can enhance participatory governance by synthesizing diverse inputs into insights. This research underscores the role of AI-powered deliberative platforms in enhancing democratic systems, with initiatives such as BCAUSE and Decidim Barcelona demonstrating how AI can broaden participation through NLP, network analysis, and data visualisation techniques that improve transparency and public understanding.

This contribution presents a preliminary classification of methodologies and cases operating at the intersection of AI, climate change adaptation, and deliberation. The framework outlines how AI can support different stages of participatory governance, from citizen consultations to policy co-creation. Furthermore, this research contributes to the broader discourse on AI-driven climate governance: while AI offers new opportunities to improve accessibility, aggregate public opinion, and scale citizen engagement, it also raises critical concerns related to bias, transparency, and ethical accountability.

The question remains: How can AI be designed to empower democratic engagement rather than reinforce hierarchical decision-making? Moving forward, NEUROCLIMA's insights will be relevant in shaping AI-driven governance frameworks that are efficient, scalable, equitable, and participatory, ensuring that digital innovation strengthens rather than undermines democratic climate resilience.



ID 213 - Generated common sense: exploring the AI's preferred readings about polarising topics

Maria Francesca Murru, Università di Bergamo

Donatella Selva, Università di Firenze

Keywords: common knowledge, foundation models, hegemony, AI agency

Recent scholarship has highlighted the nuanced ways AI platforms can systematically influence political narratives, with empirical evidence suggests systematic biases in political representation. We refer to the so-called "representational harms" (Katzam et al. 2023) that AI can cause by giving or denying visibility to specific social categories and by privileging some structures of meaning instead of others; likewise, Motoki et al. (2024) revealed that ChatGPT exhibits a systematic bias favoring Democrats in the US and the Labour Party in the UK.

Following this literature, we know that AI outputs result from probabilistic synthesis, reinforcement learning, and interaction setting, potentially mirroring and reinforcing existing hegemonic discourses. In this paper, we want to focus in particular on the role of the interaction setting in the production and reproduction of political narratives.

By focusing on surrogate maternity - a polarising topic in the Italian context - we propose an empirical study inspired by Gillespie (2023). Our approach adopts a triple perspective: 1) an experimental perspective that involves crafting prompts to interrogate two different language models (ChatGPT and Claude), exploring their narrative generation capabilities; 2) a performative perspective that consists in the development of three ideal-types of interrogator - the citizen, the journalist and the politician, as they are both the typical readers and producers of political discourse - to understand how AI vary based on the characteristics of the interrogators (i.e. their gender, nationality, professional status and political leaning); and 3) a discursive perspective, analysing the logic-argumentative strategies, the topics and the vocabulary deployed by LLMs in generating political discourse.

The research is based on 32 interrogations to generative AI models run during November 2024. The key findings highlight the nuanced ways LLMs construct political narratives. In terms of political bias, the research confirms significant left-leaning tendencies in ChatGPT, with political representations influenced by conversational settings and prompt framing. Also, both AI tend to adopt different argumentative frames depending on the user's profile, including legal, ethical, socio-economic, and medical perspectives, but also frames that are more context-specific such as the frame of culture war and the frame of the pluralism of values.

Notably, the research reveals that while AI maintains a semblance of political pluralism, it often reproduces conventional representations. Right-wing narratives consistently lean conservative, emphasizing traditional values, while left-wing discourses focus on social justice and human rights.

The study also exposed interesting model-specific variations. Claude and ChatGPT exhibited different approaches to radical political positions, with Claude more likely to refuse extreme narratives and ChatGPT repositioning them within moderate discourses.

Firstly, the research critically examines the "agency" of AI (Hepp et al., 2024) in narrative construction, investigating how these systems emphasize or marginalize specific aspects of political discourse. Secondly, we highlight how AI tends to reproduce conventional and stereotypical representations (i.e. what we call a "generated" common sense) while paradoxically maintaining a gloss of political pluralism.



ID 689 - AI-augmented public governance – a true chance to reinforce democracy

Sven Schade, European Commission, Joint Research Centre

Eimear Farrell, European Commission, Joint Research Centre

Paula Rodriguez Müller, European Commission, Joint Research Centre

Keywords: AI-augmented societies, Public governance, Democratic systems

From our research on the evolution of public governance and digital transformation, we found that digital technologies might be the only way to remain capable of ensuring transparency, fairness and accountability –fundamental pillars of democratic systems. Contrasting these findings with recent developments in AI reveals a set of dilemmas. For instance, how can we balance transparency and block box algorithms, or balance efficiency with accountability? And how can we promote inclusion and participation over centralising and controlling tendencies? These tensions are further amplified by the swift emergence of generative AI, as its widespread adoption raises new concerns about the impact on public governance and democracy. These challenges rise a key question: How can AI be deployed to both safeguard democratic values and improve decision-making?

From theoretical perspectives and practical experiences, we address this question in a twofold approach. First, we project findings about the impacts of (various forms of) AI onto democratic processes. Second, we apply our understandings of an AI-augmented future to identify opportunities to engage citizens and to enhance democratic processes and participation.

For AI impacts on democratic processes, we note the following:

- While misinformation and disinformation is widely discussed, efforts could focus on content that directly affects democratic values and processes.
- More attention is needed to assess whether AI-driven information truly enhances participation or simply reshapes existing engagement patterns.
- AI and digital technologies could be explored as tools to improve governance processes, making them more democratic and inclusive rather than reinforcing existing power asymmetries.

For the future, we envision AI-augmented societies across the globe – hopefully with people having a voice and choice in this. However, we see opportunities for democratic systems, where AI can enhance collective governance, revitalise citizen participation, promote social cohesion and improve public decision-making:

- Beyond the hype. As AI adoption matures, its integration into decision-making will include sustained human oversight to ensure transparency, accountability, and fairness.
- Political responsiveness. AI-driven insights will support democratic actors in aligning policies with societal needs while maintaining core political values (possibly leading to collective democracy).
- Civic engagement. AI will improve policy communication and create more inclusive mechanisms for public participation and feedback.

With these two perspectives we seek to contribute to a stimulating and insightful debate that will help disentangle the dichotomy between AI and democracy – as perceived today – identifying pathways and policies for its integration that reinforce and future-proof, rather than challenge democratic systems.



13 JUNE 2025 11.30 - 13.30

SESSION 2

ROOM B3.1

ID 193 - A polytopic approach to democratising decision-making on health data reuse in the EU

Anna Colom, *The Open University; The Data Tank*

Marta Poblet, *RMIT*

Keywords: datagovernance, democracy, participation, EHDS, STS

In an increasingly datafied world, reusing data requires rethinking consent and public participation processes about it. First, to ensure the legitimacy of uses, including normative aspects like agency and data sovereignty. Second, to enhance data quality and mitigate risks, especially since data are proxies that can misrepresent reality or be oblivious to the original context or use purpose. Using the case study of the European Health Data Space (EHDS), we propose a polytopic - a multidimensional framework with multiple intersections- approach to democratising decision-making and improving the way in which consent processes are conducted.

The European Data Strategy has inaugurated a suite of regulations for data reuse with the aim to become a global standard. Likewise, the EU AI Act has emerged as a blueprint for governing AI-related risks. Yet, it comes without clear guidelines for how the data underpinning these systems, especially general-purpose models and their 'scrap-it-all' approach to data, should be legitimately used. The pioneering EHDS should enable citizens to access their health data and share it with their healthcare professionals across countries but also enable these data to be reused by researchers, innovators and policy makers. The Interoperable Europe Act, National Data Spaces and federated data infrastructures like the European Open Science Cloud (EOSC) should support this effort. However, concerns about the gaps and potential contradictions across different regulations (e.g. the Data Governance Act, the Data Act, and the GDPR) and across different constituencies remain. This includes the issue of meaningful consent when data is to be reused and therefore applied to secondary uses, different from which consent may have been obtained in the first place. Moreover, as raised by scholars like Hildebrandt (2023), reusing data in an interoperable ecosystem can result in de-contextualised data or distorted interpretations of reality.

It is therefore becoming increasingly urgent to link democratic institutions and practices with data, technology and its users (Casanovas et al., 2017). If we conceive data as a public, non-rivalrous good, we need to make sure that it is exploited for the public good in a participatory, inclusive, and democratic way. In this paper, our theoretical framework combines deliberative and epistemic approaches to democracy as a basis to inform, draft and monitor governance and regulatory frameworks through iterative and multifaceted public participation. This framework includes different dimensions and levels, such as the type of democratic process, the level of power redistribution in participation, the micro, meso and macro scope of governance (from transnational governance and regulation, to the governance of data collaboratives and intermediaries). The EU's vision of technological and data sovereignty can only be achieved through polytopic and interlinked two-way, inclusive, and participatory processes of deliberation and decision making.

13 JUNE 2025 11.30 - 13.30

SESSION 2

ROOM B3.1

ID 274 - Urbreath: AI and Participatory Sensing for Environmental and Democratic Resilience

Francesco Mureddu, *The Lisbon Council*

Keywords: AI-enhanced democracy, Participatory sensing, Environmental justice, Citizen engagement, Algorithmic governance

In the face of escalating environmental and democratic challenges, the Urbreath project pioneers an innovative integration of AI-enhanced participatory sensing to foster informed citizen engagement, public discourse, and evidence-based policymaking. By leveraging cutting-edge artificial intelligence, Internet of



Things (IoT) technologies, and collective intelligence methodologies, Urbreath empowers communities to monitor air quality, assess urban sustainability, and actively participate in shaping resilient and equitable urban policies.

Urban environments are increasingly subjected to air pollution, a pressing challenge that impacts public health, economic productivity, and overall well-being. Traditional air quality monitoring approaches, often centralized and sporadic, fail to provide the granularity and immediacy required for effective urban governance. Urbreath addresses this gap by deploying a decentralized network of AI-powered sensors and citizen-generated data streams, facilitating real-time environmental monitoring and fostering a democratic dialogue around urban air quality. The system not only provides open-access, real-time pollution data but also integrates AI-driven analytics to model urban dynamics, identify pollution patterns, and suggest mitigation strategies.

At the core of Urbreath is the democratisation of data access and decision-making. The project enhances citizen engagement by enabling individuals and local communities to contribute, interpret, and act upon environmental data through user-friendly digital platforms. AI-based tools translate complex environmental indicators into comprehensible insights, fostering broader participation and empowering citizens to co-design solutions with policymakers. By situating participatory sensing within the discourse on AI and democracy, Urbreath exemplifies how emerging technologies can both enable and challenge democratic processes. While AI enhances public awareness and deliberation, it also introduces ethical considerations regarding data ownership, algorithmic biases, and digital equity.

Urbreath aligns with the broader discussion on AI-enhanced democracy by illustrating how technological advancements can bridge the gap between environmental science and participatory governance. It contributes to the conference panel's exploration of AI's dual role in democratic processes by demonstrating how AI-driven public engagement can enhance transparency, accountability, and inclusivity. At the same time, the project critically assesses the risks associated with AI mediation, such as potential algorithmic distortions of public discourse and the digital divide in civic participation.

By embedding Urbreath within the framework of AI and democracy, this contribution seeks to unpack the sociopolitical implications of AI-driven environmental monitoring, offering empirical insights into how AI can either reinforce or erode participatory governance. The project presents a replicable model for integrating AI-enhanced sensing with deliberative democratic practices, advocating for responsible AI adoption in civic ecosystems. Ultimately, Urbreath reimagines the relationship between technology, democracy, and sustainability, offering a blueprint for a more resilient, data-driven, and participatory urban future.



12 JUNE 2025 14.00 - 17.00**ROOM B3.3**

Panel 33. Digital Inclusion and Disability: Theoretical, Methodological and Ethical Challenges

Convenors:

Fabiana Battisti, Sapienza, University of Rome

Lorenzo Dalvit, Rhodes University

Keywords: disability; digital inclusion; participatory process; social inequalities

Digital inclusion is often credited with the potential to address social inequalities and benefit members of marginalised groups. Among these, people with disabilities are of particular interest. While they account for a considerable portion of the population in every country, they are often under or mis-represented in the online domain and accessibility of Web portals or resources is often treated as an afterthought. Along with the emergence of social justice demands directly formulated by people with disabilities in the United States (Berne et al., 2018), a growing number of studies highlight the problematic nature of negotiating power in digital terms (Ellecessor, 2022). There have also been reflections on the need for new models of AI design and use, especially for public administration, informed by perspectives suggested by disability studies, among others, and hopefully more equitable and open to diversity in intersectional terms (Zhang and Goggin, 2024; Newman-Griffitt et al., 2023; Goggin and Soldatic, 2022). For this panel, we seek theoretical, empirical contributions or case studies that address the emerging challenges of conducting research on digital inclusion and disability at different levels. Considering digital devices, search engines and AI as socio-technical devices to which specific imaginaries are attached, we focus on the declinations and the role that social vulnerability, such as disability, plays and can play. Against over-reliance, we welcome elements, practices and case studies that enable an imaginary that is increasingly sensitive to the limits of digital artifice (Bory, 2024) and highlight unexpected, alternative and preferably participatory practices of use. For instance, in terms of macro design, existing theoretical models need to be reviewed and new ones developed in order to correctly conceptualise the new challenges posed by digital technology and its constant evolution. How and to what extent do digital development companies promote an organisational culture open to diversity? Through what methods are local and national public bodies in the global North and South (administrative, cultural and medical) planning to deploy devices and AI that ensure the representation and respect of social diversity and the broad participation of the population? How can scientific research facilitate and promote the process of co-construction from below of new paths of participation and development? In micro terms, how are power asymmetries in methodological issues, such as those posed by algorithmic bias, (non-)searchability, concealment/disclosure of one's condition, etc., perceived and what counter-reactions are suggested? These aspects deserve to be adequately analysed in different fields of application, such as social media, public administration, surgery, prosthetics and medical care, public referendum initiatives, private company applications, etc. Finally, we also welcome contributions addressing specific ethical challenges, ranging from the choice of appropriate terminology to the ability to identify and denounce the dynamics of stigmatisation and micro-aggressions.

12 JUNE 2025 14.00 - 17.00**ROOM B3.3**

ID 318 - Digital Technology for Museum Accessibility. A Framework of Possibilities for Overcoming Sensory Disabilities

Weihuan Hou, Politecnico di Milano

Dina Riccò, Politecnico di Milano

Keywords: Digital Inclusion, Museum Accessibility, the Sensory Impaired, Assistive Technology, Accessible Design

The European Accessibility Act, launched in 2019, indicates the importance of highly accessible products and services for building a more inclusive society. In particular, making the digital world accessible to all



is an overarching issue for contemporary technology-driven societies. The talents that digital technology possesses for creating new modalities of interaction are undergoing an important transformation of application, expanding from serving the general public to benefiting all people, notably people with disabilities, enriching their access to information, and becoming a pivot for accessibility in modern societies. However, digital technology, as a powerful tool for breaking with tradition, needs to be explored in terms of its effective utilisation. The aim of this study is to identify the role of digital technology in enhancing the accessibility experience for people with sensory impairments, particularly in assisting the acquisition of cultural information. This study started with an in-depth exploration of how different types of assistive technologies affect the communication of information for people with sensory impairments through field work on accessible technology solutions exhibited at the Google Accessibility Discovery Centre (ADC). Then we compared the technology provided by four multinational technology companies: Google, Microsoft, Apple, and Huawei to explore how digital technology transforms and facilitates the way people with sensory impairment interact with information. By observing and analysing the application of these digital technologies in living scenarios, we then reflected on their accessibility prospects in the cultural aspect and sought to position the role of digital technologies in the context of museum accessibility. The analysis highlighted that digital technology is undoubtedly a powerful "facilitator" to assist people with sensory impairments to access information more efficiently, accurately, conveniently, and freely, however, it needs to be designed and integrated properly into the accessibility experience in order to maximize their supportive potential, otherwise they may create unexpected barriers. Finally, we defined the roles that different types of digital technologies may have for different accessibility needs, drawing on the principles of accessible design, and we created a diagram of the potential for these assistive technologies to be used as solutions to enhance access to cultural information in the context of museum accessibility, thereby better enabling digital technologies to be meaningfully designed. The diagram can also be used to guide the optimal adoption of assistive technologies in museum accessibility projects.

12 JUNE 2025 14.00 - 17.00

ROOM B3.3

ID 412 - Decibels, diversity and dirty laundry: deploying concepts of good in crowd-sourced sound apps

Nicole Matthews, Macquarie University

Keywords: mobile apps, crowd sourcing, inclusion

This paper will interrogate the way social good is framed in the development, marketing and dissemination of phone apps that focus on the dangers of noise in public spaces. Each of the three phone apps uses crowd sourcing of data, drawing on phone decibel-meter to collect sound in public spaces. Hush City, developed in Europe, prompts its users to undertake measurements in urban green spaces; ListenAppforSchools, developed in Australia, aims to assess noise levels within schools and universities while SoundPrint, developed in the US focusses on data collection in cafes, restaurants and bars. Such collection of data from "citizen sensors", in the words of Gabrys and Prichard "often promises a relatively friction-free form of empowerment" (2016, 358). The "vision" (Light et al 2018) of these apps situates each as pursuing good in aiming, respectively, towards traffic calming and the greening of cities; educational inclusion; and enabling participation in the social world by hard of hearing or neurodiverse consumers. The paper unpacks moments in which these framings of "technology for good" are challenged in as the apps are deployed, mapping contestation of who gets to define what counts as 'good'.

12 JUNE 2025 14.00 - 17.00

ROOM B3.3

ID 731 - ISENSE: Virtual Reality and Technology Impact of Sign Language in Health Teaching

María Álvarez Cantos, Universidad de Córdoba

Bárbara Gómez Peña, Universidad de Córdoba

P. Aparicio-Martínez, Nursing, Pharmacology and Physiotherapy

E. Yeguas-Bolívar, Computing and numerical analysis

María Dolores Redel, Engineering projects

A. Bisio, Universidad de Córdoba

J. Taborri, Università della Toscana

E. S. Rossi, Università di Toscana

Keywords: Virtual Reality, Health Personnel, Empathy, Education, Nurse, Sign Language

Introduction: The experience of the deaf community offers a complex, unique and enriching perspective that explores different communicative and cultural aspects compared to other communities. Hearing impaired person comprise a minority group who have to overcome diverse barriers to be properly heard and attended in a health environment. Moreover, health professional's low formation in sign language as well as the associated stigmas of this prevent good communication and therefore, a poorer care quality. According to Virginia Henderson's nursing model, currently used in the profession, nursing care aims to meet a person's needs, including communication. Nurses must adopt a holistic and comprehensive view of the individuals they treat to better address their problems within the healthcare context. Doing so enhances the quality of care provided to patients. Thanks to new technologies as Virtual Reality, many studies are prone to use this tool to improve the knowledge of current nurses. However, these studies are focusing on theory-practical skills instead of human psychosocial skills such as empathy.

Objective: the present study aims to determine the current satisfaction level of people with hearing impairment as well as analysing the Virtual Reality's impact in factors such as Health Personnel empathy and knowledge.

Materials and Methods: It encompasses a biphasic study. An Observational study through a survey to explore the communicative issues people with hearing impairment have in health assistance. A Clinical Trial through two learning groups, traditional and VR, to measure which one is more effective in order to train actual and future professionals. Both phases are still ongoing.

Conclusion: The main result expected is a favourable impact among the Virtual Reality, leading to a technological multidisciplinary nursing progress in the aspect of education.

12 JUNE 2025 14.00 - 17.00

ROOM B3.3

ID 766 - Towards Inclusive Open Science Practices in Indonesia: Addressing Diversity and Equity

Ria Ariani, Technische Universität Berlin

Keywords: Open Science, Ethical Considerations, Inclusivity, Diversity, Equity

Open science is often celebrated as a premise to more accountable and actionable initiative in the global research practice. It advocates democratizing knowledge production and dissemination. However, ensuring inclusivity within open science practices remains a challenge, particularly in a multicultural country like Indonesia. Socio-economic disparities, linguistic barriers, and unequal access to scientific infrastructure may hinder equitable participation in research and data sharing. Furthermore, hegemonic epistemologies frequently gain prominence in global open science initiatives which marginalize indigenous knowledge systems and under-representing scholars from the Global South. This study employs a literature anal-



ysis approach to examine ethical challenges in open science, with a focus on cultural sensitivities, indigenous knowledge protection, and participatory research methodologies. By critically assessing existing policies, frameworks, and community-driven initiatives, the study identifies key barriers to inclusivity and proposes strategies for fostering a more equitable scientific ecosystem. By addressing the complexities of Indonesia's ethnic diversity, this study contributes to the discourse on decolonizing open science and offers a model for implementing more equitable research practices. Ultimately, fostering inclusivity in open science is essential for advancing knowledge co-production, promoting cross-cultural collaboration, and ensuring that scientific advancements benefit everyone. The findings provide insights for policymakers, researchers, and institutions in Indonesia to promote a more inclusive and just environment in open science practices.



12 JUNE 2025 09.00 - 11.00

ROOM B2.2.12

Panel 34. The Good, the Bad, and the Neutral. Exploring the Materiality-Temporality Nexus of Large Technological Infrastructures

Convenors:

Lara Marziali, Politecnico di Milano

Ginevra Sanvitale, Trinity College Dublin

Keywords: Large technological infrastructures, material politics of technology, materiality, non-human actors, temporality

Technological infrastructures constitute the fabric of our modernity (Edwards 2003; Högselius et al 2016). From communication to transportation, from healthcare to agro-farming, from energy production to border control, most human activities rely on the existence of vast and interconnected sociotechnical systems. Yet, defining what constitutes a "good" infrastructure is a complex task. Occurrences of "infrastructural unrest" (Allen 2021) testify to the conflicted genealogy of many large sociotechnical projects, including their often problematic relationship with the natural environment and with non-human life. But we can also think with new "infrastructural ontologies" that moves beyond anthropocentrism (Barua 2021), and can broaden the conversation on what "good" technoscience could or should be today. Paraphrasing from Kranzberg's laws, infrastructures are «neither good nor bad; nor they are neutral.» (Kranzberg 1986) This panel engages in particular with the material and temporal dimensions of what constitutes "good" infrastructures. The nexus between materiality and temporality helps us understand the agency of human and non-human actors in the making of infrastructures (Hansen and Schulze 2021); fosters engagement with questions of maintenance, repair and decay (Barry 2020, Ramakrishnan et al 2021); and ultimately shows the "unbuilt and unfinished nature" of infrastructures (Carse and Kneas 2019). The materiality-temporality nexus also encourages us to experiment with the spatial dimension, looking beyond and across national boundaries. For example, investigations on the materiality of digital technologies show the existence of global assemblages in digital flows, connecting hardware and software production beyond their traditional separation (Rella, 2023); engaging with the temporal dimension reveals the significance of transnational identity-building narratives in the making of research infrastructures (Mobach and Felt, 2022). Questioning the materiality and temporality of infrastructures not only opens a window into the past, but also into the future, driving us to reflect on professional, humanitarian, and planetary sociotechnical challenges (Balbi 2017; Esguerra 2019). Investigations of the materiality-temporality nexus are thus uniquely suited to challenge ideas of an absolute and timeless "goodness" in technology infrastructures, as well as to expand our definition of what such "goodness" could be. We welcome papers from diverse disciplinary backgrounds which look diachronically (either towards the past or the future) at the relationship between practices and definitions of "good" technoscience and the materiality of large technological infrastructures. How does a technological infrastructure become "good" -or stops being good- throughout the different phases of its life-cycle, from planning, to deployment, to maintenance, to dismissal? What kind of relationships between human and non-human actors are established over time by the materiality of a "good" (or not good) technological infrastructure? How did different political actors assess the sociomaterial impact of "good" or "bad" infrastructure projects through history? Whose values and epistemologies inform(ed) hegemonic discourses on the material politics of future "good" infrastructures? What does a "good" after-life look like, for a dismissed "bad" technological infrastructure?



ID 178 - Harmonisation, conveniency or mandatory solution? How compatibility shapes networks

Lara Marziali, Politecnico di Milano

Keywords: compatibility, supercomputers, scientific networks, CINECA, INFN, standards

Drawing upon archival documents and interviews, this presentation focuses on the scientific network built before the Internet era in the 1980s, connecting University of Bologna's Departments, CINECA (Interuniversity Consortium of the North-East for Automatic Calculation) and other scientific groups within INFN (National Institute of Nuclear Physics). I address compatibility as an issue that underlines how materiality drove the building of this scientific network. Materiality is here seen through the lens of compatibility: the "harmonizing effect" of interfacing different nodes within a network.

A wide range of studies have shown how standards are important because «they embed ideological and political goals in material infrastructure» (Ward, 2024: 117). The standards war in the Eighties for Internet protocols underlines how the digital is embedded with political gains and denies the presentist and teleological vision of "the winners" (Russel, 2014; Schafer, 2015). Internet has academic roots (Abbate, 1999; Haigh and Ceruzzi, 2021) and one the key-issues in early networks was sharing data between different machines. To solve this, scientific institutions overcame the problem of compatibility through a shared protocol rather than shared code (Haigh and Ceruzzi, 2021: 164).

Before that, when choosing which hardware to buy, an important factor for research institutions was the compatibility of data programs with other systems of the network. This led to favoring some tech companies over others. For instance, the Department of Physics acquired a VAX 11/730 (by Digital Equipment Corp.) because it was the only compatible option with other scientific groups and CINECA's facilities. This shows how the narration of "the best solution in the market" is not neutral and points out other reasons and reasoning in the material structuring of the network e.g., dropping speed in favor of compatibility, two different strategies in scientific computation's market (Elzen and McKenzie, 1994).

Before shared protocols there was the problem of a shared code. Historicizing this issue highlights the different actors at stake, the political and economic weights of each, and the decision-making that shaped a network bounded in the technical capability of the time. With that in mind, I will point out the relative idea of "goodness" lying behind technical choices.

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12 JUNE 2025 09.00 - 11.00

ROOM B2.2.12

ID 357 - A taxonomy of avian ruins. Sustainability trade-offs in food systems and the afterlives of poultry industry infrastructures

Ginevra Sanvitale, Trinity College Dublin

Keywords: food systems, ruins and ruination, poultry industry, history of technology

Since the 20th century, industrial food production had a crucial role in providing affordable and diversified nutrients to a growing global population. However, the environmental and societal costs of inexpensive, mass produced food are increasingly under scrutiny. In this paper, I discuss sustainability trade-offs in the food industry by focusing on the materiality-temporality nexus of dismissed poultry production infrastructures. The poultry industry is a prime example of the complex bargain between economic, societal and environmental sustainability which sustains low-cost animal protein production. The modern broiler chicken has been pointed as a marker of the Anthropocene (Nicolaisen 2024), its industry-optimised morphology being a sign of the profound impact that the human specie had on the natural environment. From a societal perspective, the poultry industry provides a much needed source of income to impoverished communities, but can also contribute to their further marginalisation (Gray 2014, Piro and Sacchetto 2021).

I present a case study on the company Cip-Zoo (1957-1984), which pioneered industrial poultry production in Italy. By looking at the afterlives of its production infrastructure, I draw a taxonomy of avian ruins meant to explore how dismissed poultry industry locations can become either "sites of dispossession," which remain bounded to circuits of capital accumulation and ruination, or "sites of hope" for imagining and practising new political ecologies (Harris and Mullenite 2024). I focus on three different locations – a farming site, a slaughterhouse, and a feed production site– highlighting their historical significance within Cip-Zoo's productive infrastructure, and how the sustainability challenges which accompanied their life-cycle changed during their afterlives.

12 JUNE 2025 09.00 - 11.00

ROOM B2.2.12

ID 366 - Following the rocket around: Towards a material-temporal topography of large-scale infrastructures

Nina Klimburg-witjes, Universität Wien

Joseph Popper, Universität Wien

Keywords: Large-Scale Infrastructures, Infrastructural ethnography, temporality-materiality nexus, European integration, Outer Space

This paper examines the material-temporal dimensions of large infrastructures and their politics through a topographical analysis of the European Ariane 6 rocket, jointly built by 13 countries. Rockets do not simply ascend; they carry with them an entire network of interests, resources, and infrastructural- and power relations. Following the rocket from political negotiations to European factories and its transatlantic journey by ship to the spaceport in French Guiana, we explore how the Ariane 6 embodies shifting scalar narratives and contested visions of European integration, geopolitical positioning, and infrastructural dis/continuity. We situate the rocket within broader debates on the material politics of large-scale technological systems, highlighting the tensions between its promise of a competitive European space future and the logistical, environmental, and political frictions that shape its development and deployment. By linking STS, infrastructure studies, and Social Studies of Outer Space, our analysis foregrounds how the materiality-temporality nexus of Ariane 6 reflects broader questions about the adaptability, imagined futures, and afterlives of (space) infrastructures. Through this lens, we interrogate the epistemic binaries that separate Earth from space (Battaglia 2005; Messeri 2016), showing how Ariane 6 operates within and is shaped by ongoing discussions about what constitutes a "good" or "failed" European infrastructure in the new space race. Building on a multi-modal body of material collected over two years, we discuss how Ariane 6



embodies contradictions between accelerationist imaginaries of technological progress as put forward by commercial actors in the US and slower, recursive processes of adaptation, socio-technical compromise associated with the European space sector. Understanding the Ariane rocket as a site of infrastructural contestation, we reflect on the "unbuilt and unfinished nature" of infrastructures (Carse and Kneas (2019) in relation to imagined outer space futures and European integration practices on the ground.

12 JUNE 2025 09.00 - 11.00

ROOM B2.2.12

ID 489 - Neither market nor hierarchy... nor network: Thinking around network forms of organisation.

Ashwin Mathew, King's College London

Elisa Dreglia, King's College London

Keywords: networks, technology stack, logic of networks, Chinese technologies, internet infrastructure

Networks are commonly characterised as heterogeneous collections of interconnected entities, with emergent - rather than pre-determined - structure (Clark 2018). Although there are significant insights that have been drawn from this loose definition, whether theoretical (e.g., ANT), empirical (e.g., social network analysis) or political (e.g., "network society"), we argue that existing approaches to defining networks limits a fuller set of analytical categories that are needed to make sense of phenomena that might also be described as networks. To make our argument, we build from our research into the technical communities who operate global Internet infrastructure, and into the expansion of Chinese networked technologies across Southeast Asia. In doing so, we raise questions of when and for whom networks are "good", and how the very notion of "good" infrastructures is contested across multiple actors and scales.

In particular, we draw attention to institutional and ideological imbrications, intertwined modularities and *longue durée* perspectives as factors necessary, and yet often overlooked, to a more expansive understanding of networks, especially when viewing them as a means through which to understand digital infrastructures. From an institutional and ideological perspective, we show how networks often rely on centralised institutions for the development of standards and the allocation of unique identifiers, and how different ideological frames - in this specific case, the US and the Chinese one - provide a different cultural coherence to similar technological assemblages. From a modularity perspective, we argue that networks must be viewed as stacks of related technologies, each with their own interdependencies, rather than only graphs of connectivity, which complicates the view of "Western" versus "Chinese" tech stack. We approach these topics from the perspective of the longer histories and slower times of accretion of material infrastructures through which seemingly spontaneous digital networks get produced, and reflect on their consequences for our understanding of networks in a polarized world.

By introducing these analytical categories, we aim to provide a new lens to understand how networks are implicated in, and produced through, broader sets of non-network relations, many of which cannot be accounted for within the conventional logic of networks. In doing so, we hope to open a new path towards understanding the distinctiveness of network forms, while placing them firmly within the worlds that produce them.



ID 742 - Assembling timelines in 1997 Italy. The biography of a fragment of TV infrastructure on the verge of digital transition.

Simona Casonato, Museo Nazionale Scienza e Tecnologia Leonardo da Vinci, Milano

Keywords: material culture, media infrastructures, historicisation, convergence

My paper draws on the concept of the cultural biography of things (Kopytoff, 1986). I focus on a made-in-Italy device from the 1990s, during the inception of the digital transition: a specimen of "Regia Automatica" ("automated TV direction", RA), a machine to automate timelines scheduling in small TV broadcasting stations.

I propose the reconstruction of the network of relations surrounding the artefact as a way to explore the materiality-temporality nexus.

The RA derives from Mega Cart Players (MCP), US-made machines with robotic arms for automatic playback of archival magnetic tapes, built and marketed from the end of 1980s (Sinden, 1989). Imported in Italy around 1995, the MCP technology underwent an artisanal adaptation into the context of small private Italian TV networks. 'Our' RA is the result of this process: it was produced in 1997 by Elettronica Industriale (EI), a technical branch of Mediaset (owned by the entrepreneur and politician Silvio Berlusconi). The company used to sell the device to regional broadcasters, even competitors. Our specimen was used until 2007 by one of them and is now part of the Museo Nazionale Scienza e Tecnologia Leonardo da Vinci collections.

Under the broad umbrella of media archaeology, many authors recently looked in manifold ways at the material side of communication, often under a hands-on framework and mainly reflecting on old and new media concepts (a most reductive list could be Parikka, 2012; Fidotta & Mariani, 2018; Magaudda & Minniti, 2019; Fickers & Oever, 2022). However, pieces of old communication infrastructures that cannot be easily operated can be analysed through the material culture lens as it is classically understood in memory institutions (Kingery, 1996; Desvallées, 2023). Hence my focus is less on a closing approach – such as in reenactments – than on the socially informed exercise of reconstructing the biography of a "material individual" singularised as a museum cultural good (Volonté, 2009); thus, programmatically frozen as document of the past, as recent as it may be.

By narrowing the scope to a single 'remote' artefact, my aim is to inquire on specific interpretations of goodness in technological innovation with respect to the history of the digital revolution, a powerful techno-utopian paradigm (Balbi, 2022). The lifespan of our RA coincides with the rise of the "new media" paradigm and the establishment of discourses about the digital convergence (see e.g. Negroponte, 1996; Manovich, 2001). The case illustrates how such transformations were materially interpreted in some specific socio-economic and technological contexts: the RA machine embodies an artisanal and labile convergent patchwork, a hybrid assemblage of mechanical, electronic, analogue, and digital solutions, reflecting specific interactions between diverse knowledge systems, production chains, and power structures. The reconstruction of its biography throughout a collegial memory effort follows a museum proved scheme, aimed to include the perspective of a variety of actors (Casonato, 2024). This process contributes to illuminate how the global phenomenon of convergence materially came into being in that corner of South Europe, questioning its universal meaning and its trajectories in time.



ID 803 - Technoscience for the regional: infrastructuring a predictable Mediterranean

Pablo Lima, ERC-CoG DEEPMED project, Universidad de Sevilla

Keywords: ocean sciences, ocean technologies, Mediterranean Sea, Earth System Sciences, co-production

In this paper I problematize technological infrastructures dedicated to Earth surveillance, arguing that the nature of seemingly worldwide observation systems that sustain modern Earth System Sciences (ESS) is not homogeneous but historically and geographically situated. By reconstructing the recent history of oceanographic forecast in the Mediterranean Sea in a context of global environmental ambitions, I show how a basin-wide approach to the history of ocean science and technology may enlighten the nexus of the material, spatial and temporal dimensions of technoscience that link the regional and large-scale perceptions of global change.

Environmental monitoring technologies deployed over the second half of the 20th century portrayed a totalizing image of the Earth as a self-evident, knowable and manageable system. Against this overly naive conception of technology that detaches knowledge-making from world-making practices, the widespread analytical categories of the 'technoscientific', the 'technopolitical' and the 'envirotechnical', have been foregrounded to advocate for a complex picture of how science, technology, politics and the environment are co-produced at a planetary scale. In this proposal I offer a critical engagement with these concepts from a regional lens, arguing that the construction of the planetary as a scale of technology-driven transformations is a historical and epistemological process that grows from back-and-forth feedback with regional-scale actors.

Illustratively, the uniqueness of the Mediterranean Sea and the science conducted therein, located in the middle grounds between the coastal imaginaries of the sea and the incommensurability of the world ocean, appears as a sensible choice to trace the conflicted and heterogeneous spatiotemporal scales implicitly underlying the meaning of a planetary-wide surveillance infrastructure. Over the 1990s, the Mediterranean community became the epicentre of a transition within the discipline of oceanography towards short-term predictive modelling systems that reflected the mismatch between the intended global, long-term scope of ESS and the scale of the available infrastructural capabilities.

Starting in the 1980s, the possibility of real-time prediction of the state of the ocean, namely operational oceanography, was hypothesized as the oceanic analogue of atmospheric weather forecast. Despite the increasingly globalized agenda of the oceanographic community set by ESS, the development of regional marine infrastructures and institutional arrangements at more manageable sizes and in highly populated areas, like the Mediterranean Sea, were instrumental in channeling the demands for marine forecasts into a feasible enterprise.

The predictive power of operational oceanography was restricted to the Mediterranean scale, as it was entirely reliant on in-situ marine sensing technologies, but the invested efforts leveraged and balanced the divergent directions of global ESS and Mediterranean oceanography. This episode reveals how the materiality and temporality of large technological infrastructures impose technical and ontological constraints to the chimera of an infinitely comprehensive understanding of the Earth and force compromises with more tangible humanly scales to overcome such limitations.



12 JUNE 2025 09.00 - 11.00**ROOM B2.2.13**

Panel 35. Technoscience for (Good) Ecological Transitions: What Spatial Justice?

Convenors:

Beatrice Galimberti, Politecnico di Milano

Simonetta Armondi, Politecnico di Milano

Keywords: care, ecological transition, green extractivism, operations of capital, space

In recent decades, the ecological crises of contemporary societies have become so apparent that something needs to be done to stop catastrophes such as climate change. Technoscientific developments are pivotal in the ecological transition mantra. However, they can create marginalized social groups and spaces. Not only philosophers of science and technology, historians and designers but also geographers and other urban thinkers have started to engage with questions of epistemic and spatial (in)justice, while the territorial healing, care and repair perspectives are still in their infancy. Places as productive territories, functional hinterlands, operational landscapes, extractive zones, economic zones, and sacrifice zones are at the core of the study of epistemic and environmental violence, spatial injustice dynamics, and green extractivism unfolded by infrastructures and operations of capital (Mezzadra, Neilson, 2013). The reliance on techno-fix is exemplified by

technoscience innovation related to the strong capital interest in various 'green' markets and 'clean' technologies such as:

- solar parks;
- data centers (requiring technologies with as-yet unknown impacts on water demand);
- logistics hubs (e.g., Special Economic Zones and their borders, or progressive automation resulting in job losses);
- carbon capture and storage;
- critical minerals commodification (e.g., lithium extraction for electric vehicles)

These involve uneven processes, harming and exploiting communities, bodies, and territories they traverse, reconfiguring space and societies in neoliberal terms (Cowen, 2014). This panel points to fostering a multi-disciplinary dialogue around the operations of capital, positioning them as objects of inquiry for researchers in STS, critical geography, economic and political geography, spatial planning, and other fields filling the scholarship lacunae concerning new alternatives opened by care studies (Tronto, Fisher, 1990; Puig de la Bellacasa, 2017), minor studies (Katz, 2017), repair studies (Denis, Mongili, Pontille, 2015) and maintenance as socio-material practice (Jackson, 2014). This session aims to lay the foundations for a discussion that can overcome disciplinary boundaries and bring together distinct concepts and perspectives. We welcome submissions that include, but are not limited to:

- reporting the path-dependency of contemporary technologies, analysing the role of the State, private investors, and local actors;
- acknowledging the sociomaterial impacts of technologies and their consequences for quality, diversity, and justice;
- exploring formal and informal practices that respond to the violence of operations of capital through (also technoscientific) acts of resistance or subversion from within;
- reflecting on multi-disciplinary approaches studying the socio-material alternatives of these operations (through care, repair and maintenance operations).

The panel is open to presentations of a variety of artefacts (e.g., slideshows, papers, videos, short stories, storyboards, or others). Feminist, minor, queer, crip, decolonial, and more perspectives are encouraged. This session is connected to the research project "New Italian Geographies of Logistics. Between Global



Challenges and Policy Responses," which is financially supported under the National Recovery and Resilience Plan, Mission 4, Component 2, Investment 1.1, Call for tender No. 104 published on 02/02/2022 by the Italian Ministry of University and Research (MUR), funded by NextGenerationEU –Project ID: 2022TRFAA5 – CUP: D53D23011390006 – Grant Assignment Decree No. 0001109 adopted on 20/07/2023 by MUR.

12 JUNE 2025 09.00 - 11.00

ROOM B2.2.13

ID 237 - Energy infrastructures and spatial transformations: The Ravenna Energy Hub, Italy

Leonardo Ramondetti, Politecnico di Torino

Keywords: energy projects, urban and landscape transformations, infrastructures, port-cities, ecological transitions

This contribution stems from the ongoing MSCA research Integrating Energy and Logistics Hubs: Sustainable Infrastructure Development in Second-tier Mediterranean Ports at the Interuniversity Department of Regional and Urban Studies and Planning, Politecnico di Torino. The study investigates the redefinition of spaces, environments, and economies in the wake of major European and national investments in logistics and energy infrastructures, with a particular focus on the Adriatic region.

Over the last five years, the Adriatic ports have received over one billion euros from the EU and national governments to modernise their infrastructures (Bodewig 2020; Twrdy and Zanne 2020; Catalano et al. 2022). While most investments prior to 2022 targeted logistics and commerce, the Russian-Ukrainian War has shifted priorities toward energy (Berisha 2023). Current strategies focus on upgrading networks and facilities, diversifying production and supply systems, and accelerating the transition to renewable sources (Falcone et al. 2021). These efforts have spurred a wave of infrastructural projects, driving significant transformations in both inland and maritime spaces. Drawing upon the case of Ravenna, this contribution examines how long-established infrastructural sites are reshaped under the ecological transition mantra, and the challenges these transformations pose to spatial planning.

The port-city of Ravenna, located in northern Italy, provides a compelling context for this investigation. The port was founded by Enrico Mattei in the 1950s as the centre for offshore gas extraction in the Adriatic Sea. Under the impetus of European and national energy policies, the Port Authority, in partnership with local stakeholders, has undertaken several projects since 2020. These are acting on three fronts. First, the production of renewable energy with a 300-MWe offshore wind farm, a 100-MWe floating solar farm, and a 50-MWe energy storage facility. Second, the optimisation of the gas supply chain with a new LNG terminal. Finally, the reclamation of industrial sites and the development of carbon capture storage facilities to stock CO₂ in depleted offshore gas fields. These initiatives aim to position Ravenna as the largest green energy hub in the Mediterranean. However, they carry significant implications for the surrounding environment, including alterations to maritime ecology, changes to the urban landscape through new functions, and increased complexity in the relationship between energy infrastructure, urban spaces, and environmental systems. Furthermore, these transformations are unfolding in a fragile region. The Adriatic Sea is already heavily polluted, and Ravenna has experienced severe flooding over the past two years.

By analysing the energy projects in Ravenna, this contribution reflects on two critical issues: 1) The spatialisation of EU green energy policies and funding; 2) The emergence of new energy landscapes and their environmental implications. These reflections aim to contribute to the discussion on alternative planning approaches and methods for achieving a more sustainable integration of energy infrastructures into existing landscapes.



12 JUNE 2025 09.00 - 11.00

ROOM B2.2.13

ID 392 - Infrastructure, Injustice and Power. Representing the Belt and Road Initiative

Weibo Mi, Politecnico di Milano

Keywords: Logistics Infrastructure, Belt and Road Initiative, Territoriality

As revealed by the topic, in the contemporary world, capital is deeply involved in reshaping the global political and economic landscape through tech-fix approaches. Against this backdrop, an "infrastructure turn" (Dodson, 2017) has emerged as a theoretical and empirical trend. Therefore, this study seeks to explore how tech-fix shapes the quality and justice of territoriality by examining the expansion of a logistic infrastructure on a global scale.

As exemplified, in 2013, China's national government proposed the Belt and Road Initiative (BRI), aiming at enhancing trade connectivity across the Eurasian region. Over the past decade, significant progress was made along the development corridors, including substantial improvements in infrastructure, strengthened trade connectivity, and socio-economic advancements. However, with the deepening impacts of the post-pandemic era and the persistence of global economic stagnation, the declining efficacy and slowing progress of BRI projects have fueled increasingly critical narratives about its future trajectory and scrutinizing the "infrastructure turn".

This study takes BRI as a case, examining the contextualized disparities in expectations across BRI regions and re-evaluating the initiative through a tripartite lens encompassing infrastructure, inequality, and power dynamics (Graham & Marvin, 2001), analysing the narrative and the several representations of the BRI.

The analysis draws upon a combination of literature review, data analysis, internet-based investigations, and preliminary fieldwork. Firstly, the paper will outline the overarching vision and strategic goals of BRI. Secondly, it will delve into the current situation of infrastructure construction and collateral inequalities. Thirdly, it will explore the complex networks of power entities and actors and locate their roles in the implementation of the initiative. Amid the volatile political and economic landscape, this paper provides a more nuanced understanding of BRI, contributing empirical insights for policymakers and urban planners seeking to navigate its challenges and opportunities.

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12 JUNE 2025 09.00 - 11.00

ROOM B2.2.13

ID 511 - Value chains beyond corporate control. Investigating logistical interstices in Barcelona

Laura Eccher, Gran Sasso Science Institute

Keywords: logistical interstices, platform cooperativism, value chain, Last Mile Logistics, Barcelona

The platform cooperative movement has emerged as a key alternative to the dominant platform economy. In Europe, certain segments of this movement have intersected with the undergoing ecological transition in urban spaces, fostering the development of cooperative enterprises in the urban cycling logistics sector. This study advances the concept of logistical interstices through a grounded analysis of the value chain of a Last Mile Logistics (LML) cooperative in Barcelona. It argues that cooperative value chains are more locally embedded and less oriented toward global scalability. Within urban and digital spaces, LML cooperatives prioritise people over profit, fostering value chains that are more inclusive and accessible to



a broader range of actors. Barcelona serves as a privileged vantage point due to the goods distribution system implemented by the municipality, as well as the financial investments in cycling logistics enterprises and cooperative economies.

This research uncovers the economic relations that underpin cooperative economies, contributing to a reassessment of the cooperative movement's role and offering new insights into the geographies of capitalism. Specifically, I conceptualise logistical interstices as spaces where operations of capital are reconfigured through diverse practices, creating intersections between capitalist and cooperative enterprises.

This contribution consists of a presentation introducing the concept of logistical interstices and a short film documenting the everyday life of the cooperative LML in Barcelona. Grounded in extensive ethnographic fieldwork, the study employs participant observation, interviews, shadowing, and autoethnography to reconstruct and analyse the cooperative's economic relations.

12 JUNE 2025 09.00 - 11.00

ROOM B2.2.13

ID 715 - The Post-Logistic Sacrifice

Andrea Foppiani, Politecnico di Milano

Keywords: sacrifice zones, logistics landscapes, Po Valley, post-logistics, ecological renewal

The highly automated and optimized human activities that define logistics are inherently tied to the creation of "sacrifice zones." Logistics, a military-derived discipline focused on spatial organisation and flow management, is fundamentally intertwined with the extractive exploitation of the land. "Logistics landscapes" (Waldheim & Berger, 2008) represent a form of monocultural extraction, a systematic process of resource appropriation that spans centuries of human history, rooted in a quantitative framework that organizes, sacrifices, and transforms human and non-human resources for economic gain.

In its landing on the territory of the Po Valley, such a hierarchy of spaces obliterates other existing forms of land and goods production, sacrificing large portions of permeable ground in the name of a higher profit. Here, fragile rural ecologies are profitably replaced by the "visual order" (Otero Verzier 2019, 119) of logistics developments; the commodification of daily life in our capitalist society continues to imply the commodification of landscapes. Being crushed and sacrificed today, alongside workers' rights, are the survival rights of entire ecologies.

This contribution critically interrogates the ecological potential of an alternative form of "sacrifice." What would occur if the very principle of sacrifice — the spatial ordering and exploitation of land — were reversed? By adopting a post-logistic framework, we can examine the ecological consequences of this shift and reframe logistics not as a finality of land consumption but as an opportunity to leave vital space for new ecologies. In this speculative reimagining, the transformation of agricultural land into logistical zones already contains the potential for ecological renewal, fostering unexpected "assemblages" (Tsing, 2021) that challenge the current condition of extraction and exploitation.

Under a post-logistic paradigm, the sacrificial act no longer pertains to the environmental potential of the land itself but rather to its monocultural use. A fragment of peri-urban countryside does not have to be bound by one unique use defining its large, undistinguished surface: there can be cracks. Along these cracks, a new conception of logistical space is favoured: reversible, itself expendable. This model advocates for a reimagining of logistical space: one that is reversible, adaptable, and, ultimately, capable of returning to ecological cycles.

This paper explores the untapped ecological potential embedded in the Po Valley's environmental and cultural landscape through a series of dismantling scenarios for the components of logistics parks. By shifting the conception of logistics from a system of irrevocable transformation to one that embraces eventual sacrifice and renewal, we can uncover a culturally aware path toward ecological anti-fragility (Taleb, 2013).



12 JUNE 2025 09.00 - 11.00

ROOM B2.2.13

ID 797 - Exploring Techno-Adaptation to SLR: Limits and Opportunities of Land Reclamation Practices in the Maldives

Beatrice Ruggieri, Università degli Studi di Milano - Bicocca

Keywords: Adaptation, Land reclamation, Spatial justice, Infrastructure, Maldives

Despite warnings against relying on technology to solve complex socio-environmental and economic problems, techno-fixes remain prevalent, particularly in climate change adaptation. The deployment of adaptation technologies, often framed as disaster risk reduction and socio-environmental adjustments, reveals a persistent view of climate change as an external stressor, disconnected from societal factors. This technical trap (Nightingale et al., 2020) often leads to short-term gains for selected groups and places, exacerbating inequalities for others as well as neglecting non-human needs. Furthermore, it can mask the perpetuation of infrastructure development and economic growth agendas under the guise of climate adaptation, hindering transformative change.

Land reclamation projects, as technoscientific developments that create new land, expand territories, and protect coastal communities and economies, exemplify this issue. While offering potential benefits, they raise concerns about environmental damages (biodiversity loss, pollution, toxic waste) and socio-economic repercussions, including the rise of "sand wars" (Cipriani, 2022). Although expanding habitable land may seem crucial for some low-lying nations, including small island states, reclamation can lead to irreversible environmental and biodiversity changes, socio-spatial marginalisation and emotional distress, challenging its very conceptualisation as an effective adaptation strategy. How, then, can we assess the effectiveness of such projects?

The Maldives, facing an existential threat from sea-level rise (SLR), has embraced land reclamation as a key strategy for coastal protection and development. However, these large-scale projects are profoundly reshaping the archipelago, geographically, environmentally, socially, economically, and politically. The resulting infrastructural development can potentially exacerbate socio-economic inequalities and socio-ecological problems within this rapidly urbanizing island nation.

This contribution, based on a two-year project funded by the NBFC in collaboration with the MaRHE Centre (University of Milano-Bicocca), explores the central question: given sea-level rise as an existential threat in the Maldives and land reclamation as a potential, yet problematic, response to international mass migration, how can reclamation be implemented more appropriately and in a sustainable and just way? Using quantitative and qualitative data collected in Magoodhoo, Kulhudhuffushi, and Malé Islands (Maldives), this work examines the complex interplay of environmental, social, and economic factors. It argues for integrated planning approaches that prioritize ecological integrity, community participation, and equitable benefit distribution. Finally, the contribution offers preliminary recommendations for research, policy, and practice aimed at mitigating the negative impacts of reclamation and maximizing its potential for long-term resilience in the face of climate change.

12 JUNE 2025 09.00 - 11.00

ROOM B2.2.13

ID 878 - Multiplanetary imaginaries and marginalisation of ecosystemic relationships in space technoscience

Ilenia Picardi, Università di Napoli Federico II

Marco Serino, Università di Napoli Federico II

Keywords: Multiplanetary imaginaries, space technoscience, ecosystemic relationships

In the so-called New Space Age, deep space exploration projects are developing fast with renewed expectations towards reaching new worlds. Currently, 53 countries have joined the Artemis Accords, the deal



promoted by NASA to govern collaborations between private companies and international partners in the Artemis campaign, the space program that aims to land human crews on the Moon and to prepare future missions to Mars. Space technoscience seeks to transcend the limits of human life on Earth and extend it into outer space, challenging the territorial boundaries of the human species. Multiplanetary life is the "grand challenge" (Konrad et al. 2016) that underlies the imaginary of the NASA Artemis program, which aims to expand the frontiers of the territories inhabited by humans first on the Moon, later on, Mars and beyond. In this contribution, we focus on the NASA Artemis program as a case study to explore the inter-sections of coloniality, technoscience, and margin. The analysis investigates the phenomenon of space exploration not only as a territorial translation of human life but also as a symbolic and relational production of space (terrestrial and otherwise), as well as the challenges of the technoscience that enables the exploration of space and its use. Through a qualitative analysis of the NASA public documents, the study explores the sociotechnical imaginaries (Jasanoff and Kim, 2017) that underlie research on space missions to identify the power structures in epistemic relations that new space programs are defining. While the "benefit for all humanity" and the Diversity, Equity, and Inclusion (DEI) values are used as narrative devices to legitimate space missions, space technoscience is designing a complex sociotechnical architecture to build multi-planetary infrastructures to colonise other planets thanks to the advancements of autonomous technologies (Campa et al. 2019). If in past centuries the tension towards global expansion has defined the horizon of modernity, in this century these new expansion aspirations are defining a sort of hypermodernism (Latour, 2018) that translates (Callon, 1984; Latour, 1987) the conceptual boundaries within which to discuss environmental issues and scientific visions dominated by the idea of human exceptionalism (Haraway, 2019). However, what emerges from the analysis of the narratives of space technoscience is that the planet Earth, its inhabitants, and the relevant ecosystemic knowledge are left on the margins. Despite the claimed principle of communitarianism (Merton, 1969), space agencies and private companies are negotiating new "enclosures" (Polanyi, 1944) of Earth's orbits and celestial bodies, and the cosmo-colonial and extractivist reasons seem to be the main forces that move the new space economy. Breaking the relationships between humans and the environment that – in an ecological paradigm – define our identities, the new space race could reinforce technoscientific and geopolitical hierarchies creating new processes of dis-embedding between humans, other species, and non-human actors into the cosmos.



11 JUNE 2025 09.00 - 11.00

ROOM B5.1

Panel 36. Reconfiguration of the City: technology, play, art

Convenors:

Giulia Conti, *Università degli Studi di Modena e Reggio Emilia*

Federico Montanari, *Università degli Studi di Modena e Reggio Emilia*

Keywords: City Reconfiguration, Technology, Urban Art, Urban Play, Urban Playfulness

We aim to explore the intersection of technology, play, and art as vital tools for reimagining urban spaces and adapting cities for the future. As cities face increasing challenges—climate change, social fragmentation, and rapid technological advancements—these tools become essential in fostering more resilient, inclusive, and sustainable urban environments. By intertwining technology, play (and gaming), and various forms of art, we can not only reshape physical spaces but also reconfigure societal interactions, perceptions of urban life, and approaches to community building and social cohesion. Cities are living entities, constantly shaped by human behaviours, culture, practice, and politics. In the context of reconfiguration, urban spaces can be understood as dynamic systems that can be altered through creative interventions. AR and digital platforms reshape urban experiences. Playable cities enable interactive, gamified civic engagement, allowing innovative citizen-environment interactions. De Lange (2015) argues these transform cities into spaces of possibility, where play fosters critique, creation, and civic imagination. Incorporating artificial intelligence (AI) and big data analytics into urban planning and design provides cities with the tools to adapt to evolving needs (Cao et al., 2020; Komninos et al., 2014; Zerza & Park, 2020). For example, interactive public art installations and urban games can transform public spaces into places of collective imagination, allowing citizens to co-create their city's future. Through this lens, technology, art, and play become mechanisms for rethinking urban infrastructure, fostering resilience, and promoting a more engaged and empowered urban population. Rather than focusing on physical renewal, this panel aims to argue that technology and play can equally regenerate the social fabric of cities. Playable cities and gamified urban spaces create environments where citizens can reconnect with their surroundings in new ways, revitalizing their sense of belonging and collective identity (Lange, 2018; Seixas, 2021). This approach fosters social regeneration, where neighborhoods can build stronger bonds, and citizens can participate actively in shaping their environment (Papangelis et al., 2020; Kim, 2018; Conti, 2024). As Horn (2021) illustrates through examples of urban games, these playful interventions act as improvisation technologies, facilitating spontaneous encounters that dissolve conventional social boundaries, allowing for new, temporary forms of collaboration and engagement. This panel will explore the role of participatory art and playable technologies in promoting urban recuperation, tackling requalification, environmental degradation, loss of public space, and social alienation.

List of possible (but not limited to) topics:

- configuration of user experiences and social interactions in gamified urban spaces;
- the role of play in regenerating social connections in fragmented communities;
- "scripts" embedded in urban technologies;
- participatory and/or urban art, community cohesion and collective identity;
- artistic interventions as tools for addressing social fragmentation and environmental challenges;
- social and emotional recuperation through technology and art;
- creative interventions and collective participation in public space reclamation;
- art in tackling urban stress and support for emotional resilience;
- technoscientific imaginaries and their impact on future urban life;
- enhancing collective well-being by reimagining urban experiences.



11 JUNE 2025 09.00 - 11.00

ROOM B5.1

ID 349 - Visual Design of the Sites of Memory in Augmented Reality Applications: The Case of İzmir Kültürpark

*Ahenk Yılmaz, Yaşar Üniversitesi**Burkay Pasin, Yaşar Üniversitesi**Murat Kamesli, Yaşar Üniversitesi**Emre Yıldız, Yaşar Üniversitesi**Duhan Ölmez, Yaşar Üniversitesi**İlke Hiçsönmezler, Yaşar Üniversitesi**Mehmet Işıkkhan, Yaşar Üniversitesi*

Keywords: Cultural Heritage, Augmented Reality, Collective Memory, The Art of Memory, İzmir Kültürpark

This paper focuses on the visualisation of the sites of memory in Augmented Reality (AR) applications for the public good, focusing on their potential to sustain collective memory and urban identity. As urban environments evolve, the destruction or transformation of spaces central to a city's identity leads to their invisibility and eventual forgetting. From a semiotic perspective, the interaction between the observer (urban inhabitants) and the observed phenomenon (lost built environments) depends on effective visualisation strategies that reconstruct meaning. AR technologies offer innovative ways to visualize and reinterpret these lost environments, bridging the gap between past and present through interactive and immersive representations. With the convergence of physically visible features and digitally created appearances of the heritage, not only personal memory of the visitor but also collective memory of the local community is rooted in the site of memory. However, memory entails both remembering and forgetting and what one remembers and forgets in these converged environments depend immensely on the highlighted and neglected qualities of the lost built environments. This paper, based on a research project, explores the effects of different visualisation modes of the lost built environments to enhance the visibility of memory in urban spaces and ensure their sustainability in collective memory through the use of AR technologies.

İzmir Kültürpark (Culture Park) serves as a compelling case study for investigating the role of AR in enhancing the visibility of the sites of memory. Established in 1936 as one of the biggest urban public parks of the new Republic and as the home of International Fair, Kültürpark has undergone extensive changes, leading to the disappearance of many built environments that once symbolized the collective memory of İzmir. The inability to visualize these erased spaces has weakened inhabitants' emotional connections and created challenges for sustaining its urban identity. In the framework of a research project, an AR application has been developed to explore different visual design approaches for selected sites of memory within Kültürpark, including 3D reconstructions, historical overlays, and narrative-driven interfaces. This paper examines how these approaches influence cognitive processes of observers, thereby shaping their experience of memory spaces. The observers' experience is analysed through a method derived from classical memorizing technique of "the art of memory" which is based on placing the images, which are mental representations of memorized thing, in well-ordered and mentally completely constructed loci. This study revisits this technique to delve into the effects of interfaces in shaping memory through different modes of representation created in an AR application prototype. Through this analysis, it identifies visual design criteria for AR applications, emphasizing the importance of balance between historical accuracy, immersive storytelling, and user-centred design and it contributes to the discourse on digital tools in heritage preservation. It demonstrates how AR technologies can strengthen urban inhabitants' connections to their city's past, making lost memory spaces more conceivable. Additionally, the findings align with public policy goals of creating sustainable cities and preserving cultural heritage, offering insights for integrating visualisation tools into urban planning and collective memory initiatives.



11 JUNE 2025 09.00 - 11.00

ROOM B5.1

ID 399 - Museums and Digital Narratives: New Urban Perceptions between Physical and Virtual Space in a Mapping of the City of Reggio Emilia

Enrico Barbetti, Università di Modena e Reggio Emilia

Keywords: Semiotics, Museum, City, Images, Digital narratives

Contemporary cities are increasingly influenced by the convergence of physical and digital space. In this context, museums - traditional guardians of cultural memory - are taking on a new role in urban reconfiguration, thanks to visitors' digital narratives. Posts on Instagram, reviews on Tripadvisor and other user-generated content contribute to creating a shared image of urban space, changing its perception and use, and providing direct feedback on cultural heritage, phenomena and landscapes.

This contribution is part of the research Mapping Perceptions of Reggio Emilia and Enhancing Communities through Digital Narratives, conducted by Prof. Ruggero Ragonese and his team. The study explores the link between digital narratives and urban configuration, with a focus on the perception of the city.

In this paper, the results are presented in particular on the images posted by visitors in the museums of Reggio Emilia: Palazzo dei Musei, Museo del Tricolore, Collezione Maramotti and Chiostri di San Pietro. The research is based on a corpus of data collected from the main image-sharing platforms, such as Instagram. It uses socio-semiotic analysis tools to identify recurring patterns in the descriptions of museum experiences and their link with the perception of the city. A central aspect of the investigation is the identification of the narrative strategies employed by visitors to represent their museum experience. Through a semiotic approach, discursive, enunciative and narrative strategies are examined, taking up the studies of Greimasian generative semiotics (Greimas & Courtés, 1979).

The comparison between the various museums highlights differences and similarities in the modes of objectification and subjectification adopted by visitors, analysing their enunciative dimension (Dondero, 2020). It also highlights the different ways of narrating the museum experience through digital platforms and how these are articulated in various regimes of visibility (Zunzunegui, 2003), expressing values, passionate and esthetic elements. The user-generated contents are compared with the analysis of the museum space as a spatial text (Pezzini, 2011), in order to assess the reciprocal determinations between the meaning generated in the physical space and its media extension, as well as the way it is enjoyed by visitors.

The results are presented as a mapping of the mediated perception of museums in Reggio Emilia, highlighting how these spaces, far from being static, become narrative nodes in which technology, art and community interact to create new urban experiences. Digital platforms, therefore, are not mere communication tools, but true spaces of co-creation, where the city is narrated, reinterpreted and made usable through users' digital narration.

11 JUNE 2025 09.00 - 11.00

ROOM B5.1

ID 403 - Mapping languages in urban spaces: the potential of the app Lingscape

Andrea Ghirarduzzi, Università di Parma

Keywords: landscape, city, language, app, mapping

The so-called Linguistic Landscape (LL) Studies is an area of research which analyses the languages present in urban spaces around the world, and has proven effective in providing useful data on how languages are represented or underrepresented in modern globalised societies.

When the discipline was born, at the end of the 20th century, research tended to focus on the mapping of specific urban areas and on the categorisation of signs according to the languages represented, the prominence of some languages over others and the distinction between "top-down" (official and institutional)



from "bottom-up" (unofficial and private) signs. This phase has been defined as "1.0 LL" (Bellinzona, 2021: 55). Over the years, new tools, such as the app Lingscape, have been created in order to help researchers with quantitative data collection related to LL.

Starting from the New Millennium, research has expanded to include more qualitative data collected among the "actors" of the LL, i.e. speakers who live or frequent the investigated neighbourhood (interviews, walking tours, participant observation, etc.). This phase has been defined as "2.0 LL" (Bellinzona, 2021: 55).

Potentially, the use of apps like the above-mentioned Lingscape can be exploited in various ways, for example in order to make education more mobile and to respond positively to some of the challenges teachers of foreign/second languages, geography and history deal with every day in their classroom.

Yet, since the LL can be intended as a semiotic dimension in which all the speakers are immersed, actively taking part to meaning construction, transmission and negotiation, the potential of the app extends beyond the educational field. In this sense, the direct mapping of urban areas or, as an alternative, the consultation of mappings previously carried out by other people or researchers can be promoted as instruments to give people a better knowledge of the cities they inhabit and/or they visit in terms of language diversity and variety (number of languages and alphabets present in the public space, official and unofficial languages, etc.); language policies (official top-down signs, languages authorized on bottom-up signs, etc.), over- and under-representation of languages, local and national history and geography (place names, dedicatees of streets, historical plaques, dead and local languages).

During my presentation I will talk about the possible uses of the app Lingscape in both educational and non-educational contexts and I will delve into the different tagging functions of LL pictures provided by the app, especially in terms of taxonomies.

11 JUNE 2025 09.00 - 11.00

ROOM B5.1

ID 430 - Is It Still Relevant to Talk About Pokémon Go? Pokémon Go and the Gamification of the Urban Experience

Giulia Conti, Università di Modena e Reggio Emilia

Keywords: Augmented Reality (AR), Urban Gamification, Playable Cities, Pokémon Go

Urban play is emerging as fundamental tools for reconfiguring urban spaces and social interactions. Pokémon Go (PGO), launched by Niantic in 2016, remains a significant case study in urban gamification, integrating geolocation technology to overlay digital experiences onto physical environments. This game incentivizes players to engage with real-world locations, interact with cultural landmarks, and form transient or lasting social connections (Urwin & Flick, 2019). The technological affordances of AR and mobile gaming redefine how individuals perceive and navigate urban spaces, transforming everyday mobility into an interactive and immersive experience.

Despite mobility restrictions imposed by the Covid-19 pandemic, PGO sustained its relevance, demonstrating the adaptability of AR-based urban play in maintaining social connectivity. The game's mechanics encourage users to actively shape their environments and foster community engagement, reinforcing urban playfulness as a driver of social regeneration. Through participatory interaction, players contribute to the ongoing reconfiguration of cities, both digitally and physically.

This paper explores how augmented reality (AR) and location-based gaming, specifically Pokémon Go (PGO), contribute to the gamification of urban environments, fostering social cohesion, participation, and redefinition of public spaces. While research has extensively examined the well-being, the psychological and social dimensions of PGO (Marquet et al., 2017; Urwin & Flick, 2019; Arjoranta et al., 2020; Malik et al., 2019), its role in urban reconfiguration remains underexplored. To address this, a series of qualitative interviews (N=64) were conducted, employing exploratory walks and flânerie as methodological approaches. This study investigates three key aspects: (a) how AR gaming facilitates social bonding among



strangers and strengthens urban connectivity; (b) how urban gamification fosters a sense of belonging and promotes collective identity; and (c) how digital play contributes to the reconfiguration of urban spaces through interactive participation.

By framing Pokémon Go within the broader discourse on playable cities and digital urbanism, this research highlights the evolving role of AR and gamification in shaping contemporary urban life. The findings contribute to ongoing discussions on the intersections between technology, social engagement, and urban transformation, aligning with broader themes of urban resilience, inclusivity, and participatory design.

11 JUNE 2025 09.00 - 11.00

ROOM B5.1

ID 648 - Gamification and urban art in the reconfiguration of the city

Federico Montanari, Università di Modena e Reggio Emilia

Giulia Conti, Università di Modena e Reggio Emilia

Keywords: Urban Spaces, Gamification, Urban Design, Playable Cities, Socio-semiotics

Urban gamification, through interactive and location-based experiences, has been increasingly used to promote civic engagement and reimagine urban spaces. Playable cities leverage digital and analog interventions to encourage social interactions and enhance public participation in city creation (Seixas, 2021; Conti, 2024). Simultaneously, urban art—from street murals to digital projections—has emerged as a means to reclaim neglected spaces, create new narratives, and promote inclusive urban identities (Horn, 2021; Lange, 2018).

In addition to offering a general introduction to the topic, the presentation aims to present case studies of urban gamification and participatory art projects that have successfully contributed to the social and spatial redevelopment of cities. Examples include interactive public art installations, AR-based urban storytelling, and community-driven game design that foster collective engagement and urban resilience (McCartney & Barratt, 2020). By analysing these cases, we investigate (a) how gamified experiences facilitate social connections and community building, (b) how urban art fosters emotional and spatial reattachment to the city, and (c) how technology can mediate new forms of public engagement in urban reconfiguration (Zerza & Park, 2020; Cao et al., 2020). Another theme we find interesting is the issue of conflict, of risk management (think of the return of new "risky" urban parks), as a form of urban transformation.

By framing these phenomena within the broader discourse of playable cities and digital urbanism, and beyond, this paper highlights the role of gamification and urban art in shaping contemporary urban life. The findings contribute to ongoing discussions on the intersections of technology, social engagement and the transformation of urban spaces, aligning with broader themes of resilience, inclusivity and participatory design.

11 JUNE 2025 09.00 - 11.00

ROOM B5.1

ID 654 - The Right to Play, the Right to the City How Children Who Are Used to Playing Independently in the Streets Challenge the Rules and Take Ownership of Their Neighborhood

Agathe Gillet, Independent

Keywords: children's spatial knowledge, right to play, independent mobility

This study explores children's spatial knowledge, autonomy and ability to play within their neighborhoods through walking interviews. Findings indicate that children generally have a good understanding of their surroundings, appreciating their neighborhood despite recognizing its challenges. Independent mobility plays a crucial role in their spatial awareness, with those regularly navigating the area exhibiting greater familiarity and confidence. The desire for autonomy is closely linked to social interactions, as children



highly value mobility that enables them to be with friends. However, mobility constraints, such as distant play areas and adult-organized systems, often limit their independence. Notably, the ability to play in the neighborhood without adult control allows children to question rules and appropriate urban space, fostering a deeper connection with their environment. Differences emerge between children with established neighborhood experience and those newly gaining mobility, with the former demonstrating greater ease, adaptability, and willingness to challenge imposed restrictions. The study highlights the importance of fostering children's autonomy and play in urban spaces to support their development and social integration. Further research is recommended to assess the long-term effects of early independent mobility on adolescent and adult experiences.



13 JUNE 2025 09.00 - 11.00

ROOM B3.2

Panel 38. Entangled Theories and Practices: Navigating Relational Ontologies In and Through Design, HCI, STS, and Philosophy of Technology

Convenors:

Chiara Di Lodovico, Politecnico di Milano/Università degli Studi di Milano

Elisa Giaccardi, Politecnico di Milano

Iohanna Nicenboim, Technische Universiteit Delft

Verena Fuchsberger-Staufner, Universität Salzburg

Virginia Tassinari, Technische Universiteit Delft

Grace Turtle, Technische Universiteit Delft

Keywords: cross-disciplinary dialogue, practice-based approaches, relational ontologies, theory-practice divide

In recent decades, disciplinary boundaries have increasingly blurred, sparking a growing convergence between design and human-computer interaction (HCI) on one side, and science and technology studies (STS) and philosophy of technology (PoT) on the other. Central to this cross-disciplinary dialogue are theoretical frameworks—such as new materialism, agential realism, postphenomenology, object-oriented ontology, more-than-human perspectives, and feminist posthuman approaches—and methodologies—like actor-network theory (ANT)—which have profoundly shaped contemporary thought, challenging traditional human-centred viewpoints, highlighting the relational intricate entanglements between humans, technology, and the environment (Fraueberger, 2019; Giaccardi et al., 2024).

Design and HCI scholars advocate for integrating STS and PoT to generate new insights and introduce robust conceptual frameworks that challenge existing norms and assumptions. In turn, STS and PoT scholars benefit from design and HCI research, which offers opportunities to engage in the making and “unmaking” (Song et al., 2024) of technological artifacts, thus enabling more generative and forward-looking inquiry rather than relying solely on retrospective analysis of existing technologies (Wakkary et al., 2018).

Despite this promising dialogue, bridging the gap between theoretical insights and empirical investigation remains a substantial challenge (Redström, 2017). Indeed, ensuring that theoretical and empirical dimensions reciprocally inform each other is anything but straightforward (Sanchez et al., 2022; Arteaga et al., 2024). One primary concern is the tension between complexity and reduction. There exists a risk of oversimplifying theories to fit empirical needs; conversely, maintaining theoretical complexity can undermine the accessibility and practical benefits that these insights could provide (Lindley et al., 2023). Moreover, this tension may impede the reverse flow, where empirical investigations contribute to refining and expanding theoretical frameworks (Nicenboim et al., 2023).

This panel invites explorations of how PoT and STS theoretical and methodological frameworks can be engaged in and through design and HCI practice, and how design and HCI in turn can reciprocally contribute to these discussions. We also welcome critical perspectives challenging the role of design and HCI in reconfiguring conversations within STS and PoT. Contributions may include theoretical, methodological, and empirical work, and practice-based narratives, or submissions experimenting with complementary dissemination formats, such as ‘Research Fictions’ (Chen et al., 2017), including video essays and live performances. Topics include but are not limited to:

- Approaches for conducting STS and PoT-informed research in design and HCI domains;
- Productive tensions and frictions in the trade-offs between theoretical and empirical insights;
- Non-linear, nomadic approaches to bridging theory and practice (eg., “ways of drifting”, “productive oscillation”) across disciplinary boundaries;



- Methods for integrating or "diffracting" STS and PoT theoretical insights and practice-based approaches in design and HCI;
- Design potentials and limitations in engaging with theoretical frameworks and reshaping theoretical conversations.

The panel will be structured as workshop-style sessions, featuring interdisciplinary working tables.

13 JUNE 2025 09.00 - 11.00

ROOM B3.2

ID 227 - Constellations of Knowing / Not Knowing in Perinatal Care

Paulina Yurman, University of the Arts London

Keywords: ways of knowing, not knowing, maternal, infant care, perinatal, technology, sensorial, maternal machines

When early incubators were first presented to the public towards the end of the nineteenth century, some obstetricians argued that such machines could possibly be safer than mothers themselves, due to their over emotional, excessively stimulant, irresponsible, unstable or uncontrollable behaviours [1, 2, 3]. The idea that machines know better, are more reliable and efficient than humans in spaces related to maternal and infant care is one that can still be implied in many narratives surrounding smart cots, monitors, AI powered strollers or baby tracking devices (of movement, weight, temperature, blood oxygen, breathing, growth, heart rate). Facial recognition apps, for example, for reading babies' expressions or for detecting postpartum depression in mothers stem from ideas that machines can read humans' facial expressions and emotions more accurately than the human eye can (and raise questions about who/what gets to determine how emotions are normatively manifested) [4]. Often being attributed more observational powers than they may have, the selling point of such technological interventions is rooted on notions of machines as providing objective (and implicitly more reliable) knowledge and in opposition to humans' subjective perceptions. Such technologies can be reassuring for some parents, but they also present medicalised versions of parenthood that can undermine bodily and sensorial, cultural and/or ancestral forms of knowledge. At a time when many parents feel vulnerable or are learning to navigate uncertainty and unpredictable outcomes, the promise of control, reliance and surveillance can be very attractive, and profitable. The experience of parenthood, particularly for new parents, is one of constant learning, of recurrent navigation through multiple types of information: advice from medical professionals, grandparents or relatives (who might differ in their practices from official advice), peers, social media, trends. While many monitoring technologies offer numerical readings for assessing wellbeing, such information coexists with ways of knowing that are sensorial, subjective and bodily situated. Not knowing, yet trusting our own abilities to learn, to read babies' body languages in par with their reading of ours and learning of the world through the senses are universal experiences. In the constellation of relations between bodies, their fluids, experiences, knowledges, machines and other entities in perinatal care, a key question raised during my research *Maternal Machines: Design Speculations about Fantasies of care* [5] addresses ways in which designed artefacts and technologies could support new parents and carers through an engagement with uncertainty and multiple ways of knowing as common experiences in parenthood.

I would like to use this panel's session for discussing these and other theoretical, ethical, methodological and practical issues in my research.

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13 JUNE 2025 09.00 - 11.00

ROOM B3.2

ID 270 - Desire, Needs, Practices: Designing for Social Practices toward Socio-Technical Transitions

Matthew Wizinsky, University of Michigan

Keywords: Designing Technologies, Social Practices, Transition Design, Socio-Technical Transitions, Urban Technology

The convergence of Design, Human-Computer Interaction (HCI), Science and Technology Studies (STS), and the Philosophy of Technology (PoT) has shaped contemporary discussions on the ethical, political, and philosophical dimensions of technology design (Verbeek, 2005, 2011; Latour, 2005; Suchman, 2007; Ihde, 2009; Rosenberger & Verbeek, 2015). While design has traditionally been theorized as a human-centred activity, insights from STS and postphenomenology have expanded this discourse, introducing new conceptual perspectives and tensions (Rosenberger, 2015; Verbeek, 2011; Woodhouse & Patton, 2004). However, these domains' philosophical and epistemic connections remain difficult to trace. For instance, although Actor-Network Theory (ANT) shares affinities with Spinoza's metaphysical philosophy, Spinoza's direct influence on design remains marginal. Similarly, while STS and PoT have intersected with sociological theories of practice, practice theory remains underexplored in design methodologies (Shove, Pantzar, & Watson, 2012; Reckwitz, 2002). Thus, while Spinoza has influenced STS, and STS has informed design, both Spinoza's influence and practice theory remain largely absent from design theory and methods. This raises critical questions about how these theoretical traditions might be mobilized to facilitate systemic change, particularly in emerging fields such as Transition Design (Geels, 2019; Grin et al., 2011; Irwin, 2018; Irwin et al., 2015).

In response to these gaps, this paper introduces the Desire, Needs, and Practices (DNP) framework—a theoretical synthesis of three intellectual traditions: Spinoza's theory of Desire (1677/1994), Max-Neef's human-scale development theory of Needs (1991), and social practice theory (Shove et al., 2012). Spinoza conceptualizes Desire as an innate striving to enhance one's power of action. Chilean economist Max-Neef defines Needs as finite and universal, though their satisfiers vary across cultural and historical contexts. Meanwhile, practice theory examines how practices emerge through the integration of materials, competencies, and meanings, positioning them at the intersection of agency and structure (Reckwitz, 2002; Shove et al., 2012). The DNP framework situates Desire as the fundamental driver of human activity, manifesting through Needs that are satisfied via evolving social practices. This theoretical integration offers both an analytical and generative approach to examining systemic and socio-technical change.

The framework's theoretical background is examined alongside empirical engagements, including collaborations with UX and service designers, pedagogical applications in university architecture and urban technology programs, and public workshops developing DIY decarbonisation tools and hydroponics. These engagements have shaped the framework's development, demonstrating its relevance to analytical and generative applications. By articulating the DNP framework's conceptual and empirical applications, this paper contributes to ongoing discussions on the entanglement of human and technological agency. Ultimately, this work aims to enrich practical and philosophical discourses on socio-technical and systemic change (Geels, 2019; Grin et al., 2011; Irwin, 2018; Irwin et al., 2015; Meadows, n.d.).

An accompanying interactive workshop could be offered to demonstrate the framework's application in two ways: (1) as an analytical tool for examining emergent urban social practices shaped by new technologies and (2) as a generative method for conceptualizing new social practices supported by technological interventions in urban contexts.



13 JUNE 2025 09.00 - 11.00

ROOM B3.2

ID 421 - Posthuman HCI - Why and How?

Keywords: posthuman, human-computer interaction, design

Christopher Frauenberger, Interdisciplinary Transformation University Austria

Posthuman theories have made significant impact in the fields of design and human-computer interaction (HCI) with increasing interest in a wide range of literature that is associated with science and technology studies (STS) and philosophy of technology. If a core feature of these theories had to be identified, it would have to be subscribing to a relational ontology, the idea that anything becomes what it is through the relations it performs (e.g. Giaccardi and Redström 2020).

This panel aims to focus on precisely this intersection between posthuman thought, design and HCI, specifically drawing attention to the tensions around the need for pragmatic formulation and potential over-simplification in search for impact in design practice. With this contribution, I would like to offer two interconnected provocations that relate to this tension: first, practitioners in design are likely to disregard the lofty ideas of a relational ontology as purely academic if there is no clear reason as to why it is beneficial or needed. The fact that things make humans within larger socio-technical systems is no big news and methodologically a well-executed human-centred design process that is attentive to context, careful about outcomes and self-reflexive, may still come a long way to design meaningful interactions. While I am not denying that in fact what practice often does is ontological design (e.g. Winograd and Flores 1987), the need for conceptualising it in this way may well be regarded as unnecessary over-thinking. Thus, the challenge here might not be the over-simplification of posthuman theory, but a murky picture of its practical benefits.

Second, design practice prides itself to have a handle on complexity in a more productive way than what engineering has on offer. Thus, I remain unconvinced that "oversimplifying theories to fit empirical needs" is at the core of the challenge. Rather than complexity, I have the suspicion that what is hardest to embrace is the inherent politics of a posthuman practice. In search for a how, a methodology for posthuman HCI, the rush for formalisation and pragmatism may be driven not so much by the needs of empirical application, but by escapism that aims to avoid the difficult agonistic, political work that knows no shortcuts or model processes. Design has always been political in the sense that it has been quite willing to be instrumentalised by various ideologies, but what may be different is that posthuman design requires design to show up as a political actor in its own right (c.f. Escobar 2018). Negotiating technological futures in political arenas is what posthuman theories put centre stage and what needs to be baked into methods of design. Participatory Design may serve as a path forward here, if the political qualities can be strengthened while core challenges like engaging agential systems of scale, transfer of situated knowledge and facilitating non-human participation can be addressed (Frauenberger et al. 2024).

13 JUNE 2025 09.00 - 11.00

ROOM B3.2

ID 482 - Caring Bodies and Machines: Exploring Care Epistemologies in HCI Through Narrations of Birth

Marine Zorea, 京都工芸繊維大学 (Kyoto Institute of Technology)

Keywords: Maternal care, birth, bodily knowledge, feminist technoscience, posthuman

In the fluid tectonics of maternal care, technological devices have emerged as central agents that encode bodily, biomedical, and sociocultural knowledge. With the medicalisation of birth over the past two centuries, tools such as ultrasound imaging, fetal heart rate and contraction monitors are only a few of an array of objects designed to provide certainty into this uncertain process and render it manageable. Yet, a new reality transpires when we resist reading these devices as mere neutral conduits: rooted in scientific paradigms that privilege accuracy, standardisation, and objective measurement, these technologies risk



occluding the embodied ways of knowing inherent to the maternal experience. What alternative visions emerge as we examine the epistemologies inscribed in these machines? How do these devices both reveal and obscure complex materialities of care?

This research explores the potential of feminist technoscience as a critical lens to birthing technologies. Scrutinizing the hybrid networks comprising maternal wards - from mothers to infants, medical systems, and machines - it seeks to shed new light on these devices as central sites of knowledge, reconfiguring subjective and collective imaginaries. Centreing around the experience of three postpartum mothers, this research uses their stories as a case study - a key methodological approach in STS, and through deductive narrative analysis traces technoscience theoretical grounds as they materialize in these lived experiences. Three thematic entanglements of human-machine emerge: submission, resistance, and re-appropriation, demonstrating how these machines translate the maternal experience to fit standardized medical narratives while also revealing how mothers reclaim these technologies to affirm their agency. By challenging the 'god's trick' of absolute objectivity and drawing from notions of non-anthropocentric care, this research troubles established binaries in present scientific discourse that separate the living body from technological advancement, to open an alternative design space in HCI.

This study, engaging the timely context of birth medicalisation and resonating with the broader trend of biodata monitoring in HCI, demonstrates how STS theory and methods might contribute to understanding and reimagining technologies of care. Through birth as a unique case study of human-technology entanglement, this work not only seeks to advance maternal health, but also to illuminate the interweaving of STS within our ever-transforming technological landscapes and its profound generative pathways.

13 JUNE 2025 09.00 - 11.00

ROOM B3.2

ID 499 - PhD research project (methodology) presentation: 'Co-working with Self-Service Technologies: A design ethnographic approach to the future automated supermarket'

Paulina Noches, Monash University

Keywords: Automation & work futures, Speculative Design & Design Fiction, Design Ethnography, Troubleshooting, Hope

My research investigates the expectations and anticipatory experiences of frontline employees in Australian supermarket chains as they envision a future workplace increasingly shaped by automation. Self-Service Checkouts (SSCs) and surveillance systems have become pervasive in retail industry (Deloitte, 2016). However, the perspectives of employees who supervise, troubleshoot, and assist customers with these technologies remain overlooked in future automation strategies. My research adopts an interdisciplinary approach at the intersection of Design Anthropology, STS, HCI, and Media Studies to address this gap, examining how workers reflect on their role in a possible automated future and how their insights can inform more sustainable design and policy decisions.

My study is theoretically grounded in sociology of expectations (Brown & Michael, 2003), repair and maintenance (Jackson, 2014), troubleshooting (Duque et al., 2022), and the ethics of care in technological mediation (Puig de la Bellacasa, 2011). It also engages with future-oriented frameworks, particularly hope as an anticipatory concept (Pink, 2022a), offering a lens to explore employees' imaginaries, anxieties, and desires amid increasing automation and policy trends (DISR, 2023).

The research is guided by two central questions:

- How does the anticipatory concept of hope manifest in frontline supermarket employees as they imagine a possible automated future workplace?
- What automated technologies do employees expect to co-work with in a potential future supermarket, and why?



To address the research questions, my study employs a multi method approach combining Design Ethnography and speculative design futures methodologies (Pink, Fors et al., 2022; Candy & Kornet, 2019; Dunne & Raby, 2013). The methodology unfolds in three interconnected phases:

- **Ethnographic Fieldwork:** Short-term immersive fieldwork in six Melbourne supermarket locations, including visual and sensory ethnography through observations and informal interviews with 18 employees, examining their current interactions with SSCs.
- **In-depth Online Interviews:** Semi-structured interviews with 25 employees from different supermarket chains, broadening insights into automation-related concerns, aspirations, and expectations.
- **Speculative Design Future Workshop:** Using design fiction media, virtual reality (VR), AI-generated speculative images, and abstract material prompts, these immersive workshops engaged 8 employees in experiencing and co-creating speculative work futures, ranging from remote assistance of SSCs to fully automated in-store interactions. Themes explored include automation, robotisation, surveillance, wellbeing and customer service.

My panel presentation will contribute to STS and related fields discussions by engaging in a theory-practice dialogue, reflecting on how relational ontologies and practice-based methodologies can integrate worker perspectives into automation debates and future tech designs. My study expands theoretical discussions on automation and work futures while demonstrating the potential of design and creative methodologies in making invisible work—such as troubleshooting and customer service—visible within dominant automation narratives about possible futures.

By positioning supermarket employees as active co-worker agents in shaping automation imaginaries, my research invites further exploration of how interdisciplinary, practice-based design approaches can bridge the gap between theory and practice to help shape a more sustainable and meaningful supermarket futures.

13 JUNE 2025 09.00 - 11.00

ROOM B3.2

ID 759 - Practicing 'Moral Mindfulness': Slowness, Trust ... and more ethical entanglements in an AI-era Design Education

Simona Kicurovska, Universiteit Voor Humanistiek

Keywords: Emergent Design Research, Care Ethics, Response-ability, Trust, Situated Practices

In my PhD research, *Designing with Uncertainty*, I investigate how design (& pedagogy) can foster response-ability (Haraway, 2016) and keep moral space open—not by improving AI, but by rethinking design methodologies in the context of AI-driven transformations. This project situates design as a relational and processual practice where meaning is negotiated collectively, requiring new ways of working, teaching, and collaborating that integrate care ethics.

For this panel, I propose to present my research in a format that reflects my methodological stance: as both practice and theoretical reflection—inviting participants into an experiential exercise before shifting into analytical discussion. Through this oscillatory movement between experience and theory, I show how my methodology embodies the tensions at stake in bridging STS/PoT and design practice. My practice-led research does not sit squarely within one domain, but moves fluidly between (graphic) design practice, pedagogy, artistic research, design research, care ethics, STS and PoT.

The panel's focus on the tension between complexity and reduction aligns with a central concern in my research: In addressing AI in design education, sustaining trust requires more than just predefined ethical frameworks—it demands an ongoing, situated negotiation. Trust is, indeed, a distributed concern (Lindley et al., 2023). I turn to care ethics as a framework that foregrounds relationality, emphasizing that responsibility and trust are not predefined but emerge through expressive-collaborative—and embodied—negotiation (Walker, 2007). Following Leget et al. (2019) I approach care ethics as a practice shaped by negotiating



responsibilities and lived experiences, where individuals continuously attune to themselves, others, and their environment. This methodological commitment to a practice as a site of ethical reflection resonates with Gaver et al., (2022) framing of practice-based research as emergent, exploratory process. 'Emergence-friendly' research remains responsive to the dynamics of situated encounters, unfolding in relation to material conditions, social entanglements, and uncertainties.

A series of co-creative workshops I conducted with design students, practitioners, and researchers reveal that trust—as a core part of response-ability—emerges not just as an interpersonal exchange but as a lens for examining broader societal shifts surrounding AI. Through structured, sensory-based exercises inspired by collective movement practices (Brown, 2022; Cocker, 2013, 2019; Friedman, 2022), participants explore how trust is built—or broken—through embodied interaction and improvisation (Brinck, 2021). These workshops function as "sites for unlearning" (Krauss, 2017), where ambiguity, breakdowns, and negotiated forms of trust become generative of strong concepts (Höök, K., & Löwgren, J., 2012). Here, Margaret Urban Walker's expressive-collaborative model offers a foundation for rethinking design's ethical engagement with AI. In this framing, moral mindfulness becomes a guiding principle—foregrounding trust as an emergent, collectively negotiated practice rather than a technical guarantee.

By bringing these methodological insights into dialogue with HCI, STS, and PoT, my contribution directly engages with the panel's broader questions on bridging theoretical complexity with situated, embodied inquiry. Inspired by bell hooks (1994), I see care in education as an active, critical, and collective practice—a means of creating spaces of freedom, dialogue, and shared responsibility.

13 JUNE 2025 09.00 - 11.00

ROOM B3.2

ID 842 - Latour, Gaia, and Immersive Design of Visualisation Experiences for Science

Nagida Helsby-clark, UNSW; Commonwealth Science and Industrial Research Organisation

Keywords: more-than-human design, Latour, Facing Gaia, immersive design, immersive visualisation

Designers are increasingly confronting the limitations of human-centred approaches when navigating the ecosystemic contexts and impacts of our practices. Prominent STS theorists, such as Bruno Latour, complicate binary distinctions between elements such as nature and culture, envisioning these as interwoven relational structures. In response, the design research community has developed methodologies to translate these theoretical insights in practice. I present my contribution to these explorations in more-than-human methodologies, applied to two practice-based design case studies. My research explores how being immersed in data supports communities, in particular scientist researchers, to experientially make sense of it. I focus on turbulence in both oceans and wildfires: chaotic, unpredictable, fluid flows. Examples include extreme wildfires interacting with the atmosphere or generating their own spiralling weather systems, ocean eddies and gusts of wind. To explore this question, I take a research through design (RtD) approach, envisaging and constructing future ways of exploring data, and reflecting on how these may be applied in scientific practice. I draw on the theoretical perspectives of Latour in *Facing Gaia* (2017). Latour conceives of nature/culture and subject/object as indivisible elements. The figure of Gaia replaces the now defunct notion of "nature", emblematic of the layer of interactions taking place within a critical or metamorphic zone which we all inhabit. In this zone there are no barriers between agents; Latour describes permeable linkages within flowing "waves" of interaction, in which one actor's intentions or compulsions bend or disrupt those actors in their vicinity. Under this conception, fluid dynamics of wildfire, oceanic and atmospheric processes become part of the distributive agency of both human and nonhuman forces. This expands interaction design parameters for both of my case studies. A designerly notion of flux here entails the complex dynamics, not only of the physical processes of these phenomena, but of the human and nonhuman actors, including intermediary sensing equipment, immersive apparatus, human users and AI agents.

My approach extends human-centred approaches, experimenting with techniques to invite more-than-



human participation and reflection. These include a co-creation workshop with oceanographers using musical instruments to evoke turbulence; my time recording sound and images at a fireground in Montana to contribute to an immersive fire soundscape for a 3D cinema; and constructing a virtual reality ocean visualisation where participants may feel ocean currents as vibrotactile feedback through haptic gloves. My methodologies became increasingly embodied, relational and tangible as I became aware that my own attempt to understand and translate turbulence into immersive environments were their own embodied sensemaking process. This reflects the parallels of sensemaking within both design and science, as iterative, active ways of constructing meaning. My practice embraces the aesthetic, provisional and aspirational as unique strengths of design research. Here, an RtD approach imagines the possibilities of immersed, so-maesthetic sensemaking, placing these future-facing interventions in the hands of scientists in an applied setting, to generate new knowledge through construction and reflection. This is one way STS theoretical perspectives may expand design theory.



Panel 39. Data flow integration: investigating the 'good' of interoperability

Convenors:

Dario Pizzul, *Università di Pavia*

Laurène Le Cozanet, *European University Institute*

Michele Veneziano, *Università di Bologna*

Keywords: data flows, digital platforms, interoperability, public institutions

Data extraction, circulation, and analysis have become core elements of contemporary capitalism's transformations, most notably embodied by digital platforms. These economic actors have influenced, shaped, and controlled data flows, in some cases becoming infrastructures for digital activities, inherently featuring interoperability while acting as gatekeepers. Meanwhile, public and institutional actors have similarly been drawn into this broad "turn to data" (Couldry, 2018). However, they face complex challenges, particularly with regard to data flow integration, due to fragmented governance frameworks, differing national regulations, and the need to balance personal data protection with efficient services. Despite these challenges, public institutions remain strongly oriented toward digital data interoperability. The European Commission has supported public data interoperability since the 1990s through various plans, programs, and strategies aimed at encouraging cross-border data sharing within the EU, with the Interoperable Europe Act of 2024 being the most recent intervention. Academic research has thoroughly explored the socio-technical, political, and legal dimensions of digital interoperability (Bellanova and Glouftsiou, 2022; DeNardis, 2011; Pelizza, 2016), offering valuable insights for further investigation, which must rely strongly on interdisciplinary approaches. Given the trajectories of data flow interoperability in the private and public domains—and their intersections—it is important to reflect on the intended "good" of these projects. As interoperability in public institutions is often promoted in the name of citizens' well-being (e.g., proactive social protection, improved public services, smoother interactions with administrations), it is essential to evaluate these claims critically and move beyond rhetoric. At the same time, private platforms often manage data flow integration without sufficient scrutiny, requiring further exploration of how data flows are handled. Therefore, the questions explored in this panel include (among others):

- Who truly benefits from enhanced data circulation at the crossroads of economic and institutional efficiency?
- What broader value propositions exist for the citizens and users whose data fuels these systems?
- As data flows become more integrated, how do these projects address concerns about individual and collective freedoms, particularly for those in vulnerable conditions, such as migrants or people in need?
- What is the significance of national digital sovereignty in this new landscape of integrated data flows?
- How do practices around data use, sharing, and management in public institutions and private organisations shape the implementation and outcomes of interoperability projects?
- How do these practices evolve in response to the increasing integration of data flows, and what tensions or negotiations arise among workers and citizens as they engage with interoperable systems?

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ID 604 - Interrogating Interoperability's Best of All Worlds: The Case of the Greek Interoperability Centre

Giorgos Pertsas, National and Kapodistrian University of Athens (Εθνικό και Καποδιστριακό Πανεπιστήμιο Αθηνών)

Keywords: Interoperability, digital policy, datafication, digital platforms, digital transformation, modular centralisation, information asymmetry

Interoperability has been a driving sociotechnical force for the digital transformation of the Greek state. It is promoted through a public discourse that emphasizes the advantages and benefits of interoperable connections for citizens, businesses and public administration. Citizen-centricity and pro-activeness in tandem with convenience and speed in the provision of digital services are the pillars of such an alluring, almost irresistible, vision.

In this paper, I interrogate the intended "good" of interoperability's vision, by exploring the processes of data integration which are at the back-end of the administration-citizens' interface. I draw from empirical research based on interviews with civil servants and software engineers responsible for building the Greek state's infrastructural backbone for interoperability, namely the Interoperability Centre (IC). I situate these findings in the broader legal and institutional framework of the ongoing digitalisation, as documented by research on policy documents and public interventions by key policymakers.

I analyse the IC of the Greek state as an infrastructural assemblage of social, technical, legal and administrative components. I focus on its software architecture (service-oriented architecture based on an enterprise service bus) as a sociotechnical arrangement which instantiates a particular administrative/institutional logic and renders possible specific ways of making and delivering services via digital channels, on a massive scale and in flexible and fast ways.

The horizontal integration of data flows and the establishment of a systematic inter-governmental communication and data exchange, where once only informational silos existed, triggers two interrelated processes:

- On the one hand, the datafication of administrative processes, which enables the Greek public administration to gather all the information needed about a single case, without reducing its complexity or losing the granular ways of viewing the external environment. This means that accumulating data about an individual person or case does not undo administration's capacity to gain a detailed and comprehensive understanding of that particular person or case. Therefore, public administration can come closer to citizens and attend on their particular needs based on a "whole-person-approach", namely one which is more personalized and informationally inclusive.
- On the other hand, horizontal data flows presuppose the establishment of a powerful sociotechnical and institutional centre, i.e. the IC and the Ministry of Digital Governance. This entails a centralized jurisdiction in terms of deciding on interoperable connections and the orchestration of composite web-services. Therefore, the IC goes beyond the simple role of the broker and auditor of interoperable web-services and turns into a "smart" platform which implements business logic and gathers all data in its database.

Both of these tendencies lead to the entrenchment of a particular form of centralisation, which I describe by coining the concept of "modular centralisation". Modular centralisation pertains to a seemingly paradoxical combination of a centralized component on which a great number of flexible and loosely-coupled administrative processes heavily depend.

I conclude by highlighting the information and power asymmetries which are established among state agencies as well as between public administration and citizens because of the IC's jurisdictions and affordances and juxtapose them to the best of all interoperable worlds promised by the IC.



12 JUNE 2025 09.00 - 11.00

ROOM B2.1.16

ID 625 - Visions of interoperability and the growth of regional information infrastructures to integrate health and social care settings in Scotland

Varun Sai, University of Edinburgh

Robin Williams, University of Edinburgh

Kathrin Cresswell, University of Edinburgh

Keywords: Visions of interoperability, Integration of health and social care using digital technologies, Patchwork of integration efforts

Digital technologies are now central to bridge institutional segmentation and fragmentation of the health and care systems to provide integrated care. These digital technologies facilitate the sharing of information between various professional and non-professional entities to integrate health and social care sectors, by forming information infrastructures. Information infrastructures are invisible socio-technical bases which are embedded into everyday practices as well as needs of people in the form of information systems through standardisation. However, various health and care providers use information systems that might not be interoperable or have the same information requirements or standards or have an established legal basis for sharing information resulting in increased workload and employment for workarounds by users to share information.

The Key Information Summary (KIS) in Scotland is an electronic health record that has been used for over a decade to extract and share key patient information from General Practitioners (GP) to Out of Hours (OOH) services, the Scottish Ambulance Service (SAS), hospital specialists, social workers, and carers across multiple long-term and end-of-life pathways.

Using a Biography of Artefacts and Practices framework, this qualitative study aimed to look at the process of implementation, adoption, and use of KIS, in various health and social care settings over time to domesticate and facilitate data sharing. Multi-stied ethnography was employed to understanding how technology design, use, and adoption evolved over time and were shaped by social, organisational, cultural, and visions of interoperability.

Data analysis followed a hybrid approach wherein Technology People Organisation and Macro-environment (TPOM) Framework was used to develop a priori codes and theories from Science Technology and Innovation Studies, and Implementation sciences was used inductively for thematic analysis. Findings from the study highlight that the implementation, adoption, and use of KIS in multi-stakeholder care pathways required the interlinking of different information systems with limited interoperability to suit the evolving imaginaries of interoperability. This resulted in contentions around the use of KIS, varied information requirements of the users over time, as well as employment of contextual workarounds to retrieve information by different service providers, leading to patchworks of integration efforts.

A key takeaway is that the integration of health and social care services using digital technologies is an ongoing, long-term process that undergoes iterative waves of change. Achieving meaningful integration requires recognising significant socio-organisational and technological challenges while ensuring strategic alignment with the diverse needs of stakeholders. Effective implementation demands a clear vision that acknowledges the varying information needs, capabilities, and existing systems of different actors within the healthcare and social care ecosystem. These insights contribute to the broader discourse on employing digital technologies for integration, emphasizing the necessity for adaptable policies and infrastructure that support interoperability and long-term sustainability in health and social care.



12 JUNE 2025 09.00 - 11.00

ROOM B2.1.16

ID 662 - FAIR and Interoperability: Designing a Research Platform for Improved Scientific Data Governance

Hanan Bellili, *École des hautes études en sciences sociales*

Keywords: FAIR principles, FAIR by Design, Interoperability, Heterogeneous data, Data governance, Experimental research, Metadata standardisation

Research Context. Digital technologies and FAIR principles (Findable, Accessible, Interoperable, Reusable) have transformed interdisciplinary research practices by improving data management. However, ethical, infrastructural, and legal challenges persist, particularly regarding the responsible reuse of sensitive data (Jacobsen et al., 2020; Mons et al., 2017).

1. Emergence of FAIR Principles and Regulatory Framework. Introduced in 2016 (Wilkinson et al.), FAIR principles have been integrated into European initiatives (Horizon Europe, EOSC) to enhance data traceability and interoperability. However, their application to complex datasets (e.g., social surveys, biomedical data) remains limited due to technical constraints and GDPR compliance requirements. Managing heterogeneous formats and anonymizing sensitive data require innovative solutions (Mons et al., 2021).

2. Limitations of Existing Digital Platforms. Current infrastructures (Zenodo, NAKALA) provide storage solutions but struggle to implement a FAIR by Design approach, which is essential for full data lifecycle traceability (Robinson-Garcia et al., 2017; Pouyllau, 2022). For instance, EOSC and ELIXIR focus on technical interoperability but fail to adapt to interdisciplinary needs (Steinhoff et al., 2020). Additionally, managing standardized metadata for heterogeneous data (e.g., health, social sciences) remains a challenge, limiting optimal data reuse (Mons et al., 2020).

3. Towards Collaborative and Participatory Science. Participatory approaches, such as those promoted by the Citizen Social Lab, engage citizens in all stages of research, fostering co-creation of knowledge. However, current tools show technical and cultural gaps, particularly in including vulnerable populations (e.g., autistic individuals) while ensuring GDPR compliance (Vicens et al., 2018; European Data Protection Board, 2019). Managing sensitive data requires flexible platforms with strict anonymity measures and inclusive interfaces (Schmermbeck et al., 2024).

Research Hypotheses. This study explores the technical and cultural barriers to applying FAIR principles, with a focus on data accessibility and the active participation of underrepresented populations. The central question is: How can FAIR and GDPR requirements be effectively integrated into data governance to ensure responsible and inclusive management?

Methodology

- A mixed-methods approach is adopted:
- Critical analysis of existing solutions and literature review.
- Development of the Collective Science platform, designed with FAIR by Design and Privacy by Design principles. It incorporates:
- Tools for managing sensitive data (anonymisation, dynamic consent).
- Persistent identifiers (DOI) for traceability.
- Participatory modules adapted to diverse user profiles, including individuals with disabilities.
- Experimental tests:
- Interactive video game to assess engagement in neurodivergent participants.
- Experimental tasks measuring inclusivity and FAIR compliance.
- Results are analysed using qualitative (interviews) and quantitative methods (accessibility metrics, data quality).



Conclusion. While FAIR principles have revolutionized data management, their optimal implementation in interdisciplinary contexts requires technical and methodological innovations. The Collective Science platform offers an integrated solution combining FAIR traceability, GDPR compliance, and participatory inclusion. This approach highlights the need for tools adapted to the ethical and technical challenges of sensitive data while promoting open and collaborative science.

12 JUNE 2025 09.00 - 11.00

ROOM B2.116

ID 684 - The “good” of interoperability in modern labour market. An exploratory research on platform work

Luigi Di Cataldo, Università degli Studi di Milano Statale

Keywords: Platform Economy, Data Interoperability, Digital Reputation, Transitional Labour Market.

Purpose: The paper aims to explore the “good” of data interoperability in modern labour markets. It proposes an exploratory research on intra-sectoral occupational transitions in the platform economy in the absence of a right of workers to the interoperability of their personal data. In this way, we try to understand how the non-interoperability of workers’ personal data affects the functioning of the labour market and the capacity of people to successfully face occupational transitions.

Methodology: The research took place in the city of Catania (Sicily, Italy), between June and October 2020, and involved 120 riders working for Glovo, Just Eat, Foodys, Social Food, and Winelivery. At the time of the survey, there were no administrative data and longitudinal datasets that would allow us to reconstruct the phenomenon of occupational transitions in the sector under study, nor in relation to other sectors of the platform economy, therefore the information necessary for this reconstructive exercise was obtained through social research techniques and through the analysis of employment contracts. The methodology employed combines techniques that belong to social research - structured interview (N=120), focus group (N=11) - and legal analysis (study of riders’ contracts). The research activity carried out was guided by the following questions:

- How widespread are intra-sector employment transitions?;
- What drives workers to face these transitions?;
- What problems do workers encounter during these transitions?.

Findings: Non-interoperability of data weakens the mobility power of people within labour markets. In particular, non-interoperability of personal data hinders the completion of employment transitions aimed at improving one’s working conditions. The emerging evidence supports the introduction of a right to personal data interoperability provided by Directive 2024/2831 on improving working conditions in platform work.

Originality: The paper offers empirical evidence on the connection between the personal data interoperability and modern labour markets functioning. In this way, It demonstrates the value of data interoperability for new groups of workers and more precisely for their capacity to successfully face occupational transitions.



12 JUNE 2025 09.00 - 11.00

ROOM B2.1.16

ID 900 - 'One fit for all': A view on the platform economy of European interoperability

Vanessa Ugolini, Vrije Universiteit Brussel

Keywords: Europe, platform economy

In its efforts to create a single market for data, the European Commission has launched various data space initiatives across all sectors of society (such as agriculture or health) that would help overcome existing technical and legal barriers to seamless data sharing. From a technical point of view, these policies are enforced by means of setting up a highly scalable and modular backend infrastructure that can be tailored to any business needs. This paper shows the importance of considering the move toward digital platform business models in the 'making' of European interoperability, both by looking at their technicalities and performativity. Adopting a material-technical perspective on platforms as developed within media studies, and bringing this literature in conversation with Science and Technology Studies (STS) and European studies, this paper suggests that a focus on the political economy of platforms and their technical configuration is key to understand how this novel form of data integration is re-ordering power arrangements over data sharing and governance. Through a detailed study of the roll out of DG CONNECT's open-source middleware platform "Simpl", this paper seeks to make two broader contributions. First, it identifies a new logic of platform economy behind the implementation of EU digital policy initiatives (such as the Data Governance Act and the Data Act) that enables new decentralised practices of data sharing and use to emerge across the public and private sectors. Second, it draws out how this new logic is accompanied not only by the coopting of platforms as "services" but also crucially by a breakdown of the categories of data provider/consumer, owner/user.



12 JUNE 2025 14.00 - 17.00

ROOM B2.2.13

Panel 40. The Good, the Bad, and the Ugly: Designing and Reconfiguring Organisational and Work Processes through AI and Digitalisation

Convenors:

Attila Bruni, Università di Trento

Lia Tirabeni, Università degli Studi di Milano-Bicocca

Keywords: Organisation; Work; Artificial Intelligence

AI and digitalization are reshaping organisational structures, processes, and work practices, promising enhanced efficiency, innovation, and productivity, while also raising significant challenges in social and economic terms. Although AI's advancements are remarkable, they are not always aligned (or alignable) with the situated practices and procedures that characterize organisations. Therefore, it would be misleading to think that AI-based technologies, when integrated into any organisation, automatically increase the efficiency and effectiveness of processes and procedures. In some cases, algorithms are programmed in continuity with traditional organisational models, maintaining Taylor-Fordist practices even in technology-driven companies like Amazon. Despite the digitalization of work and organisational processes, moreover, many work and organisational practices retain their materiality, calling into action physical objects, artifacts, bodies and movements. Borrowing the title of one of the most iconic "spaghetti westerns", one could say that there is certainly some "good" in AI and digitalization processes, for example when they are practiced in order to improve working conditions, foster creativity, enhance organisational performance, and empower organisational actors. However, there is also some "bad", if one focuses on the potential risks and challenges associated with AI implementation and integration into existing organisational processes, such as workers displacement, bias in algorithms, and loss of organisational sensemaking. Lastly, the "ugly" side of digitalization and AI can be addressed in terms of unintended consequences, such as increased inequality, job precarity, surveillance, and the rise of poor-quality jobs. Starting from these premises, topics of interest for the sub-theme may include (but are not limited to):

- AI, digitalization, and their roles in reshaping labor, markets, and organisational fields;
- the relationship between AI, digitalization, organisational knowledge, and decisionmaking in organisations;
- the role of AI and digitalization in fostering or hindering diversity and inclusion at work;
- algorithmic management: control, surveillance, and implications for worker autonomy;
- algorithmic empowerment: ways of promoting human work and competencies through AI and digitalization;
- algorithmic resistance: ways of non-using and resisting digitalization and AI-based systems;
- challenges in AI development and implementation in organisations;
- comparative studies of AI and digitalization across different sectors (e.g., healthcare, education, manufacturing);
- case studies on successful, failed, or ambiguous AI integration in workplace settings;
- visions, dystopias, and speculative futures of AI in organisations;
- the discourse on artificial intelligence at work and its evolution over time;
- digitalization, remote work, and the reconfiguration of work-life boundaries;

AI and digitalization from a methodological standpoint: How can we study AI and digitalization? We welcome theoretical and empirical contributions, as well as alternative or experimental communication formats (videos, songs, performances). We particularly encourage interdisciplinary submissions that engage with the processual dimensions of AI and digitalization processes in work and organizing.



12 JUNE 2025 14.00 - 17.00

ROOM B2.2.13

ID 304 - Discourses on work after the advent of Generative AI. How experts and organisations are shaping our understanding of the future of work (and the future itself)

Luna Provenzi, Università degli Studi di Milano - Bicocca

Keywords: Generative AI, future of work, CDA

Since the release of ChatGPT at the end of 2022, Generative AI has gained momentum in the public debate about the future of work. In this context, opposing narratives and imaginaries try to make sense of what is ahead of us as workers, connoting recent technological advancements positively or negatively and conditioning our evaluations. Indeed, social actors usually engage in communications on these topics aiming to shape the perception of public audience and, indirectly, diffusion and adoption processes, especially within organisations.

Despite recent studies have analysed discourses on AI (Winkel 2024; Nguyen & Hekman 2022) and the future of work (Aroles 2024; Dries et al. 2024; Gobena 2024; Schlogl et al 2021), an analysis of the debate on labour-generative algorithms relationship is still missing from literature. This contribution will try to fill this gap by presenting first results of a research on discourses about the future of work in the era of Generative AI. Taking a social constructivist stance, the study considered discursive practices as producing the reality around us. As such, it analysed the framings of most influential actors and organisations to uncover what labour may look like after the advent of Generative AI.

To this end, a Critical Discourse Analysis (Machin & Mayr 2012) was conducted on materials like reports, podcasts and interviews dealing with work-generative algorithms relationship. Sources comprise various kinds of actors and organisations such as tech firms, journals, experts, international NGOs and labour unions. They were selected according to insights from both literature and ChatGPT. Indeed, OpenAI's chatbot supported the researcher during the study, particularly by suggesting some thematic categories for the analytical template and engaging in a sort of conversation about Generative AI and the future of work. On this point, notice that ChatGPT may be seen as a recipient of the most widespread and accessible narratives due to its training with publicly available information and data. As such, it gathers different – sometimes opposing – framings of the same topic and gains a privileged point of view on it. Taking into consideration that the stochastic nature of its functioning makes outputs to the same prompts varying, the researcher decided to interview it many times asking the same questions.

Basing on insights from the analysis of both the discursive practices of social actors and the framings of ChatGPT, this intervention will ultimately illustrate the characteristics of dominant narratives about work-Generative IA relationship in terms of sub-themes and rhetoric strategies and discuss their likely implications.

12 JUNE 2025 14.00 - 17.00

ROOM B2.2.13

ID 425 - "Check out MLOps stacks": Shadowing Objects in the Making of an AI System

Tommaso Pelagatti, Università degli Studi di Milano - Bicocca

Keywords: data work, artificial intelligence, shadowing, work practices, organisations

In the past years, much attention has reasonably been dedicated to AI-related work performed on platforms. However, as showed by recent empirical literature, due to privacy, security, and quality concerns, firms often resort to traditional outsourcing processes when developing machine learning software (Le Ludec et al., 2023; Tubaro & Casilli, 2019). Observing data work outside of platforms may be methodologically challenging: data workers who are employed in firms can only be reached by accessing firms.



Therefore, case studies become a powerful tool to investigate how an AI system is designed and produced and the related work processes.

In my contribution, I argue that in the context of case studies in the AI industry, shadowing objects (Czarniawska, 2007, Chapter 4) is an effective method that enables a deep understanding of work processes within AI production and improves the external validity of the case study. Indeed, many objects inhabit the organisational setting of the production of a machine learning system, and they are mainly digital: language models, software libraries, datasets, code repositories and metadata.

Drawing from observations collected during my fieldwork and interviews in the machine learning department of an IT firm, I illustrate the advantages of the object shadowing approach within the AI field. I argue that giving centrality to objects in ethnographic research enables to build the ground for comparison with other case studies within the AI industry. As a matter of fact, in the AI industry it is very common to adopt shared production frameworks and open-source software, therefore objects can act as glue between different cases, leaving more space to considerations about similarities and differences in work practices between different organisational settings.

First, I show how I mapped objects and workers interacting with them within the organisation through exploratory interviews and negotiating access to the firms' internal communication systems. Then, I move to reporting more in detail the work practices regarding the interaction between objects and workers. In my shadowing practice, I focus on the negotiation and standardisation of practices and meanings around objects. Since many of the objects that I consider are open-source software or models, they bring within some standardized features as well as some flexible and negotiable ones. During my shadowing, I observe the renegotiation of meaning assigned to standardized aspects of objects and how renegotiation processes affect the work practices and the interaction between workers. Another relevant part of my work is dedicated to data and metadata. In my shadowing of objects, which more specifically consists of observing work processes around data, data work emerges as a set of practices seeping between roles within the firm, rather than being confined to specific workers and roles.

12 JUNE 2025 14.00 - 17.00

ROOM B2.2.13

ID 456 - Beyond Disruption: The Platformisation of Psychotherapy Work in Italy

Francesco Bonifacio, Università Cattolica del Sacro Cuore di Milano

Keywords: digital platforms, platform work, profession, psychotherapy

Most research on digital labour platforms comes from a well-established debate on the so-called gig economy, which has mainly focused on new – e.g. food delivery (Bonifacio, 2023) – or poorly regulated market sectors – e.g. freelancing (Nemkova et al., 2019). In contrast, the interest in digital platforms operating in regulated professional fields is more recent (Pais et al., 2023) and remains relatively undertheorized.

Platforms and professions can be conceptualized as two distinct logics of social organisation. Platforms are characterized by their open structure and intermediation capacity (Vallas & Schor, 2020), whereas professionalism relies on mechanisms of social closure (Saks, 2012) that grant occupational groups exclusive jurisdiction over their work (Abbott, 1988). Given the apparent contrast between these two logics, the proliferation of digital platforms is expected to disrupt professional fields (Maestripieri and Bellini, 2023), challenging the social closure of professional groups and reshaping power asymmetries in professional-client relationships through algorithmic reputation systems (Stark & Pais, 2020). In this view, the platformisation of professional work potentially revitalizes historical trends of deprofessionalisation (Haug, 1975), calling into question the very idea of professionalism as an occupational value (see Evetts, 2010).

These expectations, however, rest on two interrelated assumptions. First, platforms are formally considered a unique, Uber-like, organisational model, characterised by low barriers to entry and by a lean structure with distributed forms of organisational control. Second, platforms are often equated with a quite abstract understanding of digital technologies and assumed to possess the inherent capacity to



disintermediate existing organisational fields. To move beyond this problematic equation, we will conceptualize the platformisation of professional work within the paradigm of "organisational professionalism" (Faulconbridge & Muzio, 2008), a well-established theoretical framework which focuses on the growing interdependence between professions and organisations, examining both structural and symbolic-discursive dimensions (Evetts, 2010).

The article examines the platformisation of psychotherapy services through the case of Unobravo, an Italian platform launched in 2019 initially targeting Italian expatriates seeking Italian-speaking psychotherapists. The platform experienced rapid growth during the COVID-19 pandemic, fueled by the increasing demand for online psychological support, and has since become the market leader in this field. Unlike Uber-like platforms, Unobravo operates within a relatively traditional hierarchical structure, in which middle managers (so-called Team Leaders) oversee both clinical and organisational issues.

The research is based on repeated interviews with platform managers, 7 interviews with Team Leaders, 10 interviews with psychotherapists, and additional interviews with other key actors in the professional field, such as presidents of psychotherapy schools.

Our analysis partially challenges the static view of a digital disruption, showing that the platform actively reconfigures psychotherapists' work by introducing new organisational logics while simultaneously reproducing pre-existing dynamics. Specifically, we aim to reflect on three main transformative trends:

- The platform validates institutionalized credentials but reduces their power of stratification and challenges existing boundaries
- The platform multiplies psychotherapists' social capital but accumulate it internally
- The platform creates a market-oriented professional discourse which reduces psychotherapists' autonomy both in clinical and professional terms

12 JUNE 2025 14.00 - 17.00

ROOM B2.2.13

ID 539 - Will AI challenge the medical profession? Changes in trust, authority, and prestige

Laura Sartori, Università di Bologna

Chiara Binelli, Università di Bologna

Sara Cannizzaro, Università di Bologna

Marianna Musmeci, Politecnico di Milano

Keywords: Artificial Intelligence, Medical Practice, Knowledge Production, Trust

The rapid advancement of AI in various social, political and economic contexts has sparked an intense debate on its potential benefits and risks in several domains, such as work, education and democracy. Healthcare makes no exception with several studies registering the reproduction of inequalities via Automated decision-making systems applied to Emergency rooms routines (Obermeyer et al 2019) or Large Language Models (LLM) used for pain medication prescriptions (Poulain et al. 2024) or the heated debate on the future of work (aka as the substitution vs the augmentation hypotheses, Gmyrek et al. 2023). With few exceptions (Lombi and Rossero 2024; Miele and Giardullo 2024), there is a gap in the sociological analysis of the AI-driven changes in the medical practice in Italy. This paper will fill this gap by providing an empirical contribution that sheds light onto the complex interplay between AI, health professionals and healthcare.

We use individual in-depth interviews with medical professionals based in Italy with a three-fold objective: 1) to provide a fine-grained picture of doctors' trust dynamics and sociotechnical imaginaries around AI-driven technological innovation; 2) to elicit and register changes in the medical daily practice that are telling about the incorporation of AI systems and the related boundary work for negotiating their own professional identity and authority; 3) to shed light on emerging challenges in the organisational processes around AI-driven technological innovation in hospitals, such as novel requests for training and preference



for a participatory approach in the deployment of AI systems. We will provide an accurate description of the perceptions of risks and benefits and the effective use of AI in the clinical practice in Italy. The results will shed light on how AI-driven technological innovation can affect and change the role of medical professionals, their professional identity and authority, and the emerging demands for new organisational processes and approaches.

Overall, the paper investigates how AI (especially Automated Decision-Making systems, ADMs) is challenging radiology (and sister specialisations) through its potential to restructure the medical profession under pressure between threats of replacement; reduction in the doctor's decision-making autonomy, cultural authority and professional prestige; innovation in knowledge production; emerging needs for up- and re-skilling; and in the reconfiguration of power asymmetries in the doctor-patient relationship.

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12 JUNE 2025 14.00 - 17.00

ROOM B2.2.13

ID 556 - Researching the social implications of Artificial Intelligence within software development team: a methodological proposal

Francesco Amato, Università di Napoli Federico II

Keywords: Organisation, Artificial Intelligence, Social implications, Harms and Benefits

The integration of Artificial Intelligence in organisational contexts raises social implications that cannot be analysed exclusively by exercising technical and functional evaluations of the technologies adopted. AI is not configured as a neutral tool but as a technology that interacts with consolidated work practices, decision-making models and power structures. This contribution outlines the methodological approach adopted to study the practices of design, development and deployment of AI systems within organisations, with particular attention to these tools' positive and negative implications.

This contribution adopts a pluralist approach to grasp the complexity of the sociotechnical intertwining underlying the production of these systems. It integrates the critical study of algorithmic processes with ethnographic research within a development team. The networks of actors involved in designing, developing and deploying these systems and the co-design of the practices of evaluating the social implications of AI systems have been reconstructed through reflexive processes.

The development team practices are studied through ethnography, exploring how AI is produced and used in decision-making and operational processes. The prolonged immersion in the development team allowed us to observe how stakeholders adapted, rejected or reinterpreted digital technologies in both the production and use phases. This approach allows us to overcome a deterministic vision of technological innovation, highlighting the negotiation processes, emerging conflicts and continuous adaptations between humans and AI systems. By studying the algorithmic processes within the development team, it is possible to observe how the computational logic may influence organisational decisions, reinforcing existing biases or creating new forms of control. Understanding how algorithms work allows us to evaluate performance and question the implications of their opacity, the asymmetries of power they generate, and the practices



of resistance or adaptation they trigger.

A central element of this contribution that emerges from the empirical research conducted within the development team concerns the co-design of AI evaluation tools with developers. This led to the construction of detection tools that allow the evaluation of AI's positive and negative implications in deployment contexts. This process promotes a deeper involvement of the interested parties, contributing to a more articulated and contextualised understanding of the transformations underway.

The research results highlight how AI can generate significant precision, efficiency, scalability and standardisation opportunities. It can also introduce operational rigidities, strengthen hierarchical dynamics, and amplify surveillance and work instability forms.

The contribution proposes a methodological path that allows an approach to analysing AI in organisations not only as a technological phenomenon but as a sociomaterial process that requires an in-depth investigation of the emerging dynamics. The integration of ethnography and co-design allows us to overcome the dichotomies between technological determinism and purely human interpretations, providing a more multifaceted picture of the transformations induced by digitalisation.

12 JUNE 2025 14.00 - 17.00

ROOM B2.2.13

ID 615 - "The Austrian prison system between AI, digitalisation, organisational knowledge, and decisionmaking"

Marion Neunkirchner, VICESSE Research GmbH

Keywords: impact controlling, digitalisation, prison system, public value, technologisation

My contribution examines the relationship between AI, digitalisation, organisational knowledge, and decision-making in organisations, based on the results of two recent empirical studies. Developments in public management within the Austrian prison system are currently leading to the strengthening of monitoring and operational management through newly designed controlling¹. At the same time, research projects aim to enhance efficiency and reintegration through technology. Both developments are interlinked and should contribute to increasing public value, measured in terms of legal certainty, effectiveness, reintegration and security as the external success of the prison system.

This strategic orientation and associated technologisation imply consequences for organisational action at multiple levels, affecting the individual situation of inmates, staff, prisons and the overall system. Generating knowledge from newly acquired data, aligned with organisational strategy, can have a particular impact on decisions at both prison management and systemic levels. The new controlling strategy also creates opportunities to compare prisons, fostering competition. The use of new technologies is particularly important, as their application could accelerate and expand real-time data collection in the future.

However, increasing digitalisation and technologisation of prisons raises concerns for inmates and staff. On the one hand, it is obvious that offenders whose rights are systematically curtailed due to their status are "treated" differently by technical aids compared to citizens with full legal capacity. On the other hand, greater reliance on technology in everyday work may unintentionally increase documentation costs, limiting physical interactions. At the same time, however, technological advancements also promise efficiency gains, potentially allowing more time for inmate care.

In this respect, the question arises of how new controlling mechanisms interact at various levels and how they ultimately impact prisoners' situations. It remains uncertain to what extent reintegration efforts align with digitalisation and technologisation strategies.

Two research projects will be examined to show how digitalized controlling, the application and research of AI-driven technologies, the resulting knowledge shift, and decision-making processes based on controlling are negotiated organisationally. My PhD project investigates impact measurement, linked to algorithmic management, control, surveillance, and implications for staff autonomy through operational controlling.



The FFG-funded research project MAIJA examines the use of an AI-based assistant for prison guards and is related to algorithmic empowerment: ways of promoting human work and competencies through AI. Finally, findings from both projects will provide insights into organisational management and empowerment possibilities in prisons, using cell searches as a case study.

References:

<https://wirkungsmonitoring.gv.at/wirkungsziel-detail/2022-bmj-ug-13-w0004/>

12 JUNE 2025 14.00 - 17.00

ROOM B2.2.13

ID 676 - Rethinking safety in construction: Aligning automation with real-world practices

Amelie Schreck, Universität Stuttgart

Prof. Cordula Kropp, Universität Stuttgart

Keywords: Automation, socio-technical system, safety practices

The promise of automation is to replace human labour at least to some extent and increase the precision and efficiency of the workflow at the same time. In the construction industry, automation also aims to make the jobs done by skilled workers safer, easier and more interesting to work with.

However, safety in automated construction is not a given. It emerges within a complex socio-technical environment where human-machine interactions shape risk perception and therefore safety. Safety is inherently subjective and influenced by cultural, individual, and situational factors. Different occupational cultures interpret and practice safety differently. As a socially embedded, ongoing process, safety emerges through interactions between people, technologies, and organisations and can be considered the product of a safe human-machine relationship, best understood through empirical research. In this paper, we analyse safety assumptions from the perspectives of crane operators and technical developers in the construction industry.

Automation is introduced with the aim of achieving the 'good', such as enhancing safety by reducing workers' exposure to hazardous environments and supporting skilled workers through advanced assistance systems and sensors. However, the 'bad' aspects can emerge when safety is conceptualised, as it often is in practice, as a technical problem rather than a relational and processual phenomenon. As a result, automation tends to overlook critical factors such as situational awareness, embodied knowledge and the adaptability required on dynamic construction sites. This blind spot creates unintended risks as technologies are deployed without fully understanding their impact on real-world safety practices. There is a tendency to shut the 'ugly' out.

The integration of human and machine capabilities raises questions about control, responsibility and accountability in the context of increasingly autonomous machines. A misguided socio-technical design can lead to increased surveillance, loss of worker autonomy, and turning automation into a tool of control and manipulation rather than empowerment. Additionally, discrepancies between the developers' vision of automation and the realities of dynamic construction sites from the workers' perspective can result in technologies that fail to align with actual safety practices.

Using an empirical, practice-based approach, our research explores how safety actually emerges in the real-world context of construction and to what extent automation aligns - or fails to align - with existing safety practices. We explore these dynamics in an interdisciplinary research project on the trustworthy and safe design and use of semi-automated tower cranes.

Exploring safety as a product of relational interactions, rather than a fixed state, enables us to recognise the requirements and challenges of trust in dealing with agentic technologies in high-risk environments such as construction sites.



ID 735 - How Materiality and Temporality Prevents and Enables Sustainability in Engineering for Good

Marie Stettler Kleine, Colorado School of Mines

Keywords: engineering studies, temporality, religiosity and secularity, infrastructure, ethnography

Engineers' pursuits of humanitarian aid, development, service, and/or social justice construct unique opportunities, limitations, and complexities. With the need for systematic accountability metrics (Smith, 2021), instrumental modes of doing (Nieusma, 2015), disciplinarily siloed practice (Faulkner, 2015), and the partiality for working through and with artefacts and objects (Bucciarielli, 1994) engineers impact the world around them in very particular ways. This makes studying their visions of doing good vitally important for our understanding of the infrastructures they build. This ethnographic and historical account of engineering for good efforts argues that time and materiality play into engineers' vision for their future work and their ability to make change.

Sustainability is measured on a time scale, whether it be through life cycle analysis, material fatigue, or the strength of relationships between engineers and the communities with whom they engage. Engineers who are a part of these "doing good" efforts have different motivations, systematic modes of practice, and rewards. Seen by comparing and contrasting engineers operating in religious and secular spaces, engineers articulate different engagement with timescales, from a 10-day implementation trip to a lifelong, yet "insignificant" contribution to an eternal timeline. Through this comparison, I also argue that building an object serves as a grounding artefact to "doing good" building toward what I call "omnibenevolent engineering." Or, engineering practice's ability to be "all good" despite being embroiled in complicated political and/or social conflict, resolution, and complexity. By anchoring engineering for good efforts to the object, the technical can be temporarily removed from the political sphere in discreet ways, ways that make it easier for engineers to engage. Engineers can focus on the object's efficiency, effectiveness, and strength on ill-defined spectrums (i.e. energy efficiency, locally available materials, broadly construed), spectrums often not designed by the engineers themselves. Through a nuanced analysis of engineering for good as a "boundary infrastructure" (Star, 2010) I argue that engineers build their visions of doing good with radically different understandings of their impact over time, prioritizing different aspects of their work that are highly context-dependent all while maintaining institutional infrastructure that recognizes each other's work.

I use "infrastructure" in two ways through this analysis. One is through understanding how engineering for good is built as an assemblage of boundary objects (Bowker and Star, 1999), one that builds on itself and creates institutional infrastructure for engineers and community members to work together. Secondly, understanding the material infrastructures that engineers for good build helps to illuminate how artefacts (ex. WASH systems, internet connectivity, bridges, and streets) are depoliticized through their making and how they enable engineers to engage in political acts in otherwise "neutral" settings. I argue that these two ways of analysing infrastructure build towards a normative vision of how engineers can and should engage with "doing good." This work encourages engineers and their interlocutors to question the boundaries and potentials embedded in their understandings of materiality and temporality.



ID 743 - Types of professionals' discretion and automation in social work in a datafied welfare system

Mara Sanfelici, Università degli Studi di Milano - Bicocca

Paolo Guidi, Università degli Studi di Milano - Bicocca

Laura Pinto, Università degli Studi di Milano - Bicocca

Keywords: digital social work, technologies-in-practice, automation, professional discretion

In most western countries, social services are undergoing rapid processes of digitisation. Electronic information systems (IS) are now widespread (Weatherall et al., 2024) and used not only to collect data about service users, but also to monitor the caseload and to guide the helping process; more recently, they incorporated algorithms to determine eligibility for services and to predict service users' behaviours, for example those deemed to be at risk of illness or dysfunctional behaviours (Alston 2019; Mann 2020). Digitalized forms of data collection, assessment and planning have been introduced also with the aim to counteract personal and professional biases, in the name of equity. It is assumed that replacing part of social workers' decision-making will decrease the possibility of cognitive shortfalls, ensuring more equal treatment, and increasing the quality of professionals' performances. Different forms of automated decision-making has been widely promoted by tech-enthusiasts as the key innovation that will deliver professionals from repetitive and monotonous tasks freeing up time for more skilled, creative, and value adding tasks, therefore increasing client satisfaction (Eggers, Fishman, & Kishnani, 2017). In many settings, however, digital automation has been deployed to reduce costs, control work practices, and monitor the behaviour of service users.

In the context of a study on digitalisation of social and health care services, we are focusing on an electronic IS in use in 2 services to tackle poverty and another IS adopted by 2 Mental Health Service in Local Health Units. More specifically, coherently with a non-deterministic and relational view of technology, we are looking at how these technology-in-practice (Orlikowski, 2000), as enacted structures of technology use, are shaped and re-shaped in situated contexts, within wider social and political influences. For each case study (Yin, 2014), we carried out exploratory interviews and participant observations focused on what people do with ISs in their everyday practice. Key constructs from the practice lens proposed by Orlikowski (2000) were used to inform data collection and data analysis, more specifically exploring the three modalities of technology (facilities, norms and interpretive schemes) which were extended and adapted to the social work field. The data analysis of field notes was aimed to catch the emergent structures of IS use in social work practice, identifying those recurrent and routinised activities, or sets of activities, and analysing for each practice the core analytical constructs derived from the Orlikowski's model. This exercise led to recognise types and subtypes of digitally mediated social work practices, allowing to identify various intensity of automation and professional discretion in the processes of information acquisition and information analysis in different stages of the helping process.



11 JUNE 2025 09.00 - 11.00

ROOM B2.2.9

Panel 41. Sampling and the Making of Good Science: Examining Data Collection Practices and Their Implications

Convenors:

Victor Secco, Università Ca' Foscari Venezia

Valentina Marcheselli, Università Ca' Foscari Venezia

Keywords: Sampling, data collection, data journey, epistemology, methodologies

Sampling and data collection practices are central to how technoscience understands and intervenes in the world, yet these are often overlooked aspects in STS scholarship. Sampling practices embody particular assumptions about what counts as valid knowledge, whose perspectives matter, and what constitutes good science. These practices involve key decisions about who or what to include in a study and how to gather that data, often influencing the reliability and validity of scientific outcomes. These decisions are not merely technical—they are shaped by broader historical, cultural, and ethical contexts. The design of sampling methods can impact both the research itself and the communities involved, raising questions about justice, representation, and equity. How do sampling and data collection practices contribute to or complicate the making of "good" technoscience? What ethical, epistemological, and practical challenges arise from how sampling is conducted, and how do these methods shape knowledge production and its broader social impacts?

We welcome contributions that engage with sampling/data collection practices in a broad range of scientific fields and contexts, to discuss the origins of data in scientific practice and the relevance of critically engaging with these practices for the possibility of "good" technoscience. We encourage contributions that deal with themes such as:

- how sampling practices reflect and shape valuation of "good" science;
- the relationship between sampling methods and scientific outcomes;
- ways that different communities experience and engage with data collection;
- the role of values and ethics in sampling decisions;
- tensions between standardization and local knowledge in data gathering;
- cross-cultural perspectives on data collection;
- the complexities of medical sample collection, from the intricacies of clinical trials to
- the ethical considerations; surrounding human specimen collection;
- the porous boundaries of the lab;
- sampling as embodied practice;
- the mutual shaping of sensory experience, knowledge making practices and technology in use;
- interdisciplinary collaborations built around fieldwork and sample collection processes;
- sample collection and citizen science;
- the role of the STS researcher in sampling practices;
- metaphors, narratives and discourses of sampling practices;
- how sampling practices shape understandings of ecosystems and environments;
- local sampling and planetary thinking;
- sampling, extractivist economies and natural resources exploitation.



11 JUNE 2025 09.00 - 11.00

ROOM B2.2.9

ID 172 - Dialectical Primatologists and the Negotiation of Liminality in Peri-Urban Ecologies

Kymerley Chu, Princeton University

Keywords: Conservation, Decolonial STS, Multispecies Theory, Urban Ecology

How do plantations and their extractive-based economies impact the ways scientists, agricultural workers, and urban residents interact with animals? How do conservationist biologists generate primate behavioural data as they study free-ranging monkeys in fragmented landscapes experiencing urban expansion and monocrop cultivation? What kinds of human-monkey interfaces are being legitimised or obscured in citizen science fieldwork?

In Malaysia, natural scientists must navigate the government's research permit acquisition system, where all animals are considered legal subjects of governance. In exchange for their conditional research permits, scientists precariously situate their primate behavioural data to government officials as a series of normative, moral, and political contributions in aiding Malaysia's plantation and urban development activities. This sampling data collection process reshapes government, scientific, and agricultural activities as incubators for novel forms of human-monkey sociality including the simultaneous portrayal of monkeys as 'ecologically destructive pests' in development activities, ecological knowledge co-producers, and as displaced families. Scientists must contend with simultaneously framing free-ranging monkeys as agential subjects and as behavioural data objects during fieldwork.

In landscapes featuring peri-urban (land featuring combined urban and rural fringes) ecologies, local scientists, through the approach of citizen science, conduct behavioural research methodologies such as focal sampling and scan sampling. Focal sampling situates individual monkey subjects as distinct leaders, while scan sampling records the collective behaviours of primate social groups over regularly timed intervals. When disseminating sampling data to the public, local scientists interpret specific behavioural observations as a proposed continuum of conservationist solutions in human-monkey interfaces usually framed as inherently and innately antagonistic. Overall, scientists, agricultural workers and urban residents perceive monkeys as co-inhabiting multiple relational identities between various communities despite living in the same ecosystems and cultural landscapes.

In conclusion, this paper is a broader call for social and natural scientists to reconceptualize agential non-human beings as co-inhabiting a relational series of social identities unevenly deployed across dynamic landscapes, shifting local environmental stressors, and in ecological knowledge.

11 JUNE 2025 09.00 - 11.00

ROOM B2.2.9

ID 354 - The Emperor's New Crowds: Unveiling the Strategic Uses of Collective Wisdom

Niccolo' Tempini, University of Exeter

Laura Savolainen, Helsingin yliopisto

Keywords: Crowdsourcing, sampling, judgement, formalisation For a long time, crowdsourcing platforms have been benefiting from the appeal of exploiting the "wisdom of the crowds" (WoC) to generate valuable data: WoC is potential to any collection of diverse individual observations. This assumption has taken such deep seat in contemporary discourse of web-based knowledge practices, that it goes often unquestioned by scientists and users of such platforms. It is also practically as well as ideologically implicated in the development of groundbreaking AI innovations such as LLMs.

In this paper, we explore the wisdom of the crowds assumption. We ground our analysis in the empirical data from two research projects conducted by each of us individually. In one, we interviewed scientists who



use crowdsourcing platforms to study how they think about their work with the crowd and the data thus generated. In the other, we observed developers of a participatory research platform to study how they shaped website design and workflows to source high value data from the community of users.

Crowdsourcing practitioners do not talk about WoC as an assumption. Rather, it is treated as an informal law of nature, a phenomenon that is regularly observed, when some basic conditions are satisfied as to the nature of the crowd, and which can be exploited to one party's benefit. However, WoC is anything but an informal law of nature.

The most common articulation of the WoC assumption is, roughly, the claim that a high number of observations from non-experts (average) humans, will average towards the accurate. In its stronger forms, the WoC is stated as superior expert judgement. It assumes that the aggregate observation of a crowd of non-experts will be, equal if not more, accurate than the judgement of an individual professional expert.

However, comparisons cannot be straightforward and when put to the test, WoC is revealed as a convenient fiction. There is great heterogeneity in the way researchers relate to the crowd and the tasks that it is asked to complete. Researchers routinely transform the problem they are trying to address to fit the mould of a crowd-sourcing template of data generation. They can assess, dismiss, and overrule crowd work. This is needed not the least because of a great amount of sampling uncertainty with respect to the crowd which undermines confidence in a straightforward comparison of crowd wisdom vs expert judgement or in an explanation as to the causes of observed crowd (in)accuracy. WoC is, at best, a misplaced interpretation of the causes of possibly accurate crowd outputs.

How is an influential interpretation of crowdsourcing practices such as WoC can be unwarranted yet continue to be pursued? The answer to this question is that those practices are not concerned with accuracy with respect to an external standard, but rather, they produce the standard that they are meeting. While a better and more rigorous standard is most often conceivable and desirable, practical constraints mean that the adoption of a standard that is endogenous to the WoC methodology is going to be enough for common applications.

11 JUNE 2025 09.00 - 11.00

ROOM B2.2.9

ID 380 - Is digitisation of Ecology actually “good”? Digital technologies' role in sampling and laboratory practices, and their epistemic implications

Stefano Oricchio, Università di Napoli Federico II

Giuseppina Pellegrino, Università della Calabria

Keywords: digital technologies, ecology, sampling, bio-monitoring, ecology of infrastructures

Digital information and communication technologies (ICTs) have long since become a constitutive part of science, being deeply intertwined in every step of the research process. Ecology - an interdisciplinary field, acquiring an ever-increasing relevance in times of climate change - is no exception to the digital transformation of science. Despite this, the implications of digitisation of ecological knowledge are still neglected and little discussed.

Drawing on semi-structured interviews to academic ecologists such as entomologists, hydrologists, botanists, and ecotoxicologists, this contribution adopts an STS theoretical framework, namely the Ecology of Infrastructures approach (Star and Ruhleder, 1996) - and firstly aims at illustrating the role of digital ICTs in the ecologists' fieldwork and laboratory practices. Even if digital technologies constitute an invisible and mundane research infrastructure, the interviews showed how every step of data collection, management, analysis, storage and dissemination is deeply digital. This primarily applies to laboratory practices but is consistently relevant for fieldwork and sampling techniques, which are densely manual and sociomaterial as much as supported or enhanced by different kinds of digital ICTs (e.g. simple cameras, automated data loggers, remote sensing devices). The assemblage narrated reveals tensions and ambivalences: digital



technologies amplifies both precision and ambiguity, as researchers navigate challenges in devices usage, data contextualisation, and infrastructure access, in line with memory and forgetting practices in the sciences (Bowker, 2008). This provides a first argument on whether digitizing ecology is actually a "good" practice.

Secondly, the contribution further delves into the epistemological implications of digital ICTs on the evolution of Ecology. The "informatisation" of the environment, i.e. the framing of every ecological process in terms of informational flows that can be understood and described by scientists (Bellamy Foster and Clark, 2008) - is a process widely acknowledged by the science history literature, but a critical discussion of its epistemological implications is not yet fully developed. From mathematical models to the widespread reference to species as bio-indicators, the digital evolution of Ecology suggests an increasing tendency to evaluate - rather than describing, as once it was the case - the environment. Such an epistemic shift leads to a potentially controversial and paradoxical politicisation and normativisation of Ecology. This can result in a rejection of scientific knowledge and, on the very political side, a kind of paralysis that leads government and society to scepticism and inaction, as evident in the case of global climate change controversy (Edwards, 2010). This provides a second argument on the supposedly "good" aspect of digital ecology, in epistemological and ethical terms.

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11 JUNE 2025 09.00 - 11.00

ROOM B2.2.9

ID 453 - The production of sound evidence: cosmologies and epistemic virtues in sampling, clustering and categorizing in a precision oncology project

Fabio Gasparini, CNR

Lorenzo Beltrame, Università degli Studi di Trento

Keywords: sampling, clustering, epistemic virtues

It's a critical moment in the laboratory of Dr. Nora Rubicone. She and her research group have to select a sample from the cohort of patients undergoing a prostate cancer therapies. Patients have to be selected, clustered and assigned to three groups based on their response to treatments: short, medium, and long responders. Although each patient represents a source of data, the patients in themselves do not embody any form of order. There is no evidence in them.

Evidence is not inherent in data, nor does it emerge automatically from them: evidence must be constructed by cleaning data, which involves selecting a sample of patients and clustering them into categories that can enable robust, solid and statistically significant analysis. According to Boumans and Leonelli (2020), cleaning by clustering is a form of epistemic ordering - a practice of imposing order and intelligibility that turns the disorder of raw data into the basis for the production of sound evidence. The organisation of data through sampling, clustering, and categorisation does not reflect some clear structure present in the external world and already inherent to the cohort of patients. This structure results from a cosmology reflecting the social organisation of those producing the order.

In this paper, through the ethnographic analysis of the processes of sampling, clustering, and categorisation of responders in a translational oncology laboratory, we show how the construction of a sample



reflects an active tension toward the natural order (cosmology), which is in a homeostatic relationship with the social order of the actors engaged in data-cleaning work. While following the insights of Boumans and Leonelli (2020), this work demonstrates that the process of ordering through sampling, clustering, and categorisation does not exclusively follow "specific research questions and goals" but is influenced by "epistemic virtues" (Daston and Galison 2007), internalised by the actors. Following the actors in their effort to decide how to sample, to cluster and to categorize patients, we will show how these epistemic virtues (that "appeal to ethical values, as well as to pragmatic efficacy in securing knowledge" Daston and Galison 2007, 40) shape not only actors' data practices, but also their understanding of robustness and statistical significance.

11 JUNE 2025 09.00 - 11.00

ROOM B2.2.9

ID 655 - Seeing like a water fountain: reimagining data collection in London's #OneLess refill pilot

Nicole Vitellone, University of Liverpool

Keywords: Environmental experiments, water, ethnomethodological research techniques, everyday practice

This paper engages the capacity of data collection practices in my research on London's #OneLess refill water fountain pilot as central to understanding how technoscience intervenes in the world. Drawing on qualitative interviews with refill water fountain users engaged in the #OneLess pilot, the paper examines the data gathering devices used by ethnomethodologists for studying everyday material practices and settings. Comparing the system change perspective of practitioners responsible for the design and evaluation of the #OneLess campaign to reduce single use plastic water, with the ordinary practical methods of research participants engaged in the use of the refill water fountain pilot in everyday settings, the paper addresses the contribution ethnomethodological data collection practices make to STS research and knowledge production. In so doing we tease out the distinctive contribution of ethnomethodological research techniques to data gathering with human and nonhuman actors and what they contribute to the process to realise environmental infrastructural transformation. By studying everyday mundane practices as an apparatus to render technoscientific phenomena explorable and analysable in local experimental settings, the paper outlines what the interview technique and detailed transcription contribute to data collection and the methodological challenge of engaging practitioners from different professional groups and across disciplinary boundaries in reimagining what counts as valid knowledge.

11 JUNE 2025 09.00 - 11.00

ROOM B2.2.9

ID 718 - Citizen science in Chile: from highlighting socio-environmental challenges to reflecting on social impacts

Lucie Le Goff, Pontificia Universidad Católica de Chile

Keywords: citizen science, co-production, sampling practices, social impact, Chile

Citizen science covers a range of projects that include local populations in the production of knowledge. Their involvement is gradual, ranging from contributory, collaborative and co-created projects to those that are independent of academic scientific institutions.

The aim of this presentation is to offer a descriptive analysis of Chilean citizen science, which has developed over the last ten years. The results presented are based on an analysis of a historical register of citizen or community science projects (150) created in Chile to date. This work was carried out as part of the Millennium Nucleus working group on Citizen Technoscience for Socioenvironmental Transformation (CITEC) (<https://mileniocitec.cl/>).

We want to examine the role of collective data sampling and citizen participation in the production of



'good' science. What contribution does citizen science make to the production of good science? Does the participation of the populations concerned make this type of science more valid and ethical or, on the contrary, does the way in which the data is produced make it more open to criticism? Does the knowledge co-produced have a greater potential impact on resolving local socio-environmental challenges? Does the sample collection of citizen science make it possible to produce useful and robust data for guiding public policies?

The data collected by these projects produces knowledge that is rooted in the day-to-day reality of local areas, and highlights issues of interest to local residents and/or scientists (animal and plant biodiversity, terrestrial and coastal ecosystems, quality of the environment, risks, adaptation to climate change, etc.). They therefore offer an approach to society's aspirations regarding relations between humans and non-humans. There is a diversity of disciplines (natural, human and social sciences) and data sampling practices involved (environmental monitoring, geo-referenced photographic register, knowledge dialogue, etc.). As most of the projects focus on biodiversity, there is a marked predominance of online data collection platforms via mobile applications, which collect quantitative databases. The use of digital technologies allows for a wider sampling scale, with numerous regional, multi-regional and national projects. At the same time, the representativeness of contributory projects raises questions about the real social impact versus the utilitarian drift of involving local residents. However, it is evident that some projects take the form of epistemic justice, whether they advocate recognition of indigenous knowledge, or whether they offer populations exposed to risks the means to measure the quality of their environment.

There is no standardisation of data collection for the same subject of study (e.g. water quality). Their duration is often short, in line with their objectives and above all with their funding. However, the sustained production of data over time is the key to achieving a significant social and environmental impact. However, these data sets offer the advantage of producing knowledge in areas where there is no public data, and to provide discussion tools for local decision making.

It is in the interests of Chilean citizen science to capitalise on and share learnings in order to contribute more effectively and sustainably to a fairer socio-environmental transition.



13 JUNE 2025 09.00 - 11.00

ROOM B3.3

Panel 42. Building Trustworthy Infrastructures: Community-Based Resistance to Technological Intrusion

Convenors:

Joan Mukogosi, Data & Society Research Institute

Maia Woluchem, Data & Society Research Institute

Sareeta Amrute, The New School

Keywords: Big Tech, infrastructure, resistance, transformation, trust

In recent decades, large tech companies have become powerful arbiters of global resources—redesigning landscapes, repurposing energy assets, and reshaping industrial zones around the world. Companies like Google, Amazon, Microsoft, Apple, and Meta often target infrastructural investments in places that are in need of economic development, taking advantage of locals' desire for jobs, new industry, and future growth. However, these companies often take more than they can give, fail to meet long-term expectations, and in some cases permanently alter economic, natural, and social ecosystems in the places they take root. The frayed relationship between these companies and the communities they settle in raises important questions about the institutionalization of corporate power across the globe, the role of communities in this contestation, and how deep investments in local social infrastructure can combat this intrusion. We welcome papers that contest the idea that investments from large tech corporations offer inherently 'good' transformations to local communities. Central to the promises and failures of relationship building between tech companies and communities is the convergence of trust and infrastructures. Researchers have long studied the social impacts of technological development, noting the ways that corporate narratives designed to engender trust don't always play out that way in practice (Wang 2020; Chachra 2021). This work builds upon foundational concepts of infrastructure as both relational and ecological, visible and invisible (Star 1999; Larkin 2013). More recently, scholars regularly examine how communities endeavour to collectively build trustworthy infrastructures, when and how that trust is broken, and what kinds of avenues for repair exist (Marx 2024; Parker 2024; Data and Society 2024). These community-based strategies to assess and redefine trust constitute human infrastructures, many of which are well-equipped to respond to and organize against physical and technological infrastructures altered by large tech corporations. Rather than focusing on locating trust in these institutions, we invite papers that center community-based notions of trust and how they are operationalized when they encounter large tech corporations. We ask scholars to consider questions such as: How are communities developing and sustaining alternative trustworthy infrastructures to respond, resist, and subvert the impositions of these companies on natural environments, in the material world, and in everyday life?

What can these human infrastructures teach us about the future for rapidly expanding digital infrastructures? How does the extension of the meaning of "trust" create new terrain for organizing and resistance at those sites of confrontation? We welcome papers that address the actions of smaller tech companies, though we encourage submissions that consider the impacts of large-scale investments in small towns. We are particularly interested in papers that center Black, Indigenous, queer, disabled, and majority world perspectives that can help shape future paths to ensuring that technological innovations benefit those who need it most.



13 JUNE 2025 09.00 - 11.00

ROOM B3.3

ID 131 - Incubating Open Social Communities

Nathan Schneider, University of Colorado Boulder

Keywords: social media, Global South, open social media, participant observation

Social media has long been dominated by companies that operate through surveillance, censorship, and the whims of a few people in charge. Yet more democratic possibilities are emerging: in recent years, a new crop of social networks has gained traction, based on open-source software and open protocols – including Mastodon, Matrix, Bluesky, and Nostr. However, these tools often require more specialised technical skills than corporate social media, potentially turning off would-be users. What would it take to make these potentially important new technologies more accessible, especially for the people who stand to gain most from adopting them?

The Media Economies Design Lab at the University of Colorado Boulder designed a five-month process of mentorship and peer-to-peer learning, empowering seasoned community builders to adopt and harness emerging open social networks. Its purpose is to help participants better understand the opportunities and challenges unique to navigating these new kinds of networks. Through the call, we selected a cohort of ten communities, the majority of whom operate in the Global South. Together, the cohort undertook a peer learning process, as well as interacting with leading architects of the emerging open social ecosystem. We explored participant-suggested topics such as pedagogy and care, countering surveillance, diverse governance legacies, and social-media aesthetics.

Using a participant observation methodology and drawing on feedback from cohort members, this paper will review findings from the process to reflect on challenges and opportunities in de-concentrating platform power through open social networks. We argue that enabling a flourishing social media ecosystem will require not only technical protocols and basic software but active investment in the interfaces, accessibility, and incentive structures that serve the communities that centralised corporate platform have most marginalised.

13 JUNE 2025 09.00 - 11.00

ROOM B3.3

ID 352 - Digital co-design for alternative tourism: countering sectoral big tech companies with community-based solutions

Antonio Opromolla, Università di L'Aquila

Francesca Belotti, Università di L'Aquila

Fabio Virgilio, Legacoop – CulTurMedia

Giulia Candeloro, Università di Chieti and Pescara

Luciana Mastrodonardo, Università di Chieti and Pescara

Stefania Parisi, Università di Roma La Sapienza

Keywords: community-based resistance, alternative tourism, platform cooperativism

The contribution presents the results of a research-action implemented in Abruzzo, a southern Italian region where we empowered local community cooperatives by co-designing a digital mock-up of a collaborative platform promoting their activities. Their experience with both alternative tourism and platform cooperativism constitutes a form of community-based resistance against the "hit-and-run" tourism enabled by sectoral platforms (e.g. Airbnb and Booking) and capitalised by big tech companies behind them.

Building on research about local community-resistance (Sivanandan, 1990; van der Velden, 2004; Aiken, 2015; Everett, 2022; Antonucci, Sorice & Volterrani, 2024), platform urbanism studies (Katmada et al., 2023; Caprotti et al., 2022; Barns, 2020; Fields et al., 2020), and alternative tourism (Agustin et al., 2014; Triarchi et al., 2017; Giampiccoli et al., 2021; Jovicic, 2014), we applied the design thinking approach (Goi & Tan, 2021) as



a digital co-design method for sociological research objectives with transformative vocation (Lupton, 2018).

Specifically, we organised 5 workshops with representatives of 8 Abruzzo villages that adopted the community cooperative as a form of entrepreneurship boosting local economy and alternative tourism (Plaineix, 2016). The workshops' dynamics follow the Design Sprint method involving participants in identifying problems, setting long-term objectives, imagining solutions, and prototyping and testing the one that best achieves the desired impacts (Knapp et al., 2016).

The results demonstrate that Abruzzo community cooperatives strive to build effective and trustworthy socio-technical solutions as a response to the operating mechanisms of mainstream sectoral platforms, which are hardly capable of meeting the localised needs of the Abruzzo villages. The collaborative platform they co-designed, named "AbiTerrò", aims at promoting local activities otherwise invisible in mainstream sectoral platforms, improve visitors' cultural experiences with less-known outdoor and gastronomic routes, and foster social cohesion among stakeholders otherwise scattered in the region. To do so, AbiTerrò mirrors local values and dynamics, reflected in several aspects: in the language, which explicitly communicates the values of unity and authenticity community cooperatives seek to promote, and invites visitors to embrace local culture; in the online content organisation, such as by categorising information based on natural events relevant to rural areas like the one they inhabit; in the functionalities, providing a holistic experience while injecting profits into local projects.

AbiTerrò intends to resist the homogenizing effects of mainstream sectoral platforms by integrating localised social dynamics and cultural values into tourism industry; the participatory design process behind it proved capable of creating a trust-based infrastructure and empowering communities shaping sustainable alternatives to platform-mediated (over)tourism.

13 JUNE 2025 09.00 - 11.00

ROOM B3.3

ID 481 - Data Flows and Data Woes: Historicising Data Centre Resistance in Ireland

Dylan Murphy, University College Dublin

Patrick Brodie, University College Dublin

Keywords: Big Tech, infrastructure, data centre, resistance, transformation, community, environmentalism, activism

This article unpacks the political ecology and activism landscape surrounding the ongoing expansion of multinational data centres in Ireland. Ireland has made headlines for its disproportional facilitation of these infrastructures: in 2023, data centres used 21% of Ireland's electricity. However, the recent amplification of these infrastructural contradictions has arisen out of years of warnings from environmental activists that data centre growth is unsustainable.

Activists, workers, and civil society have increasingly focused on the collision course of Ireland's binding climate targets with the country's continued growth of data centres. At the same time, the data centre industry has proved exceptionally nimble at adapting its material and promotional operations to respond to these criticisms, and Irish Government policy continues to favour big tech companies. The reasons for this apparently paradoxical scenario require critical examination. Amidst various modes of contestation, Ireland is becoming a territory for managing the frictions of planetary data infrastructural expansion in the face of a climate crisis.

We argue that Ireland offers an exemplar case for the unfolding climate contradictions of increased digitalisation. In this presentation, from a scholar-activist orientation, we will historicise data centre activism in Ireland, situating the country's facilitation of big tech infrastructures as an instructive case for other emerging semi-peripheral economies facing such challenges. We will present findings as to the successes and failures of various movements and groups surrounding data centres, and provide suggestions for orientating such struggles against the planetary power structures that sustain big tech growth at a time of climate crisis.



13 JUNE 2025 09.00 - 11.00

ROOM B3.3

ID 702 - "A Warehouse is like a mystery:" industrial histories, present realities, and technological futures in Pennsylvania

*Livia Garofalo, Data & Society**Maia Woluchem, Data & Society**Joan Mukogosi, Data & Society***Keywords:** data centres, infrastructure, extraction, industrial history

In many places around the world, tech companies are transforming landscapes, using resources, and advancing new visions for a future in which artificial intelligence and datafied technology change how people work, live, and interact. One of such places is Pennsylvania, a state in the United States that used to be the American epicentre of 19th and 20th century industrialism, from coal mining to massive steel factories that employed thousands of people. In the context of the renewed US industrial policy that relies on large tech corporations, future investments by these companies propose an inevitable, AI-dominated future to drive economic vitality across the country, and especially in rural and post-industrial places. This is ever-more present since the recent re-election of Donald Trump and a second term that sees the tech industry, its priorities, and its power deeply embedded within this right-wing administration.

Today, in the wake of post-industrial transformation, Pennsylvania is dotted with warehouses and data centres that sit among decommissioned steel plants, farmland, and small-town businesses. As an electoral swing state in the 2024 US elections, Pennsylvanians were also the target of much campaigning focused on jobs, cost of living, and the promise of restoration, yet again, of American greatness.

Drawing from preliminary fieldwork across Pennsylvania, in this paper we examine how new and old industries affect the lives of people who live in places that are being transformed by tech. From plans of future energy intensive Amazon data centres that look like warehouses to the reactivation of the nuclear plant of Three Mile Island for Microsoft's AI needs, we explore the material, infrastructural, and social consequences of this expansion. How do post-industrial communities adapt to industrial transformations driven by the tech industry? How are people relating to and understanding these technological industries and the effects they have on their communities? How are they contesting and resisting these intrusions?

13 JUNE 2025 09.00 - 11.00

ROOM B3.3

ID 790 - Geographies of Recognition: Transnational Labor, Immigration, and Ethnic Nationalisms in Working Class Gujarati America

*Kinjal Dave, University of Pennsylvania***Keywords:** transnational sts, feminist sts, south asian diaspora

As part of a larger dissertation project tracing the experience of entrepreneurial identity and migration, this essay examines the role of one ethno-linguistic network in the domestic manufacturing space – Gujarati Indians in the U.S. who owned, operated, or worked in electronics factories, particularly in military defense manufacture (MIL-STD). Increases in U.S. immigration in the 1980s following the Hart-Cellar Act ran parallel to outsourcing trends in the global economy, but laws have long mandated that military grade technologies are quality controlled (QC) domestic technology. Engaging in a grounded theory (Timmermans and Tavory, 20212) approach, I draw on oral histories with women who worked in chip, circuit board, and microelectronics parts manufacturing to surface how performances of material labors shape the family and the factory, emphasizing the sociality created through and by hardware manufacture. Surfacing lessons learned from the legacies of globalisation and deindustrialisation through immigrant experiences, this project emphasizes the vexed relationship between labour solidarities and ethnic nationalism among Gujaratis found also in other diasporic working-class communities. I show how immigrants engage in capital sharing practices, peer-to-peer vocational training, carpooling efforts, and other forms of community networking



but redouble narratives of legal immigration, religion, caste, and meritocracy to do so. I argue recounting a near history of immigrant technical work forces us to ask new questions about how the social reproduction of diasporic enclaves is necessary to produce technical laborers in the United States, particularly as American nationalism promotes domestic production hardware manufacture for military grade work.

13 JUNE 2025 09.00 - 11.00

ROOM B3.3

ID 851 - Technological Infrastructures in Oaxaca and Cauca: Pragmatics of trust and dualities of resistance

James Barr, University of London

Jessica McClearn, University of London

Keywords: Infrastructure, trust, autonomy, security, resistance.

In an increasingly digitised world, connectivity and access are largely mediated by a small pool of powerful tech companies. The role of such companies should be scrutinised in relation to sustainability and the impact they have on land, labour and local economies, particularly in regions with less developed infrastructures. Although it is important to be critical of the risks inherent to these arrangements of power, these infrastructures are not purely extractive, they are also essential avenues to access education, employment, healthcare and to denounce violence. Therefore, technological infrastructures should be viewed in duality as both to be resisted, and as tools of resistance.

To explore this tension, we seek to ground our work in localised understandings of trust exemplified by the relational work that surrounds real-world infrastructures. Drawing from fieldwork undertaken independently in Oaxaca, Mexico and Cauca, Colombia, we seek to understand how trust surrounding infrastructures is pragmatically negotiated and infrastructured by local communities to enable everyday security (McClearn et al., 2024). The two vignettes illustrate the tensions surrounding infrastructures and trust from a pragmatic stance of community need, through a lens of relationality.

In Oaxaca we explore trust and resistance through the prism of autonomy, an important organisational mode in this region of Mexico, analysing how these concepts manifest themselves in community networks. Building on work pertaining to participatory design (Crivellaro et al., 2019), we explore how communities and stakeholders come together to construct these infrastructures. We consider how different configurations of digital technologies reflect different power balances, analysing how certain forms of technology necessitate certain forms of trust. Through these infrastructures, we are able to highlight the tensions emergent in these appropriations and the mangle of everyday practice (Pickering, 1993). Accordingly, we consider what these infrastructures might tell us about the future of digital connectivity under different temporal conditionalities and configurations of trust.

In Cauca, we explore the tensions around trust and infrastructures through the lens of security, in both a digital and ontological sense. The lack of technological infrastructure has long been a tool of control (Leal, et al., 2021), continued through their destruction, isolating and silencing rural communities. Gender divides are entrenched by the lack of digital access, with women often being relegated to the home and male household members having ownership of technology. Further, technological infrastructures allow women in Cauca to combat enforced isolation, and seek help in the face of violence in their communities. Therefore, a relational understanding of infrastructures may contrast with critical thought on technologies as extraction alone.

To understand dualities of resistance of technological infrastructures we turn to illustrations from community-led negotiations. Through this work we broaden the debate around trust by looking at pragmatic adoptions of technological infrastructures. By situating this discussion in concepts of autonomy and security in Oaxaca and Cauca respectively, we can understand how infrastructures are adopted or not, to meet the needs of the local community.



12 JUNE 2025 09.00 - 11.00

ROOM B3.1

Panel 43. Technoscientific Narratives and Social Inequalities: Rethinking Epistemic Justice in the Digital Age

Convenors:

Giulia Melis, *Università degli Studi di Milano-Bicocca*

Mino Novello, *Politecnico di Milano*

Keywords: epistemic justice, intersectionality, narratives, social inequalities, technoscientific

Digitalisation is never a neutral process: the design and implementation of digital systems indeed reflect existing power structures. How can we envision more inclusive forms of technoscience that account for preexisting inequalities and the needs of all social categories? What role does epistemic justice play in ensuring that marginalised voices are valued in the digitisation process? What are policymakers and designers' accountabilities in constructing a more equitable digital world? This panel explores discussions on technoscience that address these inequalities in the digitalisation process. Specifically, it considers how particular social groups, marginalised due to ethnicity, gender, low income, social class, age, etc., are systematically excluded. Digital technologies, designed to promote efficiency and innovation, often fail to account for existing disparities and may even exacerbate it when critical perspectives are lacking. As scholars engaged in the study of aging, digital practices, and forms of exclusion in a changing society, we are aware that the discourses promoted by digitalisation policies not only systematically exclude certain categories but also shape the dominant narratives about these groups. For example, excluding older adults, often depicted as passive recipients of technology, reinforces stereotypes of dependency (Selwyn, 2004; Neves, 2020) and hampers participation in digital societies. Therefore, we challenge the assumption that digitisation policies benefit everyone, as they can instead lead to a new "digital underclass" (Schou and Pors, 2019; Helsper and Reisdorf, 2017). While generally presented as optimal solutions, digital technologies can be problematic, especially when the ethical and social implications are not considered (Zuboff, 2019). This panel invites critical reflections on the optimistic idea that digitalisation can serve as a panacea, investigating how such processes may instead perpetuate dynamics of exclusion and injustice, particularly for socially vulnerable groups, such as older adults. We adopt an intersectional and critical approach on digital exclusion, whereby "if, in theory, gender and technology are co-produced, so are ethnicity and technology, age and technology, sexuality and technology, and class and technology" (Mellström, 2009, 888). Indeed, intercultural comparisons and intersectional understandings are often absent in STS research, with few exceptions. Epistemic justice thus provides a critical lens to recognise their contributions, leading to co-created, inclusive, and intergenerational technologies (Jarke, 2021). We welcome contributions that investigate, among others:

- While digital technologies are often celebrated for facilitating everyday life, who has the power to shape technological futures? How can all social groups participate in this process?
- How can marginalised digital users be considered agents of change? Which epistemic/ structural barriers limit active participation?
- Which policy interventions can bridge the digital divide and promote inclusion?
- How can we avoid the mythologisation of technology as a neutral and universal solution, ignoring specific needs and structural inequalities?
- How can we rethink "the Imperative of digital inclusion" exploring alternative digital practices?
- What spaces can we create for alternative forms of digital participation and engagement that respect such choices and promote less normative models?



12 JUNE 2025 09.00 - 11.00

ROOM B3.1

ID 211 - From Tokens to Tokenisation: Power, Class, and Fare Payment in Public Transportation

Michelle Phan, Simon Fraser University

Keywords: fintech, public transportation, urban sts. tokenisation, mobile wallets

On October 24, 2024, the Toronto Transit Commission (TTC) announced that at the end of the calendar year, they would no longer accept paper tickets, day passes, and coin tokens. Going forward, payment will only be accepted through either a physical or digital PRESTO card or ticket, through debit or credit cards, or through mobile wallets. This was not a sudden change: the TTC had been slowly phasing out paper tickets, aluminium tokens, and paper day passes over several years. Metrolinx, the crown agency in Ontario that governs all road and public transport in the areas of Greater Toronto and Hamilton, discusses phasing out tokens as part of their broader strategy for fare integration across different transit systems and "improved affordability and access" (2024).

Many transit advocates concerned about preserving access to transit for the most vulnerable users have contested this move to digital fares. Tokens have long been important to low-income transit riders, who were able to get more affordable tokens when purchased in bulk and found them easy to use and share (Bender 2019). In the past, social service agencies commonly distributed tokens to clients so that they could travel to access vital services (shelters, welfare agencies, health outreach), which becomes more challenging when fares are mediated by digital cards and wallets. Technocratic advocates of cashless payments, including Metrolinx, argue that cashlessness improves financial access and inclusion (Efthymiou & Batiz-Lazo, 2016, p. 1). The payment industry at large associates cash with "filthiness" and "disreputability" (Maurer, 2015, p. 21) at the peril of those experiencing precarity on the margins. Those who cannot access credit and therefore participate in TTC's transition to cash-free transit, and a "cashless society" more broadly, are therefore punished for their non-participation in said transition.

This research asks how the change from physical tokens to digital fare payment in Toronto's transit system shapes access to transit. The project interrogates how the elimination of physical fare payment and moments of sociotechnical transition at large, have shaped exclusion of communities already made vulnerable by neoliberal changes in public services. The examination of these systems as forms of mediation for fare payment is a critical framework that focuses on how the fare exchange is made material within specific contexts of use. Fare technologies mediate not just the exchange of currency but also class and power dynamics that reveal how the transit system perceives its users, and who the transit system supports in accessing services with dignity.

My research seeks to situate fintech in the context of public transportation. While literature in public-private partnerships (P3s) focus on the rise of the Smart City (Valverde, 2022) in the age of the Internet of Things (IoT), this proposal seeks to focus on contactless payment not simply to examine "the securitisation of financial identity" (Gates, 2010), but also the consequences of this securitisation in a transit context that claims to offer wider breadth of access to public services.

12 JUNE 2025 09.00 - 11.00

ROOM B3.1

ID 284 - How Generative AI 'Sees' Older People: The Role of AI in re-producing and circulating Ageism

Emma Garavaglia, Politecnico di Milano

Alessandro Caliandro, Università degli Studi di Milano Statale

Keywords: generative AI, ageing, ageism

While simulative AI has been largely explored by ageing studies, especially regarding its applications in healthcare services addressed to older adults (Broadbent, 2017), studies on cybernetic AI and ageing are



still scarce. Focusing on the most popular manifestation of cybernetic AI, that is Generative AI (ChatGPT, Gemini, Copilot, etc.), social research has largely addressed the problem of socio-cultural biases (e.g. stereotypes) embedded in as well as re-reproduced by Generative AI platforms (CIT). In fact, unlike social media platforms, Generative AI platforms do not just re-arrange meaning produced by users through recommender algorithms, they directly produce meaning and imaginary by condensing representations and imaginaries already produced by users on the web as well as contained its trained dataset (Anselmi et al, 2024; Munk et al. 2023). Anyhow, there are still very few social science studies addressing the specific relations between Generative AI and ageism (Loos et al. 2024).

The present contribution aims at contributing to filling this gap, by exploring the role of Generative AI in producing and circulating representations of older people and ageing processes. Assuming an anthropological perspective (Munk, 2022; De Seta et al., 2024), we ask ourselves: how does the Generative AI 'see' older people? And to what extent such a 'vision' can be deemed biased or even ageist? To answer these research questions, we developed an empirical study in which, through several ad hoc prompts (e.g. 'please generate a picture of an active older person', we asked the AI to provide us with its 'own representation' of older people, both textual and visual. We employed both ChatGPT 4 and DALL-E, this with the scope to explore the broad spectrum of ageing biases (i.e. the discourse and the visual imaginary).

Drawing on the analysis of 100 outputs generated through multiple iterations, we show how not only the AI's representation of older people can be deemed ageist, but we also identified different types of ageist representations (Ayalon & Tesch-Römer, 2017) that manifest in our dataset with different degrees of intensity. We analysed the AI's outputs employing a mix of computational and qualitative techniques. We know a lot about how digital technologies (e.g., social media, big data, platforms) mediate and structure discourses on ageing, but the role of AI is rarely debated in this regard. Knowing that AI is not a technology mediating communication, but doing communication, with this study we contribute to kick-start a discussion around its role in the production of social knowledge on old age and ageing processes. Moreover, the study contributes to the discussion around the implications of the use of AI applications both as a source of data and a research method in ageing studies.

12 JUNE 2025 09.00 - 11.00

ROOM B3.1

ID 368 - Transforming epistemic (in)justice through welfare technology in social care for people with intellectual disabilities and, or autism.

Cecilia Solis Lovekvist, Halmstad Universitet

Pernilla Ouis, Halmstad Universitet

Sara Högdin, Halmstad Universitet

Susanne Lindberg, Halmstad Universitet

Keywords: epistemic injustice, epistemic agency, welfare technology, social care

In Swedish municipalities, welfare technologies (WT) are increasingly being applied in social care organisations that supports the elderly and persons with disabilities. The primary aim of WTs is to enhance or/and maintain the quality of life and well-being of those in need of support, and/or improving working conditions for staff and increasing the efficiency of services in the welfare and care sector. WTs could enhance participation and autonomy for service users with intellectual disabilities (ID) and/or autism spectrum disorder (ASD). This study is based on the professionals' perspectives within social care residences for people (service users) with ID and/or ASD. The study specifically investigates the relationship between service users and professionals, highlighting issues of epistemic injustice, power dynamics, and knowledge sharing. It also explores how the epistemic agency of service users is influenced by these dynamics.

The study builds upon experiences from the professionals who work within social care accommodations that are statutory according to the Swedish Act (1993:387) on Support and Service for Certain Disabled People (LSS). This is a qualitative study with semi-structured interviews conducted with social care profes-



sionals (n=11), unit managers (n=3), and business developers (n=2). In total, 4 group interviews were conducted with social care professionals (n=10) and unit managers (n=3) within four Swedish municipalities during six months in 2023 and two months in 2024. The WT, in this study, has a staff application for the care professionals and an individual application for the service users within the social care's LSS accommodations in four Swedish municipalities.

This paper makes a starting point in Aristotle's theory about three types of knowledge and applies the concepts of epistemic agency (Catala 2020) and epistemic injustice (Fricker 2007).

The findings indicate service user's epistemic agency is affected by being given new opportunities to co-create and shape content in their activities through WT. Critical challenges in fostering greater epistemic agency and epistemic justice are professionals' digital literacy, assumptions that affect their how-to knowledge and how-to act knowledge, which may undermine the service users' epistemic agency and remain status-quo of disabling barriers to promote a greater epistemic justice. This study highlights the importance of this theoretical framework for understanding knowledge creation in social care when implementing WTs. This framework also recognizes that WT is an integral actor in shaping social interactions that either disable or enable epistemic agency for service users and the development of epistemic (in)justice. Further research will be performed to gain service user's perspectives and experiences.

12 JUNE 2025 09.00 - 11.00

ROOM B3.1

ID 619 - Constructing the digital citizen: How digital inclusion policies produced normative ideals of digital citizenship in Flanders (2019-2024)

Paola Verhaert, Vrije Universiteit Brussel

Keywords: digital inequalities, digital inclusion, digital citizenship, digital policy

As governments become increasingly reliant on digital technologies, enabling the participation of citizens in a digitalised society has become a priority issue for policymakers. In recent years, the Flemish government has nudged citizens towards digital participation through the development of digital inclusion policies, which aim to remedy digital inequalities by providing citizens with access to digital infrastructure, training, networks, and support structures. At the same time, these policies produce sociotechnical imaginaries that establish normative ideas and ideals of citizenship in a digitalised society.

This study examines how digital inclusion policies developed by the Flemish government during the 2019-2024 legislative term have constructed normative visions of 'the digital citizen'. The aim of this study is twofold. First, this study seeks to highlight the constructed and contextual nature of digital citizenship. We do so by building on critical scholarship on digital citizenship, which considers that digital citizens do not emerge independently from the political and institutional context they inhabit. Rather, digital citizens are "the product of discursive, technological, legal, and political practices" (Schou & Hjelholt, 2018, p. 507)

Second, by bridging digital inclusion scholarship with critical digital citizenship studies, we bring into view digital inclusion's political and institutional underpinnings as well as its impact on the shaping of contemporary norms of citizenship.

For this study, we analyse all policy documents that relate to digital inclusion and were published by the Flemish government during the 2019-2024 legislative term (n=105). Methodologically, we rely on Bacchi's 'What's the problem represented to be' approach (Bacchi, 2012), which considers policies not as solutions to given pre-existent problems but as problematisations through which citizens are governed. Theoretically, we draw on Jasanoff and Kim's concept of sociotechnical imaginaries, defined as "collectively held, institutionally stabilised, and publicly performed visions of desirable futures" (Jasanoff & Kim, 2015, 4).

This study shows that digital inclusion policies play a significant role in shaping political expectations of citizenship in a digitalised society. Between 2019 and 2024, the Flemish government presented digital inequalities as a problem of citizens who are not digitally self-sufficient. The policies present an ideal of



'the digital citizen' as an autodidact who is ultimately responsible for taking advantage of the opportunities provided to them to become digitally self-sufficient. To promote this ideal, the Flemish government created temporary government programmes that provide access to tools, trainings, and support to citizens, and are typically organised by local governments and local charities. In this imaginary, the digital citizen is not a "roaming autodidact" (Cottom, 2016), but a local autodidact who achieves digital citizenship by engaging with local initiatives that promote digital inclusion.

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12 JUNE 2025 09.00 - 11.00

ROOM B3.1

ID 701 - The marginalisation of older and younger people's voices in smart mobility and AI tracking technologies

Claire Dungey, University of Brighton

Maria Sourbati, University of Brighton

Keywords: Digital technologies, AI, smart mobility, age, marginalised voices

Our paper reflects on ongoing (2025-starting now) and completed fieldwork (2022-23) in Munich, Germany and Brighton, UK, on how AI and tracking technologies are used in mobility practices in the UK and Germany. Our findings highlight how older and younger people experience digital technologies in ways that are marked by a large diversity, and often experience transport infrastructures and tracking technologies differently. We draw on rich empirical examples of firstly young people who are monitored at a distance when walking home from school or when at home. Secondly, older adults who use smart mobility apps when taking public transport (buses, bicycle, ride sharing) or track their own movements. These practices challenge dominant ageist narratives about older and younger people as passive recipients and potentially vulnerable 'users' of technology. In our presentation, we will discuss how age discrimination has remained largely unchallenged in research infrastructures (tools, funding), material mobility infrastructures, including AI/tech design, and institutional regulatory frameworks. As with other areas of digital communications, the social justice implications of older people's or younger people's media use remain largely unchallenged in a research and funding culture that places too much emphasis on age related vulnerability or decline (Vincent, 2023). We will close the presentation by discussing examples to illustrate the marginalisation of younger and older people in research and policy contexts in the UK and Germany.

An example of this is university ethics procedures. Ethics committees often reinforce discourses of vulnerability, questioning whether researchers can be alone with children. While children's safety and wellbeing are important, this discourse of vulnerability and risk at the same time makes it difficult to study children's independent mobilities and resistance towards tracking technologies, especially when parents are keen to interrupt children's views and shape these during interview processes. We show how everyday contexts are more diverse than the laws that are implemented to focus on the rights of e.g. children or older people in a digital space. Parents install digital tracking apps that enable them to monitor their children at a distance or enable them to block websites that they think are problematic. While children need to consent to these apps the first time after installation these tracking apps 'run in the background' raising questions about whether digital tracking technologies are based on ongoing consent, and children's active participation. AI driven mobility platforms are often designed in a way that do not take walking speed into



account, and hence potentially exclude the experiences of for instance older or younger users. While new AI technologies are being planned in transport contexts in the UK for example, such as real time information about wheelchair accessibility on buses, often technologies are designed for young and middle-aged adults who commute to the city for work, rather than the needs of young people and older adults who may travel outside rush hour. In this presentation we discuss such examples to illustrate the everyday movement realities that are not necessarily reflected in smart mobility planning.

12 JUNE 2025 09.00 - 11.00

ROOM B3.1

ID 763 - Critical Qualitative ML for Inclusive Information Orders: Declawing Populist Disinformation against Queer/Trans Worldmaking

Kenzie Burchell, University of Toronto

Keywords: Censorship, Platform Regulation, Populism, Homophobia, Transphobia, Policy

The populist, ethnonationalist, and patriarchal force of contemporary hate, harassment, exclusion from digital public spaces is one built upon templates of identarian-oriented disinformation narratives as much as legal templates relating to censorship, public expression, as well as platform- and market-regulation. Epistemic justice is being curtailed through the "lawfare" and "marketcraft" of our digital spaces focusing by excising representative worldmaking experiences, in particular the political expression of queer/trans, feminist, and racialised voices from public discourse.

First, this paper presents a 15-year audit of the Russian legislation targeting public expression (in media, public spaces, online, and in private messaging/speech) by unpacking the relationship between news and platform regulation with successive laws aimed at the removal, erasure, and criminalisation of LGBTQ2S+ public life, culminating in Queer and Trans communities being targeted, arrested, and sentenced as extremist terrorist movements – with a federal registry being put in place as of January 2025 – mirroring techniques deployed against local colonised and migrant Muslim communities in the Russian Federation in the decade prior. Templates for authoritarian and backsliding democratic governments have been increasingly developed, exported and built upon globally over 20 years, marshalling the support of ethnonationalist majorities by eschewing equal rights and diversity as the failure of democracy. This populist thinking promotes everyday mis- and dis-informing harassment, exclusionary legislation, and state sponsored surveillance and violence towards LGBTQ2S+ communities, attacks on whom serves as "agitainment" (agitation-entertainment), the rallying media genre of "strong man" populists worldwide.

To declaw populist disinformation and promote epistemic justice and worldmaking, second, this paper applies those lessons to a mixed-methods ML approach to develop editorial policy and reporting guidelines – an STS Work-in-Progress for the good seeking feedback – where similar exclusionary techniques are adopted among settler-colonies/colonizers of the Anglo-America west. I have identified four domains of data (plus the relevant media aggregation platforms/APIs and open source datasets) to better understand the informational order through which anti-LGBTQ2S+ and anti-QTBIPOC rhetoric circulates: 1) the flow and frequency of discriminatory templates in governmental and elite rhetoric over social media and official repositories of Canada, UK and US, 2) metadata representative of Canadian "mainstream media" coverage and the "elite" institutional voices of academic research, 3) changes to national, provincial, and local legislation as well as platform regulations and internal platform policies, and 4) the annual federal statistical realities often appealed to or ignored in populist framing of social ills. An STS, sociology of knowledge, and "practice-theory" analysis will deconstruct regulatory and digital mediations upon collective identity-claims, institutional expertise, and elite media narratives, while also tempering the "homonationalism" that could otherwise emerge by unpacking the "methodological nationalism" inherent to already nationally defined media and datasets. The goal is to, first, analyse each domain of data while maintaining high researcher-algorithm interaction using more transparent, interpretable statistical methods to prompt identification of key events and case studies for comparative critical discourse, production, and platform analyses – qualitatively permitting new insights for how to manage, understand, expand and prune the datasets before engaging with less supervised ML analysis techniques.



12 JUNE 2025 09.00 - 11.00

ROOM B3.1

ID 821 - Framing alternative AI narratives from a participatory perspective

Juan Linares-Lanzman, *Universidad Abierta de Cataluña*

Andrea Rosales, *Universitat Oberta de Catalunya*

Keywords: AI Hype, AI narratives, STS

Purpose. The discourse surrounding artificial intelligence (AI) seems to permeate every aspect of our society with technological optimism. The growing hype around AI and its consequences, characterised by an exaggerated attribution of AI's capabilities, is accompanied by increasing public awareness and concern regarding its power and potential dangers. As a result, technology sectors are increasingly engaging with ethical concerns, though these often fail to critically address the socio-technical complexity of AI. The purpose of this study is to analyse the formation and spread of alternative AI narratives that challenge the hegemonic digital discourse.

Design/Methodology/Approach. The study employs an ethnographic research approach, involving the collection of over 1,500 messages from a specific influential Telegram group. The sample included over 60 individuals from diverse backgrounds, including academia, political institutions, and activist groups, with varying degrees of public exposure to the topic in the Spanish context. A content analysis was conducted on the comments and reactions generated by the members of this group, as well as on key documents and shared links. Given our active involvement in the group, we adopted a participant observation approach to document the daily debates and activities that took place during the first year of the group.

Theoretical Framework. This study is rooted in the paradigm of Science and Technology Studies (STS), which posits that technologies (and the narratives that accompany them) are not merely driven by the inherent instrumental logic of technology but are also shaped by social forces. STS explores the reciprocal influence of social factors on technological development and vice versa, examining the imaginaries surrounding digital technologies or the shared understanding of how technologies affect social life and social order. STS benefits from case studies, as they help refine and update its theoretical framework. Findings,

Originality, and Value. Our study contributes to the global understanding of "AI resistance" movements, which we define as diverse forms of social and techno-political action that challenge the dominant AI paradigm. The originality and value of our research lie in its unique account of counter-hegemonic technological futures emerging from local experiences in Spain, which aim to challenge the dominant discourse on AI.



Panel 44. Is Constructivism Dead?

Convenors:

Martina Merz, Alpen-Adria-Universität Klagenfurt

Tarja Knuuttila, Universität Wien

Keywords: constructivism, post-truth, science denialism

Constructivism within STS challenged the traditional understanding of science as disinterested pursuit of truth. The Sociology of Scientific Knowledge claimed that the same kinds of social, cultural, and political explanatory resources, as well as concerns and interests of different groups, should be applied to both 'true' and 'false' scientific claims. The next generation of STS studies moved to laboratories to observe how scientific objects and facts were constructed, approached society at large as a laboratory, and extended expertise beyond scientists and specialists. Scientific representations, in the hands of constructivists, turned out rich sites of social actions, instead of being accurate depictions of natural and social entities. Likewise, the construction of objectivity was closely scrutinized, the notion of objectivity being itself historicized.

Constructivism has become more generally accepted. Although the early interaction between STS constructivism and the philosophy of science was often antagonistic, numerous insights derived from STS constructivism, along with the empirical approach to examining scientific practices, were subsequently embraced by the practice-oriented philosophy of science. The discourses surrounding modeling, representation, and measurement, alongside the consideration of non-epistemic values in science and standpoint epistemologies, testify to certain constructivist inclinations. The recent endeavours to rehabilitate realism through perspectivalism and operational coherence emphasize scientific practice and pluralism in science.

In the meanwhile, the authority of science seems to have eroded. In the so-called post-truth situation, STS constructivism can be weaponized to undermine the credibility of science more radically than what constructivists intended. The boundary between a critical approach toward science and science denialism has blurred. Climate change denialism, vaccine hesitancy, and other kinds of science skepticism have found constructivist arguments apt to dismiss scientific consensus. Constructivist claims about the socially contingent nature of scientific knowledge can be co-opted by anti-science movements to argue for the equal validity of various kinds of knowledge claims, making science just one 'narrative' among many. And the internet is teeming with self-appointed experts.

At the same time, science is criticized from within for being a form of knowledge production rooted in Western, Eurocentric traditions. This critique highlights the ways in which science has frequently excluded non-Western modes of knowing and reinforced oppressive hierarchies by claiming objectivity and universality. Even if STS constructivism addresses questions of power and culture in science, its original contributions did not deal with the concerns about epistemic fairness brought up by postcolonial and decolonial critiques, as well as by trans* and queer perspectives.

This panel welcomes contributions that critically discuss and/or challenge the continued value of constructivism in analysing science. Does the post-truth era, combined with other critiques of science, reveal the need to rethink or challenge STS constructivism? Should constructivism assume a new (public) role of defending scientific knowledge and integrity of science in view of disinformation and science denialism? How is constructivism supposed to accomplish this? Should STS de-emphasize its constructivist roots in favor of other theoretical and conceptual approaches, for instance those of philosophy of science?



ID 634 - Constructivism as Post-Truth Remedy

Jaron Harambam, Universiteit van Amsterdam

Keywords: Post-truth, conspiracy theories, distrust, symmetry, citizen assemblies

Today's information landscape is characterised by multiple forms of (un)trustworthy knowledge, novel filtering technologies, and new gatekeepers upholding other values. According to some, we have entered the post-truth era, a time where truth, reason and objective facts are no longer influential in shaping public debates, while personal opinions, emotions and ideologies do.

Various societal and academic actors argue that untrustworthy information (disinformation, fake-news, conspiracy theories, etc) should be debunked by insisting on the truthfulness of real "facts" provided by established epistemic institutions. They strive to restore the authority of experts, and to "follow the science" in complex political decision-making. This modernist imperative is shared by many European nations when developing policies to deal with contested knowledge, forms the backbone of EU-sponsored fact-checking organisations and networks, and is deployed by legacy media and (until very recently) social media companies.

Even STS scholars recoiled in the wake of Trump's election victories, covid-denialism and other "irrationalities". They fear that constructivism has run out of steam now that all kinds of "bad people" use their language and conceptual tools, and ask themselves whether they need other weapons against the powerful? Some even think STS – and its radical constructivism – is to blame for the demise of scientific authority. Did our constructivist and symmetrical intellectual toolbox indeed pave the way for all kinds of authoritarian societal tendencies and truth decay more generally?

In this paper I critically assess such post-truth arguments and argue in favour of more not less constructivism, both in research and society. Drawing on years of ethnographic research experiences in the Dutch conspiracy milieu and on how disinformation is combatted, I explain why debunking conspiracy theories is not always possible (can scholars actually know the real truth?), generally not professional (is taking sides in truth wars what we should do?), and most importantly, not productive (providing more "correct" information won't work as knowledge acceptance is not just a cognitive / epistemic issue).

Instead of reinstalling the modernist legitimization narrative of science, I argue that both in research and in society we need more constructivism. If we are to understand the complex societal and technological dynamics through which hegemonic truths are challenged and epistemic institutions are distrusted, then we need symmetrical STS analyses of competing parties and arguments. If we want to avoid unwanted assumptions seeping into our research and regain trust from communities who have lost faith in us, then we need to keep our own political and epistemic preferences at bay. If we want to make our information societies more democratic, then we need political innovations that are both epistemologically stronger and sociologically more effective.

Building from research and experiments with epistemic democracy in the field of science and technology studies, I propose to have "deliberative citizen knowledge platforms", instead of elite expert groups alone, assess the quality of public information. Such societally representative bodies should enjoy more legitimacy and epistemic diversity to better deal with conspiracy theories and the broader societal conflicts over truth and knowledge they represent.



13 JUNE 2025 09.00 - 11.00

ROOM B2.2.9

ID 714 - Truth and the Partial Perspective

Siboné Oroza, Helsingin yliopisto

Keywords: Ethnography, intersectionality, partial perspective

For an ethnographically oriented music researcher informed by intersectionality like me, constructivism - defined as people (including me) constructing (interpreting and producing) their realities in social interactions - is all but dead. In 2012-2013, for 13 months, I observed the musical performances of dance and vocal groups created by young women of Quechua descent known as cholitas in Bolivia. These groups took the country's popular music stages by storm in a time of a social revolution at the turn of the millennium and are popular to this day. I asked the artists about their careers and the meanings they attach to their performances. They responded with carefully constructed life-stories reflecting the perception that everything in this world is an individual bodily reality shaped by human and nonhuman forces. I, in turn, re-constructed and interpreted their stories in my writing. In terms of the framing of this panel, what is the truth-value of my research/storytelling?

To make sense of my empirical material, I put it into dialogue with a large body of knowledge constructed by others. An important cue came from Indigenous research protocols that value storytelling and accentuate the inter-relationship between method, ethics, and care. Another came from regarding the affinity of the artists' stories with notions of intersectionality put forth by Black and decolonial feminists, holding that socially constructed categories such as gender/sex, ethnicity, class, sexuality, and more interact in our lives producing different kinds of societal inequalities and unjust social relations. Yet another came from the Andean notion that musical performance interconnected with the nonhuman world has transformative power.

Determined to do research for Good, I listened to the resounding impacts of collective forces in the artists' performances, reflecting on my own positionality. Ever since critique of androcentric/Eurocentric stances in science intensified in feminist, decolonial and other academic fields in the late 1960s, there is no going back from the awareness that all forms of knowledge production, including the scientific kind, are inseparable from the person(s) doing it. If anti-science and post-truth movements have co-opted this principle, we, as researchers, should defend it even more strongly, dismantling the political allegiances, values, and economic interests behind anti-science ideologies and political liars. Being accountable for my partial perspective also means critically re-examining my research outcomes in shared conversations with the artists, not losing sight of the ethical and political implications of my work.

13 JUNE 2025 09.00 - 11.00

ROOM B2.2.9

ID 752 - Constructivism Is Dead, Long Live Constructivism!

Ilmari Hirvonen, Helsingin yliopisto

Ilkka Pättiniemi, Turun yliopisto

Rami Koskinen, Universität Wien

Keywords: constructivism, modal inferences in science, rhetorics, scientific practice, science denialism

Constructivism forms an integral part of the sociological study of science, as science is a social enterprise that also creates things. New theories, concepts, practices, and methods are indeed constructed, although their targets might not be. However, increasingly claims are made that constructivism is at least partly to blame for science skepticism and denialism and the birth of the "post-truth era."

We express doubt whether constructivism is to blame for these ills. However, we will criticize some of the constructivists' common rhetoric. We also highlight the crucial difference between whether constructivism is responsible for the post-truth predicament and whether it is valuable and important as a scientific research programme. Even if constructivism is guilty of the first - which we are skeptical about - it does not follow that science should not be studied from a constructivist perspective - or that philosophy of



science cannot benefit from constructivism.

To illustrate the interplay of science, philosophy of science, and constructivist ideas, we consider a recent view on modal inferences in science. According to this view, modal inferences are made in two main ways: (1) through relativizing modal claims to some system (theory, model, etc.) and (2) through making manipulations to the object of study. This model shows how successful scientific modal inferences trade in on both objective and epistemic (indeed, often social) notions of possibility, making it a *prima facie* case against the idea that constructivism is tied to anti-scientific sentiment.

Ultimately, it is an empirical question, to what extent constructivism is responsible for the growth of science denialism. Of course, some constructivist claims can be and undoubtedly have been, used to support denialism. However, most science denialists and disseminators of misinformation are probably not even familiar with constructivist studies. More likely, their criticism of science stems from elsewhere.

To a great extent, constructivism's problem is a PR problem caused by unclear and sloppy linguistic practices that its practitioners have socialised into, some of which may even be deliberately intended to provoke. For example, when constructivists write about "creating truths," this can be read in at least two ways: either the targets of the study are socially constructed artefacts or merely the theories of the targets. The second reading is almost trivial, whereas the first is considerably more questionable.

More than allegedly contributing to the rise of science denialism, the tragedy of constructivists' PR problem is that many scientists and philosophers of science have overlooked the important contribution of STS to our understanding of science. However, we hope to show that philosophy of science can accommodate constructivist insights constructively. Finally, constructivism, and STS in general, is a descriptive endeavour, not a normative one. Forming norms is closer to philosophy of science than sociology of science, regardless of who carries it out. There should be room for STS and philosophy of science; ideally, constructivists and philosophers should collaborate in studying science where possible.

13 JUNE 2025 09.00 - 11.00

ROOM B2.2.9

ID 775 - Constructivism in defence of science – a contradiction in terms?

Tarja Knuuttila, Universität Wien

Martina Merz, Universität Klagenfurt

Keywords: constructivism, STS, practice-oriented philosophy of science, post-truth, climate science

This talk is intended to serve as an introduction to the panel "Is constructivism dead?". It is motivated by one of the panel's key issues, which will serve as our guiding question: How can constructivism defend and support scientific knowledge and integrity of science in view of disinformation and science denialism?

We will begin by revisiting the recent debate in STS about whether, respectively to what extent, STS' constructivist tenets are prone to serve as tools to undermine the credibility of science. For example, this debate has played out in several articles in response to Sergio Sismondo's editorial "Post-truth?" in the journal *Social Studies of Science* (2017). We will pay attention to the fact that constructivism has never come in a single version and try to disentangle the various perspectives on constructivism (or associated terms, such as constructionism) underlying the different positions. In this context, we will also look at how constructivism has influenced practice-oriented philosophy of science, often without explicit notice.

To render the discussion more concrete, the remainder of the talk will focus on the case of climate change science. STS scholars and philosophers of science have turned climate change science into a study object since the 1990s. This rich body of literature has focused on the comprehensive climate models, their production and their use in science and policy, bringing to attention issues such as model-data relations, the epistemic status of modelling and simulation, uncertainties and challenges of assessment, appropriate modes of governance, possibility modelling of different climate scenarios, feminist perspectives on climate science, etc.



In our talk, we will consider selected recent texts from STS and philosophy of science on climate science, especially those arguing implicitly or explicitly in line with constructivist approaches. We aim to draw out the adopted conceptual perspectives and interpret them in view of the authors' (potential) implicit or explicit positioning regarding current public/policy debate. We will also investigate whether there is still an underlying division of labour between STS and practice-oriented philosophy of science approaches to climate science. While both are concerned with how science operates in practice, do they approach the matter differently, with philosophers focusing on epistemological issues and STS scholars primarily addressing science's public role? Regardless of how this question is answered, it appears that constructivist claims concerning the building and reliability of climate models on the one hand, and their societal and political roles on the other hand, pose different kinds of concerns about constructivism.

13 JUNE 2025 09.00 - 11.00**ROOM B2.2.9**

ID 807 - Artificial Natural Landscapes: The Contingencies of "Ground Truth" Construction

Laura Savolainen, Helsingin yliopisto

Niccolo' Tempini, University of Exeter

Keywords: machine learning, ground truth, data work, constructivism

The relevance of the concept of truth has been debated within constructivist literature (see Woolgar, 1988). Nevertheless, the concept continues to resurface. In computer science literature, it has also acquired the prefix "ground". Ground truth refers to verified datasets used to train pattern recognition in a machine learner. Obtaining such datasets is widely recognised to need human input, except for in the rare cases where labeled data pre-exists. Laborious human labelling and verification plays a key role in how models are pre-trained, maintained, and fine-tuned. Data remains central to model performance, as evidenced by discussions about data quality, overfitting, and bias among machine learning (ML) practitioners.

In our presentation, we discuss practices of constructing ground truth datasets in ML data pipelines, based on 25 interviews with ML researchers and practitioners. Our research shows how ground truthing is shot through with judgment and negotiation, and ground truthing practices are highly heterogeneous. What artefact can act as a ground truth depends on a number of assumptions, linked to the way in which the interpretive or decision task to be automated is defined, whether it is already formalised and operational in the real world, whether a form of ground truthing practice already exists for the purpose of training human judgement.

Some tasks are perceived as more elusive, might lack an accurate answer, might be poorly understood in the original scientific domain, or might need to be broken down in sub-tasks to be captured in ground truth data. This often requires an artful response as to how a new kind of ground truth will be generated for the purpose. Collections of sub-tasks can be completed by crowd labourers and subsequently aggregated, with a number of transformations being performed: responses are assessed and aggregated, individual data workers' performance may be modelled, and different weights may be given to labels by different people. A whole set of judgement calls are faced by researchers who need to balance task design options to ensure enough data of good quality are generated. Researchers resort to informal judgements about whether the data 'look right' vs are 'off'. They govern data work by negotiating the value and importance of crowdsourced labellers' judgements.

Despite how contingent ground truthing can be, researchers show little hesitation, assuming the process is organised to generate reliable, usable data. We argue that ground truths should be viewed not as representations of the world, but as practical compromises for accuracy as defined within bounded contexts and problem definitions. Ground truths are not about reflecting reality, and more about defining a problem in a computable, measurable manner (see Muller et al., 2021; Kang, 2023). Ground truths are contextually defined in relation to resources (Orr and Crawford, 2024), goals, constraints and assumptions held by the development team, which brings a dimension of contingency to how problems are operationalised. The language of ground truthing thus amounts to a peculiar semiotic inversion of signifiers.



12 JUNE 2025 11.30 - 13.00

ROOM B2.2.12

Panel 45. Reconfiguring Scientific Publishing: Promoting More Fairness and Equity by new Technologies and Pluriversal Practices

Convenors:

Eleonora Lupo, Politecnico di Milano

Elena Formia, Università di Bologna

Keywords: AI, biodiversity, digital technologies, knowledge production, publishing infrastructures

This panel aims to discuss the epistemological and ethical framework of the scientific publishing ecosystem in an interdisciplinary and pluriversal perspective. It begins with a dialectical approach. On one side, the technoscientific developments and the open science movements are transforming the publishing landscape striving for greater accessibility. On the other hand, the global knowledge ecosystem is affected by ethnocentrism, and Western monopolies that have built hegemonic narratives, especially in academic publishing. As a consequence, the academic community is undergoing increasing uniformity and homogenisation in the forms and processes of knowledge production (writing, reviewing, evaluation, and publication), which are hindering pluralism.

This framework highlights that, while the forms of scientific publishing tend to adhere to traditional structures, with the traditional article still predominating, the cognitive revolution driven by the impact of digital technologies has transformed the ontologies in which knowledge is produced and organized, introducing a progressive granularity of research outputs and, at the same time, different publishing infrastructures (e.g. OpenAire, Open Research Europe) that have gained scientific recognition and reliability.

Two additional aspects are emerging: how evaluation processes can impact on publication diversity (debates on impact factors are driving a shift toward responsible evaluation, and peerreview models are advancing toward transparency and continuous assessment, all in order to promote a more pluriversal perspective); and how recent developments in AI (Artificial Intelligence) could influence the processes of scientific production and assessment, (the possibility of publishing content in a framework of multi-agencies authorship and contributorship).

The panel welcomes contributions (from traditional standard formats of scientific writing to innovative ones, fostering new "viscourses" -Bonsiepe, 2007- e.g. augmented, enriched, interactive, contributive and collectively authored as mixed media ecosystems of content) from diverse disciplinary perspectives, addressing the following questions:

- How can scholars (and especially socio-technical scientists) contribute to redesign our publishing landscape practices and technologies, promoting more fairness, equity, diversity, and justice?
- How can we reconfigure the Western orthodoxy of scientific publications, discussing disciplinary standards in academic validation (publication formats and procedures as review) in a more pluriverse perspective?
- How can we reshape open and emerging technologies in order to support knowledge biodiversity and promote a transition toward a distributed leadership in the publishing ecosystem?

Potential subtopics and issues:

- The impact of standardization in publishing and evaluating on knowledge production, organisation and dissemination
- Collaboration and distributed leadership in publishing ecosystem
- Innovative formats of publishing
- Open access and equity: technological and economical gaps
- Plural forms of review practices and processes for publication
- Critical perspective on AI for publishing



12 JUNE 2025 11.30 - 13.00

ROOM B2.2.12

ID 355 - What is the purpose of Open Science and Responsible Research and Innovation tools? Limitations and possibilities of tools and toolkits for reforming research and innovation.

Raúl Tabarés, *TECNALIA Basque Research and Technology Alliance*

Mika Nieminen, *VTT Technical Research Centre of Finland*

Keywords: RRI, STS, open science, ethics, tools

Over the past decade the European Commission (EC) has carried out significant efforts for the promotion of Responsible Research and Innovation (RRI) and Open Science (OS) approaches into the European Research Area (ERA). The first one has been a common topic in different funding calls of the 8th Framework Programme for Research and Innovation (R&I), also known as "Horizon 2020", with the aim of promoting responsibility across ERA stakeholders, European innovation ecosystems and emerging technologies. The second one, in contrast, has been often promoted by the EC as a funding requisite closely associated to the availability (and reusability) of data produced by the funded research (open data) and the accessibility to the research findings (open access). Both philosophies, RRI and OS, constitute a reaction from diverse academic communities, as well as policy makers, to transform the way that R&I is produced.

First, by emphasizing the need of incorporating responsibility and critical reflection to these processes. And second, for promoting sharing and collaboration into R&I for accelerating the discovery process, improving research quality, and making science more impactful and central to human and societal development. Both concepts, RRI & OS, have been the subject of significant academic discussions, as well as critiques, for their development and advancement by many scholars and practitioners. Their implementation and operationalisation in different contexts still constitute a significant endeavour as both philosophies face a significant number of cultural and organisational barriers. In this regard, a significant number of tools and toolkits have been launched during the last decade for introducing and adopting RRI and OS into a variety of contexts, trying to promote ethical reflections about R&I processes, broadening the participation of stakeholders into these processes and/or improving the accessibility of research data, instruments and findings, among others. But tools and toolkits are also a common object of critique by scholars, as tools represent significant risks for a narrow conceptualisation of responsibility and openness into R&I processes, framing RRI and OS as tick-box exercises and promoting "ethics washing" through guides and manuals.

In this contribution, we aim to shed some light on the role that tools and toolkits can play for disseminating and promoting RRI and OS, as well as facilitating and adopting their principles into different contexts and settings. Through a narrative literature review and a comparative analysis, we take stock of significant contributions in the field, we sketch a taxonomy of tools, and we explore how notions of RRI and OS are deployed into existing tools and toolkits. To this aim we take stock of a recent taxonomy developed in an EU funded project and different tools grouped around it. In particular, we wonder about the shortcomings and potentialities that tools and toolkits can offer to the adoption of RRI and OS practices across different contexts.

12 JUNE 2025 11.30 - 13.00

ROOM B2.2.12

ID 418 - Optimizing Peer Review with AI: An Intelligent Approach to Article-Reviewer Matching.

Lorela Mehmeti, *Università di Bologna*

Martina Sollai, *Frontiers Media SA*

Keywords: peer-review, reviewer assignment, design methodology, academic publishing, AI

The integration of artificial intelligence (AI) in academic publishing is no longer a matter of speculation but a factual development. The current debate focuses on the extent of opportunities and risks, on the key



beneficiaries and those potentially excluded, and on the contexts and timeframe over which these changes will occur within this sector. Based on a scenario model analysis, this research focuses on analysing the potential impact of applying AI technology in a specific phase of the editorial workflow: the article-reviewer matching, a critical and labour-consuming component of the peer review process.

Nowadays, it is widely accepted that scholarly communication and dissemination are under strain. On the one hand, authors expect time-efficient and rigorous peer review processes, while on the other, finding appropriate reviewers for submissions has become a time-consuming task for editors and publishers. This trend appears as an undesirable side-product of the increasing volume of publications observed in the last decades. AI has already emerged as a transformative tool to be explored across various stages of the editorial process, as witnessed by the case studies of early AI adoption by publishers like Frontiers, where AI was utilised in pre-peer review quality checks since 2018 via the in-house developed tool Artificial Intelligence Review Assistant (AIRA). Hence, the research aims to examine how AI can optimize the process of reviewer matching by analysing manuscript content and align it with reviewer expertise. Using a speculative design approach, this research proposes an editorial model to examine the potential reduction of editorial workload during the reviewers-matching phase based on AI technology.

The research methodology includes a scenario analysis to evaluate the sustainability and implications of AI in reviewer identification, drawing attention on three main peer-review pitfalls: a) assessing reviewer qualifications and availability, b) mitigating biases and conflicts of interest in reviewer selection, and c) addressing the complexities of multidisciplinary expertise. Contextually, this investigation also describes the evolving role of AI in scientific publishing, acknowledging the ethical dimensions and implications of AI adoption concerning transparency, accountability and the potential risks of over-reliance. Future research directions explore these ethical considerations in depth, delving into broader applications of AI in research integrity checks and editorial board composition.

12 JUNE 2025 11.30 - 13.00

ROOM B2.2.12

ID 659 - Towards a plural knowledge ecosystem. Decolonising scientific publication in Design

Asja Aulisia, Politecnico di Torino

Cecilia Padula, Politecnico di Torino

Keywords: knowledge ecosystem, design, scientific production, academic pluriverse, research equity

In recent years, the growing interest in decolonising knowledge production and validation has intensified debates around the Western orthodoxy of scientific publishing. This orthodoxy has long been dominated by fixed disciplinary standards, particularly regarding publication formats and procedures for peer review. These conventions, grounded in Anglo-Saxon norms, fall into the exclusion of knowledge and methodologies from non-Western perspectives and, consequently, limit the diversity of voices and the plurality that contributes to academic discourse. Though effective in certain contexts, these standards fail to account for the plurality of ways knowledge can be generated and communicated. They impose a form of homogeneity that disregards the value of culturally situated, intersectional, and transdisciplinary knowledge production, especially in design research.

The crucial aspect of this paper is that to foster a truly inclusive academic environment, we must challenge the existing norms of scientific publication by engaging in a more collaborative, participatory process that amplifies the voices of those often marginalised. In particular, design research offers a unique opportunity to facilitate this paradigm shift with its inherent flexibility and emphasis on cultural context.

As a discipline, Design has long embraced a systems thinking approach that allows for the integration of diverse perspectives, making it an ideal framework for reimagining academic validation processes.

To operationalise this vision, the abstract proposes to design a European participatory mapping initiative, aimed at creating a platform for collaboration between Southern and Eastern European design research



institutes, which can be the starting point to be scaled internationally, as embedded in the geopolitical and socio-economic challenges these regions face.

The mapping process would involve gathering information on predominant and minority local cultural practices, knowledge production methodologies (argumentative or narrative, written or oral), and the specific challenges faced by researchers in these regions to validate their knowledge contribution in design, with the goal of identifying ways in which these practices can be integrated into global academic discourse expanding its continuum.

This can lead to the recognition and acknowledgement of forms of writing scientific production that can be identifiable, developing writing models that align with local cultural practices.

Through this proposal, the research aims to create a more pluralistic academic ecosystem where scientific knowledge is no longer determined solely by a narrow set of Western-dominated standards but rather is shaped by a diverse range of cultural, political, and social contexts. This reconfiguration of academic validation will enrich the design field and pave the way for more equitable and culturally inclusive knowledge production in the global academic landscape. In conclusion, the approach offers a promising path towards reshaping the future of scientific publication and ensuring that all voices, overcoming and regardless of geographical or political constraints, have an equal opportunity to contribute to the global discourse on design.

12 JUNE 2025 11.30 - 13.00

ROOM B2.2.12

ID 748 - Fairness, equity, epistemic diversity? Exploring the role of editors in reconfiguring peer review towards pluriversality

Sarah Patricia Wendt, Humboldt-Universität zu Berlin

Keywords: Epistemic justice, peer review, editorial practice, medical publishing, diversity

Despite academic publishers' recently growing commitment to fairness, equity and diversity, scholars from the Majority World continue to experience epistemic exclusion from the publishing landscape. Calls for epistemic justice have received increasing attention especially since the beginning of the COVID-19 pandemic, e.g. in the fields of global health and medical education. These voices highlight how Western hegemony shapes global academic knowledge production and dissemination in terms of privileging Western knowledge output over knowledges from the Majority World, even when it comes to knowledge about health issues that require localised expertise and sensitivity. From this perspective, the academic publishing system contributes to a monologic (health) knowledge ecosystem and inhibits pluriversality. These debates often identify the peer review process as key mechanism of potential exclusion or inclusion.

Peer review constitutes the primary procedure of research evaluation. In the case of publishers, peer review is decisive for which forms of knowledge are worth publishing, and which not. Science and technology studies (STS) scholars thus conceive the peer review process as key to understanding the dynamics of the academic publishing landscape. This gives a central role to the procedures, technologies and actors that form part of and shape peer review in publishing. Especially editors find themselves in a position of managing main parts of the process, e.g. through selecting suitable peer reviewers or defining disciplinary categories.

In this context, I explore how editors perceive their own role with regards to the implementation of fairness, equity and diversity policies in medical publishing. I draw on debates about epistemic justice in medical publishing and feminist decolonial scholarship on pluriversality in order to build a conceptual lens that can capture understandings and meanings of fairness, equity and diversity in editorial roles and practices. The conceptual framework will inform an ethnographic study of editorial work at two different publishers, including participant observation and in-depth interviews with editors. Through the ethnographic approach I seek to identify how editorial decisions and routine activities in the two cases might either perpetuate monologic knowledge systems or foster epistemic diversity.



At this stage, I present the conceptual lens which brings together perspectives from the sociology and philosophy of science, feminist decolonial scholarship, and STS. I aim to bridge existing research on the social configurations of peer review with scholarship on epistemic justice and diversity. This will provide the theoretical ground for the planned ethnographic fieldwork.

The overall aim of this project is to generate new insights about the aspects of peer review and editorial work in particular that can foster or hinder pluriversality in medical publishing. A deeper understanding of editors' engagement with concepts of fairness, equity and diversity can contribute to strategies of re-configuring the publishing landscape and may illuminate pathways towards more pluriversal editorial practice.



11 JUNE 2025 09.00 - 11.00

ROOM B3.4

Panel 48. Decolonising Science and Technology Studies for Good?

Convenors:

Anwasha Chakraborty, Università di Urbino Carlo Bo

Christopher Lorenz Hesselbein, Politecnico di Milano

Keywords: coloniality, decolonisation, epistemic justice, indigenous knowledge, theory and methods

As in other academic fields of research, the decolonisation of Science and Technology Studies remains an urgent, yet complex challenge. Despite decades of critical reflection since STS established itself as a field of intellectual inquiry in the US and Europe, and despite continuing involvement and efforts from scholars beyond Euro-American contexts, questions around what it truly means to decolonise the field and its research questions, theoretical frameworks, and methods remain unresolved. In the spirit of moving beyond words and towards actions, this workshop invites contributions that critically engage with the ongoing debates and practices of decolonising STS, questioning whether the progress made so far is sufficient or if it remains largely performative and limited by versions of identity politics that fail to seek systemic change

The following are some of the questions that this workshop seeks to interrogate:

- Why are we still grappling with decolonisation after decades of critical scholarship within STS? Are sectors beyond academia, including various epistemic communities from indigenous systems of knowledge, adequately represented in these conversations and efforts?
- To what extent are or can our research designs and methodologies truly be decolonised? Is the term "decolonising STS" simply performative, or is it fostering substantive change? What might be a viable alternative?
- Are STS research teams and institutions multicultural not only in terms of geography but also in the diversity of people working within them? Can diversity be sufficient for achieving decolonisation?
- Beyond academic journals and conferences, what concrete actions have been taken to decolonise the field? How can these efforts be made more substantial?
- What theoretical, analytical, and methodological innovations are needed to push the decolonisation of STS further?
- In which ways can STS contribute to the debate around post-colonialism, decolonisation, and (de-) coloniality? How can STS perspectives on decolonisation contribute to efforts to achieve epistemic justice outside of the Global North?
- In which ways can STS contribute to decolonisation efforts in specific global phenomena such as, for example, climate change adaptation and mitigation or the emergence and implementation of AI systems?
- How can research around decolonising STS co-evolve with discussions around science and technology as a common good?

We welcome papers that explore these questions through empirical research, theoretical reflections, and methodological critiques and interventions. Contributions that include voices and perspectives from underrepresented regions, cultures, and epistemic communities are particularly encouraged, as are those that propose innovative methods and strategies for engaging with decolonisation beyond academia



11 JUNE 2025 09.00 - 11.00

ROOM B3.4

ID 163 - The Not-Quite-West of the Margins, and STS

Alessandro Mongili, Università degli Studi di Padova

Keywords: Postcolonial studies, STS, Marginality and coloniality, Borderlands and topologies, Politics of Innovation

Postcolonial studies, the decolonial hypothesis, and the Asia as a Method approach have highlighted the need to investigate various phenomena analysed by the social sciences from perspectives other than the Western one, which claims universality but is itself localised. Within them, social studies on science and technology (STS) have developed their inquiries on multiple levels. The first is the centrality of the West to technoscience, and of technoscience to the centrality of the West. The second is the epistemological encounter/clash between Western technoscience and other knowledge practices. The third, finally, is that of hybrids, borderlands, and margins between different types of knowledge practices and situations in which colonial-type relations do not saturate all technoscientific and social processes. The last level pertains to this contribution itself.

Taking the viewpoint of technoscience is particularly useful because it touches on the main aspects around which coloniality is defined. My contribution will address the theme starting from the interweaving of knowledge forms, the organisation of technoscience, and innovation policies in countries or territories where coloniality is present but does not saturate all relations, meaning it appears in analogous topological forms. Drawing from studies related to the areas of Mediterranean Europe, Arctic Europe, and various areas of Asia – and thus from postcolonial, neocolonial, or semi-colonial situations – existing paradigmatic models and concepts aiming to highlight hybrid characteristics, such as borderlands, topologies, heterogeneity, and coloniality, will be interrogated. The sources concern research conducted by the author and literature relevant to this theme in various fields.

In particular, this discussion will begin with the situation of Sardinia, which has long been investigated by me. In Sardinia, an aggressive innovation policy coexists with a persistent lack of dynamism in technoscientific processes, conventionally labelled as underdevelopment. Conceptually, it is proposed to employ concepts emerging from critiques of colonialism and the limits of STS in a way not tied to specific territories but to the topological nature of power relations that exist in-between, or are appropriated by technoscientific processes – especially following digital development and the increasing importance of classification, standardisation, and infrastructuring.

Additionally, the aim is to analyse similarities and differences between marginality and coloniality, starting from processes observed in Europe's marginal areas, in relation to certain axes of postcolonial critique. Particular attention will be given to colonial discourse and its inherent excluding dichotomies and essentialisms, to shed light on the construction of STS as a field of research rooted in the academic systems of the Global North.

11 JUNE 2025 09.00 - 11.00

ROOM B3.4

ID 382 - Indigenous-Led Transformations in Technoscience

Maria Sapignoli, Università degli Studi di Milano Statale

Maui Hudson, University of Waikato

Keywords: Indigenous epistemology, AI, decolonisation, technoscience

The entanglement of technoscience and coloniality is increasingly interrogated through Indigenous critiques of science, which challenge its epistemic authority and dominance in policy, governance, and resource management (Durie, 2004; Smith et al., 2013; David-Chavez et al., 2024). The push to integrate Indigenous knowledge into research and decision-making frameworks is often framed as a response to equity and Indigenous rights, but it also speaks to the need for more holistic, relational, and contextually



grounded approaches to addressing contemporary socio-environmental challenges (Muhl et al., 2023; UNESCO, 2023; Strand et al., 2024). However, such integration efforts are not neutral interventions; they are sites of negotiation, translation, and contestation, shaped by the enduring legacies of colonial knowledge hierarchies and Indigenous assertions of sovereignty.

Emerging technosciences – including artificial intelligence (AI) and biotechnologies – are reshaping relationships and creating new ways to be in the world, generating both threats and possibilities. Indigenous scholars have critically examined the impacts of AI on Indigenous practices and values, often highlighting its negative effects and the ways it reinforces existing inequities in access and opportunities. AI, in particular, extends colonial trajectories of dispossession through data extraction, algorithmic bias, and the reproduction of settler epistemologies that discriminate and appropriate Indigenous knowledge. However, alongside these critiques, Indigenous researchers, communities and organisations are also engaging with AI in more complex ways, including collaboration and adaptation, shaping technology to align with their own knowledge systems and priorities, engaging with computational methods on their own terms, and enacting alternative futures. This evolving relationship mirrors previous Indigenous engagements with other technosciences (Beaton et al 2017; Shedlock & Hudson, 2022; Lewis, 2023; Lewis et al., 2024; Brown et al., 2024; Reid et al., 2024; Clark et al., 2024). As AI technologies and infrastructures continue to expand, Indigenous communities are actively debating their broader implications for their ways of life, governance, and self-determination.

This paper explores the trajectories of nascent movements to build Indigenous algorithmic futures through three Indigenous led initiatives focused on AI and data science: Tikanga in Technology in Aotearoa/New Zealand, mobilizes Māori epistemologies to reimagine data infrastructures, resisting the extractive tendencies of conventional data science while advancing Indigenous digital sovereignty. The recently launched research project, Abundant Intelligences, based in Canada, convenes Indigenous-led research pods to explore how computational methods can be meaningfully integrated into Indigenous knowledge systems to support communities well-being. Finally, the Indigidata initiative, operating in both New Zealand and the USA, works to cultivate Indigenous students capacity in AI and data science fostering intergenerational knowledge transfer and ensuring Indigenous presence in technological development. Each of these projects is a bridge between Indigenous knowledge, computer science, and AI, building links between the past and present to imagine and shape the possibility of a more diverse and culturally responsive algorithmic future.

11 JUNE 2025 09.00 - 11.00

ROOM B3.4

ID 560 - Decolonizing STS: A Critical Look at Western European Institutional Practices

Maria Lee, Technische Universität München

Keywords: decolonisation, epistemic diversity, institutional practices, European academia

Science, Technology, and Society Studies (STS) is an interdisciplinary that promotes reflexive and critical questions in the relationship between knowledge, power and society. However, despite its commitment to inclusivity and epistemic diversity, the field is often challenged by growing postcolonial scholarship for its Eurocentric perspective that shapes how knowledge is taught, researched and institutionalised.

This paper presents an ethnographic study of an STS department at an elite Western European university, looking at how scholars engage with decolonial knowledge and theories in teaching, curricula and broader institutional practices. Through participant observation, qualitative interviews with faculty members, students and analysis of syllabi and teaching policies, this research asks in what ways can local academic institutions challenge Eurocentric hierarchies in academic knowledge production.

Drawing on critiques of coloniality in STS (Prasad, 2022), institutional whiteness (Ahmed, 2012), and structural barriers to decolonizing knowledge practices (Quijano, 2000; Ashkin & Cengiz, 2023; Sarathchandra,



2018), this study highlights the gap between the call for decolonizing (STS) knowledge and the day to day practices in a local academic environment. Findings show that while there is growing awareness of the need for epistemic diversity, change is often hindered by institutional inertia, disciplinary norms and the corporatisation of academic institutions.

This presentation contributes to the ongoing debates on the politics of knowledge in STS and offers preliminary thoughts on potential further debates for fostering change.

11 JUNE 2025 09.00 - 11.00

ROOM B3.4

ID 640 - Technoscience for Good in the Global South: Embrace Science and Technology as Global Public Goods

Govindan Parayil, University of South Florida

Keywords: Socio-technical imaginaries, small-scale nuclear power energy systems (on and off grid), renewable energy transition

Much of modern science and technology evolved in now what we call western industrialised countries, their entanglement in the global south as colonial occupiers tainted the discourse on development since the project of decolonisation began after WWII. It was a mistake to equate modern science & technology that evolved in both the west and the colonies as "tools of the empire," and, hence, inappropriate for rebuilding the economies of postcolonial states.

The emergence of epistemological relativism and social constructivism in contextualizing the development of modern S&T did enormous damage to the development and diffusion of critically important new knowledge and tools for rebuilding the economies of the postcolonial states. Instead of selectively deploying new technologies and scientific knowledge for economic development, developing world leaders experimented with various appropriate, intermediate and indigenous technologies as the best tools for economic development. Some of these indigenous knowledge and technologies, are indeed useful, but must be deployed in tandem with modern S&T.

East Asian countries (notably Japan, South Korea, Taiwan, Singapore and lately China) did not follow the epistemic relativism arguments about the evolution of modern S&T unlike most of their peers in the rest of Asia, Africa and Latin America. East Asian countries transferred, innovated and used modern S&T, which brought about widespread economic prosperity that helped liberate hundreds of millions of their people from extreme poverty. These countries looked at modern S&T as global public goods; they innovated and absorbed modern S&T for their contexts. East Asian countries showed that science and technology could be adopted for economic development without losing their national identities. Countries like India, Indonesia, Kenya and others are doing catch up with their east Asian peers.

In this paper, I will argue that STS scholars of decolonising of science and technology should reflect upon the mistakes they have made by uncritically following social constructivists, epistemic relativists and SSK theorists that set the research agenda of STS since the 1980s. Robert Merton's norms of modern science that clearly demonstrated the universality of scientific knowledge got ignored by the storm unleashed by Thomas Kuhn's theory of scientific change. While social constructivists lauded Kuhn, Merton was ignored. STS scholars focused on the social aspects of scientific knowledge production, while ignoring the foundational scientific facts, theories and instrumental innovations that triggered the paradigm shifts in science.

Scholars of decolonisation of S&T uncritically followed the social constructivists and epidemic relativists, which in countries like India found ready followers among right wing groups that claimed that ancient Indians had developed airplanes, cell phones, stem cells and organ transplants. They argued that their ancient and traditional science and technology were as good and better than modern S&T, an obvious fallacy. For technoscience to flourish in the global south, science and technology must be embraced as global public good. Attention should focus on equity and fairness in trade and economic transactions, and fight for a fair stake in political power through economic power that forms the basis of national and global governance.



11 JUNE 2025 14.30 - 16.30**ROOM B3.4**

Panel 49. Classificatory Systems, Values, and Standards in the Context of Migration, Borders, and Security

Convenors:

Paul Trauttmansdorff, Technische Universität Munich

Maria Volkova, University of Exeter

Silvan Pollozek, Europa-Universität Viadrina Frankfurt (Oder)

Keywords: border control, border datafication, classification, migration, standardization

Classification systems are constitutive for migration and border regimes, the exercise of state power, the delineation of borders, and the state's creation of "the monopoly on the means of movement" (Torpey 2000). Classification systems are not merely passive reflections of the world, but actively shape and construct it. More generally, classifying is a technoscientific practice that shapes our perception of what we deem as "good" and/or "bad" (Bowker and Star 1999). Legally codified classifications make up different forms of citizenship, distinguishing "good" from "bad" subjects, enabling different degrees of freedom to move, and endowing social and political rights. Classification systems are integral to state infrastructures and the enactment, differentiation, segmentation, and hierarchization of people. They are embedded into material objects, technological devices, and infrastructures, like databases, passports, or questionnaires. In this sense, classifications become fundamental tools through which the state exerts control, enforces boundaries, and governs "alterities" (Pelizza 2020).

Research at the intersection of STS, critical migration studies, and border/security studies has explored a variety of technologies and data infrastructures, ranging from biometrics, techniques of risk analysis and preemption, to interoperable databases and AI-driven tools. Scholars have investigated the ways in which they categorize, filter, and sort people through "differential exclusion" (Mezzadra and Neilson 2020). Yet, even though classification systems and their standardization procedures are key for bureaucracy and statecraft, and for their increasingly digital forms of trans- and international governing, they have attracted relatively little attention.

We therefore invite conceptual, methodological, and empirical contributions that explicitly explore classification in the context of borders, migration, and security. This panel is interested in contributions that discuss, e.g.,

- how classification systems are materialised and embedded within standards and infrastructures of migration control;
- how legal, technical, and political classifications intersect and operate across different domains in migration governance;
- how classificatory systems, values, and standards become transformed in the context of datafying borders and migration control;
- actors and their expertises, arenas, and practices that transform classification systems into standardized forms and techno-legal entities to become legible for state authorities and suitable to bureaucratic practices;
- the genealogies of classification systems, including their racialized and colonial roots, in the realm of borders and migration; as well as their inconsistencies, messiness and incompleteness (Bowker & Star 1999);
- everyday work of "making fit" and "tinkering," performed by asylum case workers, officers, screeners, or bureaucrats;
- the margins of classification systems and the work of affected people to work towards or around classifications;
- how classification systems and standards racialize, vulnerabilize, discriminate, illegalize, and criminalize people;



- the silence, visibility, and invisibility of classification systems, which contribute to strategic
- ignorance and selective knowledge production.

11 JUNE 2025 14.30 - 16.30**ROOM B3.4**

ID 264 - The Exclusionary Logic of ID Blocking in South Africa

Carolina Polito, LUISS Guido Carli University

Cristina Alaimo, ESSEC Business School

Keywords: Biometric, Data doubles, South Africa

On January 16, 2024, the South African High Court ruled in favor of more than 700,000 people whose identity numbers had been blocked by the government. The High Court declared this practice unconstitutional, marking the end of a decade-long policy by the South African Minister of Home Affairs that systematically blocked the identity numbers associated with the official documents of thousands of South African citizens and (mostly) permanent residents and migrants as part of its broader management of identities and migration flows.

Why did the South African government block these IDs? While there is speculation about motivations such as the exclusion of vulnerable or foreign populations due to an increased xenophobic sentiment, little to no academic scholarship has directly addressed this phenomenon. Drawing on the ideas of classification infrastructure and data as artefacts of cognition (Bowker and Star, 1999; Alaimo and Kallinikos, 2024), this paper situates ID blocking within broader debates on how data regimes in and outside the borders can produce the systematic exclusion of population strata. Specifically, this paper focuses on how the South African data regime was distinctively produced over time.

South Africa's historical relationship with biometric technologies provides a critical context for understanding its modern identities and migration control practices. The development of biometric architecture in the country is not a recent phenomenon. Under the influence of Francis Galton, a pioneer in eugenics, South Africa became a key site for early eugenic research and the application of biometric methods for colonial governance (Breckenridge, 2014). During apartheid, the government introduced a policy of racial separation, creating a series of identity enclaves to divide the population according to ethnic and racial categories. This policy of separate development sought to assign every Black South African to a designated 'homeland'. As a result, population registries, which mushroomed in the homelands, inherited significant errors, inconsistencies, and duplication (Breckenridge, 2005). The systemic flaws in these early registration practices set the stage for modern challenges in biometric data management, as well as shaping contemporary migration control strategies. Duplication in "data doubles" (Haggerty & Ericson, 2000; Trauttmansdorff, 2022) was usually handled by blocking the duplicate ID number. Derived from a historical technological legacy, this practice was, however, subsequently used to set an internal "digital border," shaping who could access legal rights and freedom of movement.

Utilizing a longitudinal case study methodology that combines archival research and interviews, this analysis shows how examining historical classification legacies – together with contemporary data governance practices – is crucial to understanding the systematic exclusion of individuals from recognised citizenship. Far from a mere technical glitch or a clear-cut policy decision, ID blocking emerges as a structural outcome of how classification systems are embedded in South Africa's bureaucratic and technological infrastructures. This paper thus contributes to broader discussions on how classification and datafication at the intersection of migration, borders, and security can reify long-standing social divisions and extend the reach of xenophobic policies through ostensibly neutral digital systems.



11 JUNE 2025 14.30 - 16.30 **ROOM B3.4**

ID 474 - Curating and deleting: Archival frictions in European security's data infrastructures

M Leal Causton, Vrije Universiteit Brussel

Rocco Bellanova, Vrije Universiteit Brussel

Lucas Melgaço, Vrije Universiteit Brussel

Keywords: archival frictions, data governance, data retention and deletion, appraisal, European law enforcement

This study investigates archival frictions in the governing of data (and their) infrastructure at the core of European law enforcement cooperation. Archival friction refers to the tensions, conflicts, or challenges that arise within archival and information practices due to various factors such as organisational policies, technological limitations, legal regulations, ethical considerations, and cultural dynamics. Critical approaches to criminology and security studies often discuss the algorithmic system's voracity without paying much attention to the socio-technical, legal and political implications of data curation and deletion in actual instances of big (personal) data. To address this gap, we focus on the tension between the European Union Agency for Law Enforcement Cooperation (Europol) and the European Data Protection Supervisor (EDPS) from 2019 to 2024, where the open conflict over deletion serves as a frame for our analysis.

Drawing on a transdisciplinary framework informed by critical archival and information studies, digital humanities, critical data studies, and criminology, we unpack how Europol operates not just as a law enforcement body but as a data infrastructure and appraisal machine. This paper positions appraisal – the process of deciding what data is retained, deleted, or further processed – as both a tool for understanding Europol's role in shaping power relations and governance practices and a perspective shaped by archival 'appraisal thinking' that highlights the active and political nature of appraisal within broader data governance frameworks.

By breaking down archival frictions into specific events, we examine the dynamics and power struggles in these processes, illustrating how appraisal practices challenge and substitute formal data governance mechanisms. This approach also reveals areas of opacity and ambiguities in European security infrastructures that are often overlooked. Our ambition is to empirically demonstrate the epistemic potential of a transdisciplinary approach pivoting on archival studies, and notably what vantage points it can offer to those literatures in criminology and critical security studies that already focus on European law enforcement.

11 JUNE 2025 14.30 - 16.30 **ROOM B3.4**

ID 506 - Securing by integrating: How to detect and classify deserving migrants

Enrico Gargiulo, Università di Torino

Alessia Tortolini, Università di Bologna

Keywords: Migrations, borders, security, techno-legal practices suitable to bureaucratic practices

Migrations are often framed as crises by Western countries, implying that their management is a security issue. As a result, migration is not only perceived as an existential threat for the domestic order of nation-states but also as an exceptional situation requiring ad hoc solutions. Exceptionalism replaces normality in social control when power holders perceive security to be at stake, thus creating a blank space that allows governments to develop legal and technical tools to address insecurity. In this context, borders take on a crucial security role, serving both as margins and as tools for collecting data on people and their actions. Borders, then, become sites to produce knowledge that serves various objectives necessary to the implementation of securitisation policies (Pallister-Wilkins 2016).



This research focuses on borders as mechanisms of classification and examines the implications of these classifications in the development of security policies by Western countries. The socio-political use of physical and technological mechanisms of control, in fact, has a direct impact on the development of securitisation strategies, which are often implemented through specific legal and administrative tools by governments rather than solely with ordinary legislation. In particular, the research deals with Italian migration control policies of the last two decades and on how restrictive categorisation is not limited to physical containment mechanisms but it plays a significant role in sustaining security concerns. Specifically, the paper focuses on the civic integration policies implemented by Italian governments over the last fifteen years. These policies, introduced with the explicit motivation of promoting security, are based on the idea that only deserving migrants should be allowed to reside in Italy and that their deservingness must be precisely identified and measured by attending courses and passing tests. They therefore rely on classification criteria that are, however, variable and unstable. In fact, at its inception, the civic integration policy was addressed only to people migrating for economic or family reasons, while asylum seekers and refugees were exempted from signing the integration agreement. The first and broadest form of classification thus distinguished migrants on the basis of their reasons for migrating. Later, the logic of civic integration was extended to asylum seekers and refugees in the form of initiatives to promote free and voluntary work. New categories and criteria of classification have thus emerged, revealing the presence of new legal and administrative borders.

11 JUNE 2025 14.30 - 16.30

ROOM B3.4

ID 553 - Constructing Love: Transnational Couples' Strategies of Displaying genuineness of their relationships within the Border Infrastructure

Maria Volkova, University of Exeter

Keywords: classification, categorisation practices, border control, infrastructure

This paper explores the UK border as a classificatory infrastructure (Star and Bowker 1999). I argue that while the border creates a classification of individuals embedded in technological devices, migrants attempting to fit into these classifications create feedback loops. In Hacking's words, the border as a classificatory infrastructure is making up people (Hacking 2004). As a case study, I examine the legalisation process for transnational couples in the UK. To marry, couples must visit a local registration office to give notice. Registrars forward their applications to the Home Office and report if they have suspicions of sham relationships. All data is collected by a Home Office unit, where AI triangulates the information to flag suspicious couples.

This process is shaped by a series of layered interactions. Registrars rely on professional tacit knowledge – an intuitive sense of what constitutes a fake or genuine relationship (Maskens 2015). The border infrastructure channels diverse data into AI systems, enabling algorithms to identify potentially sham marriages. Finally, couples themselves actively engage with the classification, trying to determine what evidence will best convince the state of their relationship's genuineness.

Drawing on interviews with transnational couples married in the UK and registrars from local registration offices, this study explores how individuals adapt their behaviour to conform to state classifications, even when their understanding of the government's criteria remains unclear. To demonstrate the genuineness of their relationships, couples actively gather evidence, often relying on word-of-mouth advice and utilising specific genres, visual language, and templates that circulate within migrant communities and among immigration lawyers. These elements enable couples to craft what can be termed a "family display" (Carver 2014, Finch 2007), e.g., the process of using interactional and material resources to perform their identity as a legitimate couple (Goffman 1959). In this paper, I show how couples develop strategies for constructing family displays and how both technologies and communities of practice shape these strategies.

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11 JUNE 2025 14.30 - 16.30

ROOM B3.4

ID 593 - Coastal borders, technologies of maritime security and the politics of classification

Alexandra Hall, University of York, UK

Keywords: Maritime security, borders, coast, machine-learning, data

At coastal borders, global maritime security challenges (trafficking, smuggling, migration, even terrorism) must be tackled as everyday concerns. The securitisation of maritime migrant arrivals - from the UK's "small boats crisis" to the martial-humanitarianism of the Mediterranean - occludes a broader issue: that small marinas, landable beaches and waterways link local coastlines with all manner of global maritime circulations. Data collection, machine learning technologies and visualisation techniques produce new possibilities for governing maritime domains, especially coastal borders. In the British case, military-grade AI "counter-intrusion" towers now overlook coastal areas, and data about sea-borne objects, vessels and movement is gathered into a "pattern of life" that can be used to autonomously identify targets of interest. Put simply, governing maritime movement is becoming a matter of its transformation into data, with important ramifications for decision-making about bordering, security and saving lives at sea.

The use of data and machine learning technologies in maritime contexts produces distinctive challenges, especially in relation to classification. How to discern moving objects against the sea's mobile materiality? How to target illicit or risky movement in busy coastal regions? How best to distinguish a life in danger from floating debris? Engaging with STS and critical border security studies - and drawing from ethnographic fieldwork with coastal watch volunteers around the UK coastline - I draw out two arguments: the techno-scientific "challenges" of classifying movement at sea become ethical and-political effects in the functioning of maritime borders; and the turn to machine-learning and data at the coast is producing new forms of imperceptibility and insecurity, despite promises of total maritime domain awareness.

11 JUNE 2025 14.30 - 16.30

ID 618 - EUROFRONT's Classification Practices- EU Categories of 'Smuggler's and 'Victims' in South America

Sara Bellezza, Freie Universität Berlin

Keywords: classification practices, EUROFRONT, digital bordering infrastructures, smuggling

This paper explores how the EU-Latin American cooperation EUROFRONT reshapes migration governance through classification practices. Concretely, it investigates how EUROFRONT seeks to implement European and international knowledges and practices of classification to identify and prosecute the legally distinct categories of 'smugglers' and 'traffickers,' and identify and protect 'victims' of a smuggling operation in South America, where EU interventions in border management are a recent, under-researched phenomenon.



In 2020, a consortium of EU and international actors, including the International Organisation for Migration (IOM), initiated the pilot project EUROFRONT. Financed by the European Commission, EUROFRONT organizes trainings, awareness building, technical and technological support and legislative reform at four land border crossing points comprising seven countries, namely Colombia and Ecuador, Bolivia and Peru, Argentina, Paraguay and Brazil (EUROFRONT 2020a). One of EUROFRONT's axes of action centers "the fight against illegal trafficking of migrants" (EUROFRONT 2020b). Within this axis, the IOM is tasked with training local actors, both border officials and civil actors, on respective rights frameworks. The IOM also offers technical and technological support at the pilot borders to identify 'smugglers' and 'survivors of a smuggling operation' and "develop[...] tools for government officials in the prevention, identification and investigation of the crimes of human trafficking and the smuggling of migrants" (ibid.), additionally "improving information technology (IT) capabilities at border checkpoints for the prevention and response to migrant smuggling (ibid.)."

Critical migration research in Europe has closely considered the conflation of the criminalisation of migration with the EU's agenda against smuggling (Alagna and Sanchez 2024; Bellezza and Calandrino 2017) and emphasised how classification systems around smuggling have illegalised and criminalised asylum-seeking persons as 'smugglers.' In the Americas, the phenomenon of human smuggling has received predominant policy and academic attention in Central America, on migration routes to and in Mexico and the US (Sanchez 2014, 2017). Through EUROFRONT, classification practices around 'smuggling' that include the establishment of criminalisation and protection regimes along with the digitalisation of bordering infrastructures are supposed to be 'brought' to South America. In this paper, I thus pose the following questions: How are legal, social and political categories of 'smuggling' and 'victims' defined, invented, approved, contested and produced within EUROFRONT and its target audiences? How are these categories translated into- and applied within digital infrastructures? What effects does the digital registration as 'smuggler' or 'victim of smuggling' have for the persons concerned? How does the digitalisation of these categories produce new classifications, that become legally, politically and socially relevant and profoundly affect people's lives over time?

11 JUNE 2025 14.30 - 16.30

ROOM B3.4

ID 734 - Excluding by design: The Architecture of CCAC Infrastructure in the Eastern Aegean Archipelago

Vasiliki Makrygianni, Università di Bologna

Keywords: Border sovereignty, carceral infrastructure, Greek Turkish borders, CCAC, Eastern Aegean Archipelago

In 2020, a technical department within the Greek Ministry of Migration was established to construct multiple Closed Controlled Access Centers (CCACs) across the Greek territory within a short timeframe. This department's primary objective is to design, construct, and maintain these facilities in compliance with European and Greek legislative frameworks, technical regulations, and local complexities. The new CCAC infrastructure incorporates significant technological advancements and design patterns, aligning with the latest EU migration policy agenda and signaling the spatial and technological transition from hotspots to CCACs. These facilities utilize zoning and classification systems that reflect various power relations, institutional hierarchies to spatialize the EU eastern frontier borderline. The spatial and visual arrangements of segregation are defined by the functions of the spaces and reinforced by digital infrastructure, namely the 'Alkyoni,' 'Centaurus,' and 'Yperion' systems.

The design principles and construction methods for each CCAC follow a standardised "copy-paste" approach, potentially reflecting a unified perspective on border sovereignty. And while standardisation dominates, each facility also adapts to the specific characteristics of its location, shaping carceral spaces on each island and contributing to distinct spatialisation of technologies and infrastructures. At the same time, local hierarchies, power dynamics, and social antagonisms influence the design and operation of

these facilities, highlighting the interplay between centralised planning and localised influences and showcasing the porous nature of these spatial arrangements.

Drawing from STS & Feminist Technoscience, Urban Studies & Architectural Theory, this presentation focuses on the design principles, construction processes, and material characteristics of the CCACs, which are characterised by classification and zoning principles and aims to better understand the carceral spectrum and border practices in the eastern Aegean region. Based on multisite field research across seven islands in the Eastern Aegean Archipelago, visits to four CCACs, and engagements with the relevant technical departments responsible for materializing such infrastructure, this paper examines the development of these carceral spaces. It explores their nature, characteristics, dynamics, and contradictions while analysing the design principles and processes underpinning these hostile spatial and technological interventions. By mapping distinct technologies, design processes, and infrastructure, it seeks to answer the following questions:

- What organisational design principles, tools, and patterns are applied in the making of the new CCACs and what types of spatialities do they produce?
- How are zoning and surveillance techniques embedded in the carceral infrastructure, and what are its architectural elements and technologies?
- Which strategic design patterns are questioned or welcomed by local social antagonisms, and in what ways?
- What forms of everyday life emerge through such patterns, technologies and infrastructure?



12 JUNE 2025 14.00 - 17.00

ROOM B2.2.8

Panel 50. STS and the History of Technoscience Diplomacy

Convenor:

Roberto Lalli, Politecnico di Torino

Keywords: history of science and technology, international cooperation, science diplomacy, soft-power

Over the past two decades, "science diplomacy" has emerged as a prominent focus for policymakers, scientists, and analysts. Advocates of science diplomacy within national and international policy circles highlight technoscientific cooperation and exchange as beneficial for fostering international relations and addressing global challenges. However, critical analysts argue that the science diplomacy discourse rests on assumptions that STS scholars have long questioned, particularly the idea that science is inherently benign and that scientists operate exclusively with "good" intentions. Much of the science diplomacy literature further presumes, often uncritically, that scientific collaboration inherently enhances relations between nations. Critics contend that science diplomacy is a buzzword, covering a spectrum of practices and initiatives driven by diverse objectives, while overlooking the nuanced distinctions between various types of science and technology involved. These critical perspectives suggest a need for a more precise understanding of science diplomacy's heterogeneous practices. Key challenges include avoiding simplistic generalizations while retaining the ability to make meaningful comparisons and generalizations and ensuring that these insights are not framed with an overly optimistic, conciliatory view of international cooperation in technoscience. Historians of science and technology have contributed to this debate, frequently aligning with STS-informed critical perspectives. Using historical case studies, they illustrate how different technoscience diplomacy efforts have served distinct—and sometimes contradictory—aims, often to maintain political or technological dominance. While historical scholarship on science diplomacy is expanding, there remains a limited focus on methodological approaches that integrate historical analysis with STS frameworks. This panel addresses these methodological concerns by inviting scholars to present historical cases of technoscience diplomacy, emphasizing the STS concepts and methodologies - both explicit and implicit - that inform their research. Topics may include, but are not limited to:

- the co-production of technoscience and diplomacy across historical contexts;
- longitudinal network analyses of international technoscientific cooperation through an STS lens;
- boundary objects and boundary work within science diplomacy;
- feminist approaches to the history of science diplomacy;
- distinctions between science and technology in the science diplomacy framework;
- dual-use dilemmas within science diplomacy;
- translation and brokerage roles in historical cases of science diplomacy;
- socio-technical imaginaries shaping science diplomacy strategies;
- the influence of national cultures on science diplomacy practices;
- science diplomacy as a form of soft power, analysed through STS perspectives

The panel will conclude with a focused discussion on methodological issues, fostering stronger ties between historical and STS approaches to enhance the relevance of historical analyses for current evaluations. This panel is sponsored by the Italian Society for the History of Science (SISS).



12 JUNE 2025 14.00 - 17.00

ROOM B2.2.8

ID 139 - Just or fast: The public–private shift in nuclear fusion research as a clash of sociotechnical imaginaries

Alessio Giacometti, Università degli Studi di Padova

Keywords: nuclear fusion, sociotechnical imaginaries, science diplomacy, science privatisation, market fundamentalism

Nowadays nuclear fusion – an elusive source of potentially clean and abundant energy that scientists have been chasing for decades – is said to having reached an epochal turning point: once the preserve of publicly funded universities, national labs, and intergovernmental projects, research in fusion is being more and more populated by private companies, most of which are US-based and financed. The perceived change in fusion leadership is strikingly sharp: up to few years ago, the attention of the fusion community was catalysed by ITER, a huge experimental reactor slowly under construction in southern France by initiative of 35 Countries to prove the scientific and technological feasibility of fusion once and for all, while in recent times the hegemony of ITER in the fusion landscape has been challenged by a growing proliferation of private start-ups that are entering the field and claiming they can build their own fusion reactors, as alternatives to ITER's, and with a faster, cheaper and smaller scale approach.

Such a "paradigm shift" in fusion research begs the question to the outsider: why is fusion rapidly going private? Or put differently: how can we account for these two opposite pushes, one to politicise, internationalise and turn fusion research into mega-science with ITER, and the other to de-politicise, de-internationalise and turn it into a business for private enterprises?

Answers to these research questions put forward so far appear to be unsatisfactory: the public-private shift in fusion research gets often rationalised to make it perceived as normal, necessary, inevitable, even providential. And yet the two lines of research – ITER versus the start-ups considered as a whole – are entangled in a scientific controversy about the proper size, shape, cost, timescale, and innovation strategy for building a proof-of-principle reactor with a net gain, successfully and as soon as possible. A qualitative analysis of the public discourses on the changing political economy of fusion research will be presented and the theory of sociotechnical imaginaries will be used to understand the conflicting visions behind the two approaches. It is shown that ITER embodies in fact a "just fusion" imaginary leveraging on science diplomacy to develop fusion as a common good and protect it from the anarchy of market and international competition, while the private fusion movement reflects a "fast fusion" imaginary subordinating energy justice to market efficiency and science diplomacy to the development of fusion in a timescale relevant for the climate crisis. Clearly, both imaginaries have their merits and their limitations too, which will be analysed from an STS perspective to show their implications for the social acceptability of fusion, energy justice, climate diplomacy, and science privatisation.

12 JUNE 2025 14.00 - 17.00

ROOM B2.2.8

ID 277 - Uniting Europe for/from fusion energy: Technoscientific networks and the political integration process

Roberto Lalli, Politecnico di Torino

Keywords: technoscience diplomacy, history of science and technology, fusion energy, European integration

A central question in historical studies at the intersection between technoscience and international relations is the mutual impact of cooperative European technoscientific projects and the political process of European integration. Alongside studies of major scientific endeavours, such as CERN, ESA and EMBO, international cooperation on fusion research has been posited to play a significant historical role during key moments of European integration. Within the framework of the PRIN PNRR 2022 project FusEurope: European Cooperation in Nuclear Fusion Research – From History to Future Policy Design, this talk examines



how European technoscientific cooperation in nuclear fusion research evolved from the 1950s to the early 2000s, set against the global development of the field. Applying concepts and tools from network science, the study investigates changes in international cooperation patterns over time. A quantitative analysis of more than 45,000 publications indexed in the Web of Science, complemented by data on participation in international commissions and projects, reveals a significant increase in collaboration after 1958, following the declassification of fusion research. This growth further accelerated in the late 1980s, aligning with broader trends in global scientific collaboration during the post-Cold War era.

Using co-authorship as a proxy for international cooperation, the study identifies a marked increase in collaborative research among EEC/EU countries, accompanied by an increasing centrality of these countries in the global fusion research network. By comparing longitudinal co-authorship networks with the interlocking directorate of international commissions, the analysis highlights how decision-making processes were linked to tangible research collaborations. It shows that the establishment of the European Union significantly reshaped cooperation schemes among European countries, transitioning from institutional agreements to deeper integration in research activities.

This study contributes to the interrelations between STS and the historical analysis of science diplomacy in two ways. First, it discusses the application of social network analysis to the study of techno-scientific-political networks, comparing it with approaches such as Actor-Network Theory. Second, it examines how socio-technical imaginaries of clean energy production of future nuclear fusion plants, shaped the historical development of international cooperation in fusion research.

12 JUNE 2025 14.00 - 17.00

ROOM B2.2.8

ID 287 - Scientific sharing and diplomatic contacts in influenza surveillance during the Cold War and decolonisation

Giacomo Simoncelli, Università di Roma La Sapienza

Keywords: influenza, surveillance, virology, vaccines

Influenza surveillance, organised by the WHO in 1947, had immediately to deal with the difficulty of promoting the fight against a borderless disease within a framework of international divisions and conflicts. Surveillance as envisioned by the British virologist C. H. Andrewes was characterised by the exchange of information and scholars, but also by the sharing of strains and the centralisation of research activities at the World Influenza Centre in London. Most of the laboratories that could meet the needs of the WHO were located in Europe and North America. Therefore, when the Eastern Bloc decided to withdraw from the Geneva institution between 1949 and 1950, the functioning of surveillance already seemed to be questioned. And yet, the severing of official ties with the WHO did not mean the end of relations between virologists of the two blocs. On the contrary, the fight against influenza would become a field of dialogue in the following decades, despite the various tensions. The production of a 'homologous' vaccine, created from the specific strain whose spread was to be stemmed, required that samples were made available in a timely manner. However, immunisation was also linked to different techniques, technologies and vaccine types.

This paper will focus on the development of the virological research framework on these issues at international level, which will be examined in conjunction with the historiographical investigation of its relationship to the events of the Cold War and decolonisation, from the late 1940s to the early 1980s. In particular, with regard to the sharing of strains and antigenic analyses of them, the informal relationship maintained between the World Influenza Centre and the Eastern Bloc countries during the first half of the 1950s, when they were inactive within the WHO, will be retraced in its main stages. With regard to techniques and technologies developed through international research projects, the paper will examine the link maintained by London with apartheid-sanctioned South Africa, involved in studies on methods for the rapid identification of virus antibodies.

The British laboratory became a sort of clearing house that allowed the exchange of information and

expertise, despite the fact that South Africa officially had no relationship with Geneva. Furthermore, I will examine the leap in the collaboration between the United Kingdom and the Soviet Union on live influenza vaccines in the early 1970s. Explicit diplomatic interests, due to Nixon's attempt to ease relations, will be emphasised. The greater cooperation between London and Moscow found a suitable ground to develop in the already established relationship between British and Soviet virologists through a WHO trial on live influenza vaccines.

This study aims to demonstrate that influenza surveillance was never undermined by the intricate geopolitical dynamics of the post-World War II era. And at the same time, it became a diplomatic tool and, sometimes, a vector of competition between states over their role in the international health arena. The sources used for this paper are from the WHO archives, from the World Influenza Centre's documentation held by the Wellcome Library, and also from the UK Foreign Office's funds, reviewed at The National Archives.

12 JUNE 2025 14.00 - 17.00

ROOM B2.2.8

ID 335 - The Diplomacy of Standardisation: Negotiating International Electrical Units from the 1930s to the 1960s

Sara Bassanelli, Università di Pavia

Keywords: technoscientific standardisation, electrical units, international techno scientific cooperation, physics, science diplomacy, STS

Techno-scientific standardisation emerged as a key endeavour of international scientific organisations during the interwar period, laying the groundwork for subsequent global agreements. However, the diplomatic dimensions of negotiations on international standards – and their influence on Cold War standardisation practices – remain underexplored. This talk examines these dynamics through the case of international debates over defining electrical units, using an STS-inspired network analysis to examine how scientific, technological, and geopolitical factors intersected in international technoscientific cooperation. Beginning with the interwar period, the presentation analyses interactions between individuals, national laboratories, and international bodies such as the International Union of Pure and Applied Physics (IUPAP), the International Bureau of Weights and Measures (BIPM), and the International Electrotechnical Commission (IEC). These negotiations balanced competing priorities – economic, scientific, and technical-industrial – while operating within a geopolitically charged context. The analysis then shifts to the post-World War II era, examining how transformations in the global institutional and political landscape culminated in the adoption of the International System of Units (SI) in 1960. By tracing continuities between interwar and postwar practices, the talk highlights how Cold War scientific agreements were shaped by earlier exchanges of data, resources, and authority, challenging the notion of scientific collaboration as inherently neutral or universally beneficial.

Reconstructing this history demonstrates how integrating historical analysis with STS frameworks deepens our understanding of the diplomatic dimensions of technoscientific work. Using STS concepts such as co-production and boundary work, this study makes three key contributions. First, it shows how technoscientific debates both shaped and were shaped by geopolitical dynamics. Second, it examines the multi-faceted process of constructing structures and networks for standardizing electrical units, emphasizing the interplay of scientific expertise, institutional decision-making, and state priorities. Finally, it argues that standardisation served as a tool for dominant nations to assert authority, embedding their influence within international relations.



ID 377 - Eroding Histories: Soil Science, Governance, and the Making of Degradation in Turkey

Almina Akbalcik, Goethe-Universität Frankfurt am Main

Keywords: soil degradation, soil science, history of science, science governance, science diplomacy

This research asks, "How did soil science develop in Turkey, and how does its evolution intersect with soil degradation?" It traces the historical and sociotechnical processes through which soil science and soil degradation were co-constructed in Turkey.

Described as a "silent global crisis" (HBS, 2024), soil degradation has recently become a concern, reflected in environmental policies. According to policy advisory and scientific reports, most European soils are degraded, and the soils of Anatolia are no exception. Yet, from a larger time frame, today's ecological challenges tied to soil degradation represent only the latest chapter in humanity's dependence on soil. In Anatolia, soil degradation has been a phenomenon that has been present since ancient times, as a force that molded its landscapes in the form of erosion, and (re)shaping agricultural practices in the form of nutrient loss. During the Republican era, this persistent phenomenon was reassembled as an environmental problem shaped by the dynamic interplay of scientific techniques, governance strategies, international relations, and national cultures (Stengers, 2010).

The research attends to this process of reassembling soil degradation. It strives to document geohistorically specific ways soils – and their problems – are constituted by situating the problem of degradation within the evolving history of soil science (Barry, 2021). Located at the intersection of STS and the history of science, it draws on Latour's (1999) concept of "lively historicity" to explore the dynamic interplay between soil science, evolving soil materialities, classifications, and socio-political contexts.

Methodologically, the study combines archival analysis with interviews conducted with soil scientists from Turkey's Ministry of Agriculture and Forestry and agronomy faculties. Furthermore, drawing on Asdal and Reinertsen (2022), it critically reflects on how these documents function as tools, their work, and their movement.

The analysis conducted thus far highlights the significance of technoscientific cooperation in the making of soil studies and of soil degradation. That influence particularly concentrates around the following events: (1) the early Republican period, where German-trained agronomists emphasised chemical balance as a marker of soil health, viewing degradation primarily as a natural land-shaping factor; (2) the 1950s, American influence brought through Marshall Aid, framing degradation as a critical issue linked to erosion, yet simultaneously stirring the overuse of arable land; and (3) the early 2000s, Turkey's EU candidacy process and integration into global environmental frameworks redefining degradation through indicators like SOC levels, driving new research agendas and legal arrangements for soil protection.

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12 JUNE 2025 14.00 - 17.00

ROOM B2.2.8

ID 433 - Space Diplomacy: an operational history

David Burigana, Università degli Studi di Padova

Keywords: Space Diplomacy, Science Diplomacy, Operational History, Entangled History, International History

We started talking on Space Diplomacy again with the "discovery" of Science Diplomacy (Ruffini, 2015), both in reality historical phenomena as shown by the H2020 InsSciDE Inventing a Shared Science Diplomacy for Europe (2017-22). History of International Relations can reconstruct them thanks to its methodology attentive to the interconnection of sources from the different countries involved without risking being trapped in a national or disciplinary context. However, is it enough? What impact does it have on the historiography dedicated to foreign policy? Do only politics and economics count in reconstructing the evolution of the international system? Can interpretations on Cold War or European Integration be enriched or even revised?

To replay, we need an approach based on entangled history, that is, based on a real interdisciplinarity not only, and not so much, within political and social sciences or humanities. It is about seeking consultancy and collaboration from STEM colleagues, and this for a better understanding of the evolution of science and technology, of the breaking points in innovation. This is where the concept of operational history comes into play, which should not be confused with public history. It is not diffusion of history, or public engagement in spreading the memory and history of events that have marked the evolution of society and which should not be lost precisely for the conscious growth of society itself.

Operational history - as recalled in its application to the life of a machine tool - takes note of the salient moments of a phenomenon, interpreting them for the transition to its next evolutionary phase to describe its current state, and suggesting possible development prospects. This is how operational history is applied to the protagonists, to the dynamics of Science or Space Diplomacy in events involving historians, witnesses of the recent past and actors of the present time in dialogue with each other to propose a state of art to Science and Space Diplomacy practitioners. These events are the schools at the University of Padua since 2021, and now at the first International School on Science & Diplomacy in October 2024 at the Ettore Majorana Center (Erice, Sicily) <https://www.sciencediplomacy.it/> and the Observatory Space Diplomacy Italy at Padua University <https://www.spacediplomacy.it/>.

We will present two examples based on the interconnection between historiography, documents and interviews from different countries: the launch of the National Space Plan (1978-80) and the Giotto mission to meet Halley's Comet (1978-86). Both have had strong implications of Space Diplomacy, bilateral and multi-lateral, helping to design development strategies for space exploration. They represented real experiences of Science Diplomacy, in particular the Armada of probes meeting in Halley is the most relevant example during the Cold War of Space Diplomacy well beyond the 1975 docking between the USA and the USSR, for the countries involved, the typology of actors, the use of media and the impact on society.

12 JUNE 2025 14.00 - 17.00

ROOM B2.2.8

ID 515 - Models of Science Policy as Heuristics for Exploring the Meaning of "Science" in Science Diplomacy

Simone Arnaldi, Università di Trieste

Dejana Petranovic, Università di Trieste

Keywords: Science diplomacy, Science policy, Heuristics, Diplomatic Community

Science diplomacy has recently emerged as a significant area of public policy, attracting growing attention from both decision-makers and scholars. While much has been written about science diplomacy as a tool of foreign policy, less focus has been placed on how its discourses and practices are shaped by broader understandings of the relationship between science and society – and consequently, by the different ap-



proaches to science policy that arise from these understandings.

This presentation proposes using post-World War II models of science policy as heuristics to explore the distinct ways these perspectives manifest in science diplomacy. As science policy discourse has evolved to emphasize the societal needs that scientific knowledge is expected to address and the broader involvement of social actors in its production, these representations of the science-society relationship can be used to analyse the current discourse on science diplomacy. The presentation highlights how these models are incorporated into science diplomacy discourse – albeit unevenly and often inconsistently.

To support this claim, the presentation will discuss the initial findings from a study of science diplomacy activities conducted by the Ministries of Foreign Affairs in Eastern and Southeastern Europe. The analysis demonstrates how the interviewed diplomats describe the goals and characteristics of their actions in terms that are consistent with the science policy models under consideration.

12 JUNE 2025 14.00 - 17.00

ROOM B2.2.8

ID 751 - From Global AI Governance to Strategic Containment: The New AI Cold War?

Merav Tordjiman, Bar-Ilan University (וליאירב תטיסרבינוא)

Denisa Kera, Bar-Ilan University (וליאירב תטיסרבינוא)

Hila Ofek, Bar-Ilan University (וליאירב תטיסרבינוא)

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Keywords: AI, Cold War, AI Governance, AI Diffusion, technological sovereignty

The shift from global and multilateral AI governance initiatives to national security-driven containment marks a critical turning point in technological regulation. As frameworks focusing on international collaboration like the Global Partnership on AI (GPAI) or OECD AI Principles give way to restrictive policies, a new paradigm of technological sovereignty emerges. This transition is best exemplified by the Framework for Artificial Intelligence Diffusion (IFR 0694-AJ90) that prioritizes export controls, licensing policies, and compute restrictions over making AI trustworthy, responsible, human centred etc., reflecting broader tensions between innovation and national security.

The securitisation of AI governance is evident in increasingly restrictive national policies: China's AI Security and Algorithm Regulations reinforce domestic control, Japan's AI Strategy 2022 emphasizes export security, India's AI Mission prioritizes defense applications, and Russia's AI Strategy focuses on Sovereignty & national security. Simultaneously, semiconductor supply chain rivalries – often described as the "Chip Wars" – intensify economic competition, creating new technological hierarchies that resemble but also transcend Cold War-era containment strategies.

This study examines three interconnected dimensions:

- The Transition from Global Governance to Containment Logic– How AI governance has shifted from international cooperation toward control and restriction.
- The Emergence of New Technological Blocs–How alliances between states and corporations re-shape global AI ecosystems.
- The Convergence of State and Corporate Power–How governments and technology firms co-produce AI governance through infrastructure control, surveillance, and export policies.

Through an interdisciplinary framework integrating Science, Technology, and Society (STS) studies, Foucault's concept of governmentality, and Fearon's costly signals theory, this research investigates whether semiconductor and AI diffusion controls function as effective deterrents or, conversely, accelerate alternative technological ecosystems. Engaging critically with CSET's Decoding Intentions report, this study examines how initiatives like the U.S. CHIPS Act and China's Semiconductor Development Plan embed national security imperatives into AI governance and infrastructure.



The research raises a key question: Do contemporary AI containment strategies signal a new Cold War, or do they represent a more profound transformation in global power structures? By examining alternative AI ecosystems – such as China’s DeepSeek and European AI initiatives – this study reveals the systemic limits of technological containment in an era where AI diffusion increasingly resists traditional geopolitical control.

Beyond conventional geopolitical analysis, this research reframes AI sovereignty as an infrastructural phenomenon, where access to compute, model weights, and semiconductor supply chains determines geopolitical influence. It synthesizes historical Cold War containment strategies with contemporary digital governance challenges, offering new theoretical insights into evolving relationship between technological power, economic competition, and AI regulation. Through comparative policy analysis and a critical examination of governance documents, this study illuminates the tensions between national security imperatives and inherently distributed nature of AI development, suggesting new frameworks for understanding technological sovereignty in an interconnected world.

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11 JUNE 2025 09.00 - 11.00

ROOM B3.1

Panel 53. Algorithmic Imaginaries: Discourses on AI in Digital Media

Sahar Tavakoli, Università degli Studi di Milano

Lorena Cano-Orón, Universitat de València

Dafne Calvo, Universitat de València

Keywords: AI, Algorithmic Imaginaries, Journalism, Media Representation, Public Opinion

The thematic focus of this panel is to examine how digital media, pseudo-media, and communitarian media construct and disseminate socio-technical imaginaries of artificial intelligence (AI). These imaginaries—collective visions of how technologies shape and are shaped by society—manifest in narratives that influence public understanding and engagement with AI, particularly as it intersects with journalism and the routines of everyday life. This panel analyses rhetorical and narrative frameworks and addresses critical questions regarding how AI is framed, understood, and debated across different media landscapes. This approach aligns with the conference theme, Technoscience for Good. It interrogates the values embedded in media narratives and their potential to reinforce or challenge visions of AI as a force for societal benefit. We aim to uncover opportunities for more equitable, accountable, and socially responsible AI engagement by scrutinising these discourses.

Key themes and questions:

- **Standpoints and framing in media.** How do different media outlets portray AI's integration into journalism and daily life? Are these technologies presented as instruments of progress, necessary evils, or existential threats to human agency and labour? This discussion will highlight the interplay between cultural contexts, technological expectations, and societal aspirations.
- **Regulation and corporate agendas.** Media narratives surrounding AI-related regulations and tech companies' strategies are crucial in shaping public discourse. What imaginaries are invoked in discussions of governance, accountability, and ethics? This analysis will illuminate how media mediate the tension between the public good and private interests in AI development.
- **Comparative perspectives between developer and implementer nations.** The socio-technical imaginaries of AI differ significantly between developer nations and implementer nations. This panel will explore the North-South divide in AI narratives, uncovering how local realities, technological dependencies, and aspirations for equitable development shape these discourses. By examining how media in different geopolitical contexts construct narratives of AI's role and potential, we will explore possibilities for a more inclusive global dialogue on AI's societal implications.

Broader implications and connections to the theme. Media are not merely observers of technological change but active participants in constructing the socio-technical imaginaries that shape public perception and policy. This panel will consider how these imaginaries influence debates about AI's societal impacts, addressing ethical, economic, and social concerns. Importantly, it will emphasise the role of communitarian and alternative media in countering dominant narratives, offering grassroots perspectives that foreground issues of equity and justice.

This panel directly engages with the theme of Technoscience for Good by focusing on the narratives promoted by the media, shaping the use and expectations of technology. It poses the question: What kinds of futures are imagined for AI, and how can we ensure that these imaginaries align with principles of social equity, accountability, and the collective good?

Invitation to participants. We invite scholars, media analysts, and technology critics to a multi-dimensional discussion on the global cultural, ethical, and political dynamics underpinning AI discourse. This panel seeks offer insights into how these imaginaries might be reshaped to prioritise more just and inclusive futures.



11 JUNE 2025 09.00 - 11.00

ROOM B3.1

ID 135 - The Impact of Virtual DJs on Radio and Media Discourse: Public Reactions and Media Narratives Regarding PROFM's AI Project

Momoc Antonio, University of Bucharest

Keywords: Media Narratives, Virtual DJs, AI discourse, Digital Platforms

In 2024, Radio ProFM Romania and OFF Radio Krakow in Poland introduced virtual DJs into their shows, following a 2023 experiment in which a Swiss station replaced human DJs with AI for a day. The news provoked strong reactions on digital platforms and raised concerns among journalists from traditional and alternative media. Similarly, in 2023, Live 95.5, an FM station in Portland, Oregon, revealed its use of a voice clone of DJ Ashley Elzinga, named "AI Ashley."

Research Questions: What were ProFM Romania DJs' reactions to the introduction of AI DJs? How did the public perceive virtual DJs, and what narratives emerged in both legacy and alternative media regarding the AI radio host?

Research Hypothesis: The "Alex Ionescu (A.I.) Project" at ProFM, launched on May 12, 2024, aimed to reduce production costs while appealing to the younger audience of a Contemporary Hit Radio station.

Methodology: This study applied discourse analysis to monitor audience attitudes on ProFM's Facebook and Instagram accounts and examined narratives from alternative digital platforms in Romania regarding the AI revolution in radio. Additionally, semi-structured interviews were conducted with show creators, producers, and news editors.

Research Results: The "Alex Ionescu project" relies on four radio professionals, increasing production costs compared to the typical one or two journalists required for a commercial radio show. AI-generated texts were extensively adapted in post-production to meet radio standards. "Alex Ionescu" integrates several AI tools, including OpenAI's ChatGPT, Gemini, and Copilot for text generation, alongside Eleven Labs for voice synthesis in Romanian. Listener feedback on Facebook and Instagram was predominantly negative in the months following the show's launch.

Conclusions: The "Alex Ionescu project" did not reduce, but increased costs due to the need for human supervisors to rewrite and adapt AI-generated texts and audio. However, project managers remain optimistic, believing AI will learn from human prompts and eventually function autonomously. Ethical oversight by a human producer remains critical. Surprisingly, the integration of generative AI into Romania's media landscape has not sparked protests but has created new jobs. Nonetheless, narratives on digital media platforms reflect significant criticism, with many accusing robots of taking jobs from human journalists, as well as their inadequacy in handling human language and humour.

The findings of this study have some limitations. The participants in the semi-structured interviews belong only to ProFM Romania and do not represent other media outlets, meaning they do not reflect the entire Romanian radio landscape. The study could be extended by conducting a comparative analysis of the media discourse on AI and public perceptions in Poland regarding the introduction of virtual DJs in the OFF Radio Krakow programs.



11 JUNE 2025 09.00 - 11.00

ROOM B3.1

ID 262 - From Determinism to Dystopia: Industry-Driven Narratives and the EU AI Act

Brid-áine Parnell, University of Edinburgh

Keywords: Narratives, AI, media, regulation, policy

As governments and industry seek to embed AI ever more deeply into daily life, those grappling to understand its impacts are at a disadvantage. Policymakers, regulators and media observers frequently lack the technological expertise they need to understand these systems, all the more so when their inner workings are tightly-held commercial secrets. With few other options, they are obliged to turn to the AI industry itself, its CEOs and senior executives, to understand AI systems and their uses. This gives the industry a powerful platform from which to pursue their own agendas and control the stories that form AI's master narratives. But while they dominate the news-cycle, are they having a real-world effect?

In this research, I investigate the impact of three industry-driven AI master narratives on the formulation and communication of the EU AI Act (EUAIA). These narratives - technological determinism (Bimber, 1990; Sacasas, 2021), the dichotomy of utopia versus dystopia (Johnson, 2022; Cave and Dihal, 2019), and the arms race rhetoric (Hull et al, 2022) - are found repeatedly in both corporate communications and policy responses. They shape the discourse around AI, marginalising alternative perspectives and nuanced understandings of potential harms.

Technological determinism takes AI's progress and dominance as immutable, relegating citizens to the status of passive observers, unable to affect significant change on this force that exceeds their control or understanding. The utopia/dystopia dichotomy presents a binary outcome for the AI-enabled world that elides any conception of the middle ground of personal safety and democratic freedom. When utopian and dystopian visions are linked to technological determinism, control becomes elusive. Rather than centring human decisions, individuals are cast as supplicants to AI as a powerful force for ultimate good or evil. The arms-race rhetoric emphasises that the "right" institutions must take control. Each country/company must strive to win the race, or they must stop others from controlling AI to their detriment. Either way, they must race ahead, hurrying along the path that's already been laid down, refusing to look left or right, focused only on ensuring that the road ends in utopia rather than dystopia.

By analysing media interviews, EU documents and press releases, I critique how these narratives privilege industry perspectives as expert opinion and discount the lived experience of users. I also illuminate how this narrative control helped establish a focus for the EUAIA that rendered some harms invisible while amplifying claims of AI's radical novelty.

Alongside this investigation, the study also contests the hegemonic framework these master narratives establish using counter-stories. Following the conceptions of counter-stories as arguments and analyses that challenge master-narrative claims, and address their tensions and gaps (Lindemann, 2001; Polletta and Redman, 2020), I highlight the diverse complexities and 'hidden' harms of AI, and locate real-world examples of dissenting experiences. I aim to challenge the supposed objectivity and inevitability of dominant narratives, and create space for alternative perspectives, contributing to a more comprehensive understanding of AI's societal implications and a consideration of the wider variety of voices that can challenge and inform public AI discourse.



11 JUNE 2025 09.00 - 11.00

ROOM B3.1

ID 343 - Computational imageries: perceptions and expectation of the digital publics

Alessandra Micalizzi, Pegaso University

Leonardo Galteri, Pegaso University

Keywords: imagery, computational creativity, artificial creativity, artificial intelligence

Creative and productive practices are increasingly influenced by the integration of artificial intelligence (AI) systems. These systems have become less "visible" compared to the past and are progressively embedded within the creative process itself

Scholars have long debated the effectiveness of such processes and, even more extensively, have reflected on the ontological status of AI-generated creative outputs (Benedek, Bruckdorfer, Jauk, 2019; Stanuch, 2023; Liu, 2023). However, comparatively less attention has been devoted to their impact on audience perception and their central role in the construction, reinforcement, or transformation of shared cultural imaginaries (D'Isa, 2023).

This paper presents findings from a broader study investigating the role of AI in the production of creative media products, with a specific focus on sound and visual media. The section discussed here examines the results of a questionnaire administered using the CAWI (Computer-Assisted Web Interviewing) methodology to a representative sample of the Italian population, comprising 2,500 respondents. The primary objective of the questionnaire was to gather public opinions on AI-driven creative production and to explore expectations regarding the future interplay between artificial imagery, reality, and artistic production. To this end, a validated attitude scale was employed to identify potential clusters of perspectives concerning both the current state of AI-generated creativity and its prospective developments.

Additionally, a segment of the instrument was dedicated to assessing the aesthetic and creative value of three photographs: two generated by an AI system and one captured using a traditional camera.

The data reveal conflicting attitudes, consistent with the broader phenomenon of Implicit and Explicit Discrepancy (IED), which characterizes responses to emerging technological advancements (Petty, Brin, 2006; Fietta et al., 2024). More specifically, two dominant clusters were identified, exhibiting polarised positions, particularly in relation to the ontological status of creative production and its connection to reality and cultural imaginaries (Micalizzi, forthcoming).

11 JUNE 2025 09.00 - 11.00

ROOM B3.1

ID 656 - AI as a Trap: Unmasking the Metaphorical Engines of Algorithmic Imaginaries

Bruno Gransche, Karlsruher Institut für Technologie

Keywords: Philosophy, Metaphor, Algorithmic Imaginaries, Nonconceptuality, Totalities

We are told to embrace the AI 'wave', but what if this very metaphor is designed to make resistance seem futile? The non-conceptuality of AI allows its metaphorization to 'go wild'. If AI is a wave, then humanity on the high seas of life is divided into only two groups: those who can swim or even surf, and those who will drown. This idea, often framed and repeated by the media, reveals the power of metaphor in shaping our understanding. Who started the development and who is responsible for how it unfolds, is simply not within the framework of how narratives make sense of waves.

This presentation argues that AI is not a concept with a clear definition but rather a complex and strategically formed totality (Inbegriff, Husserl), heavily influenced by metaphorization. Drawing on Hans Blumenberg's theory of nonconceptuality, the talk will demonstrate how the very notion of "AI" functions as a trap-like concept, characterised by an interplay of indeterminacy and definitional precision. This trap-like



nature is not merely a warning about the dangers of AI, but also an illustration of how concepts in general operate.

The presentation will then explore how the concept of AI as a totality, a collection of diverse elements grasped together by a unifying interest, surpasses the limitations of definition, while strategically shaping AI discourses. The talk will emphasize how the unifying interests and perspectives behind those totalities influence public perception and policy. It will analyse how metaphorizations around AI, such as the omnipresent "AI wave", do not merely describe but actively construct the socio-technical imaginaries of AI, directing expectations and behaviour in specific ways. This includes how metaphors create proximity between seemingly distant concepts, shaping our perception of AI, and guiding our actions.

Ultimately, the presentation will delve into how the power of metaphor, much like the power of concepts, makes absent entities present, guiding our actions and expectations, while potentially obscuring other possibilities. This understanding of AI as a strategic, metaphorically-driven totality, is critical to uncover power dynamics in AI discourses, especially within digital media.

This paper directly addresses the core concerns of Panel 53 by analysing how media-driven metaphors and strategically formed totalities shape our understanding of AI, influencing public discourse and policy. By examining the interplay of conceptuality, totality, and metaphorization, this presentation offers a critical perspective on the algorithmic imaginaries constructed by digital media, aiming at uncovering avenues for more just and inclusive engagement with AI.



Panel 54. Re-ordering Care: Algorithmic Transformations of Medical Knowledge, Practice, and Governance

Convenors:

Benedetta Catanzariti, University of Edinburgh

Natalia-Rozalia Avlona, Københavns Universitet

Keywords: AI, algorithms, healthcare

Over the past decade, advances in algorithmic techniques have been wielded in a collective re-imagining of health and social care. These techno-optimistic visions typically include quicker and more accurate diagnostic techniques, totalizing - yet personalized - screening protocols, improved clinical workflows, and greater efficiency in resource allocation. Critical scholars have, however, raised a number of concerns around the deployment of these systems, including opaque and inaccurate diagnostic techniques; a neglect of domain expertise; implicit normative assumptions involved in applying generic machine learning models to highly specific, contextually dependent tasks; the entrenchment of off-the-shelf and proprietary tools within healthcare infrastructures; problematic reframing of notions of risk and liability in the effort to regulate algorithmic harm in clinical practice; and enhanced surveillance deriving from more pervasive data collection.

Against this critical backdrop, this panel invites contributions that help bring broader understandings of how algorithmic technologies (and their underlying politics and epistemologies) might be re-configuring medical knowledge, clinical practices, and notions of care, risk, and responsibility. Recent work in this area has indeed shown how the epistemic values and power imbalances embedded in the development of medical algorithmic tools can shape experts' enactments of care (Avlona and Shklovski, 2024). This panel invites contributions that explore similar and wider shifts and transformations of care practices brought on by algorithmic technologies. We welcome presentations that explore algorithmic deployment in relation (but not limited) to the following themes:

- epistemic transformations in medical knowledge and practices;
- ethical re-arrangements in care practices;
- re-organisations of work and labour relations in healthcare contexts;
- re-organisations of clinical spaces and temporalities;
- shifts and tensions within and across informational health infrastructures;
- transformations of notions of risk and medical liability upon the employment of algorithmic systems in clinical practice.

Ultimately, this panel aims to gather both empirical and theoretical analyses of the employment of algorithmic systems in the health service management and diagnostic decision-making, including the surrounding challenges, negotiations, conflicts, and frictions.

Reference:

Avlona, N. R. and Shklovski, I. (2024). Torquing patients into data: enactments of care about, for and through medical data in algorithmic systems. *Information, Communication & Society*, 27(4), 735–757.



11 JUNE 2025 14.30 - 16.30

SESSION 1

ROOM B2.2.1

ID 749 - Epistemic and ethical impacts of the Transplant Benefit Score

Jamie Webb, University of Oxford

Keywords: algorithmic ethics, healthcare resource allocation, empirical bioethics

The Transplant Benefit Score (TBS) was introduced in the UK in March 2018 as a method of allocating livers for transplantation. The TBS is both far more algorithmically complex than the previous system and offers less clinician autonomy in allocation decisions, with livers being matched to particular patients from a national database. The TBS has been the subject of recent media attention, with pieces from BBC News and The Financial Times questioning its fairness and comprehensibility. This research project – which interviewed 29 patients and transplant staff on their perspectives on the TBS – is the first piece of in-depth qualitative research on the topic.

In this panel presentation I will focus on the epistemic impact of the introduction of TBS. This includes considering descriptive questions examined through the interview data. What were patients told about TBS? How far does the algorithmic complexity of TBS affect patient comprehension and understanding of how their prioritisation decisions are made? But it also requires considering the normative question: what would this information actually be for? It may seem that there is little use to providing patients information about an algorithm when that information does not directly relate to any clinical decision patients have to face, but this project reveals that picture is too simplistic.

Considering the epistemic impact of TBS also requires contextualizing the judgements participants made on the use of a complex algorithmic system in high-stakes resource allocation, with the epistemic and emotional uncertainties of the transplant system in which it is embedded. In particular, it requires thinking about human control and algorithmic autonomy, and how the interview project revealed points of human control in an algorithmic system.

Finally, it will challenge the simplistic notion that we should aim to promote trust in algorithmic healthcare systems, by pointing out ways in which warranted mistrust of algorithms can be advantageous: first, for staff in motivating improvements to the overall performance of the system, and second, for patients in motivating the contestation of inaccurate or biased decision-making. The findings of this project presented in this panel will be of interest to anyone considering the growing role of complex algorithmic systems in healthcare, including nascent machine learning technologies.

11 JUNE 2025 14.30 - 16.30

SESSION 1

ROOM B2.2.1

ID 680 - How AI-based technologies challenge existing care paradigms – the example of palliative care

Tabea Ott, Friedrich-Alexander-Universität Erlangen-Nürnberg

Keywords: palliative care, AI, total care, self-perception, quality of life

Palliative care is a fundamental component of healthcare, yet it faces new challenges as the medical field becomes increasingly technologized. Recent advancements, such as smart sensor technologies (SST) combined with artificial intelligence, promise improved diagnostics and treatment options. However, it remains unclear how these technologies challenge the foundational concepts and human-centred assumptions of palliative care – and, conversely, how palliative care might benefit from their integration.

This paper aims to explore the transformative impact of SST on palliative care, identifying both opportunities and challenges. Furthermore, it proposes normative criteria to guide the ethical application of these technologies. The ethical analysis is grounded in the principle of Total Care as defined by the European Association for Palliative Care (EAPC). By examining the underlying conceptions of humanity and the socio-ethical dimensions of Total Care through a phenomenological lens, the paper investigates how SST



aligns – or conflicts – with these values.

The analysis unfolds in two key stages. First, it evaluates the advantages, limitations, and socio-ethical implications of integrating SST in palliative care, particularly in relation to the Total Care principle. Second, it derives ethical-normative requirements for the responsible use of SST in this sensitive context.

The findings highlight three critical challenges: (1) SST are inherently limited in their ability to capture the full scope of human experience, as their measurements often reduce complex phenomena to quantifiable data; (2) SST influence human agency and autonomy, affecting both patients and caregivers by potentially shifting decision-making dynamics; and (3) certain holistic aspects of the Total Care principle risk being marginalised as technology becomes more embedded in care practices.

To address these challenges, the paper proposes three normative criteria to ensure that SST contribute positively to human flourishing: (1) evidence and purposefulness, ensuring that technologies serve clear, beneficial purposes grounded in robust data; (2) autonomy, safeguarding the decision-making power and dignity of both patients and caregivers; and (3) alignment with the Total Care principle, maintaining a holistic, person-centred approach that honours the physical, psychological, social, and spiritual dimensions of care.

11 JUNE 2025 14.30 - 16.30

SESSION 1

ROOM B2.2.1

ID 670 - Medical Normativities in Multi-modal Machine Learning - A Critical Analysis

Alex Campolo, Durham University

Sj Bennett, Durham University

Charlotte Högberg, Lunds Universitet

Benedetta Catanzariti, University of Edinburgh

Keywords: AI, algorithms, healthcare

Proponents of healthcare Machine Learning (ML) frame multimodal models as providing accurate forecasting of medical conditions, employing meteorological forecasting as an analogy. Medical researcher Eric Topol writes "Better warnings for extreme weather events such as hurricanes and cyclones will help save lives. The parallel in medicine is forecasting specific, actionable, high risk for individuals to prevent diseases or severe acute events" (2024). Alzheimer's disease (AD) is often presented as a candidate for such forecasts due to the complex and slow nature of its onset. In this paper, we examine the socio-material development of ML categorisations and inferences in AD, and reflect on how these can shape emergence of novel, idiosyncratic modes of healthcare organisation and governance. Specifically, we critically analyse the construction of machine learning models for the prediction of AD onset and symptomatology (e.g. Lee et al. 2024). Our focus is less on the accuracy of these predictions, rather, we draw on Mol's idea that "medicine attunes to, interacts with, and shapes its objects in its various and varied practices" (2003) to study how machine learning is altering practices of diagnosis and even the normativity of diseases like AD. By closely studying AD prediction models, we identify three significant points of transformation.

Firstly, we consider how different data types are integrated and transformed into a single predictive index. AD forecasting emphasizes the opportunity to identify predictive correlations that emerge from the integration of many different data modalities, from self-reports, to brain images, to electronic health records. This emphasis on integrating data sources may displace authority and expertise from healthcare practitioners to data and models. Instead of identifying the most significant visible or causal signs of disease (clinical markers), whose presence or absence determines a diagnosis, models produce combinations of predictive features which are said to be representative of prognostic longitudinal changes in patient symptomatology.

Drawing on this, we examine the temporal nature of medical forecasting. The slow and gradual progres-



sion of AD is one of the many challenges of diagnosis. Therefore, in forecasting models, the goal is not a direct diagnosis per se, but rather a probabilistic attribution of an individual's risk for the eventual onset of AD. These scores could then inform who might be screened using more expensive or invasive measures. We ask how these types of probabilistic measures temporally (re)organise risks. How are quantitative outputs and thresholds transformed into more meaningful qualitative outputs (e.g. "stable" vs. "progressive" forms of mild cognitive impairment [Lee et al. 2024, 4]).

Finally, we note some changes in medical normativity that forecasting models enact. Medical sociologists have long contested narrow conceptualisations of dementia (Fletcher and Capstick 2023). Rather than drawing a statistical distinction between normal and pathological on a single functional measure (Canguilhem 1991), multimodal forecasting techniques seem to integrate heterogeneous normativities – a healthy brain, normal cognitive functioning, a normal medical history – into a normative probability measure. How can we unravel and even contest the distributed, probabilistic normativities of machine learning models?

11 JUNE 2025 14.30 - 16.30**SESSION 1****ROOM B2.2.1**

ID 203 - The Techno-Politics of Computing the Mind: Opening the Black Box of Digital Psychiatry

Katerina Sideri, Panteion University of Social and Political Science Athens Greece (Πάντειο Πανεπιστήμιο)

Niels Van Dijk, Vrije Universiteit Brussel

Keywords: Remote Measurement Technologies, Digital phenotyping, Blackboxing, Dissociations

Psychiatry has recently witnessed the launch of digital phenotyping as a new research agenda. According to digital phenotyping's hypothesis, data about a patient's daily behaviour can be continuously collected through wearable monitoring devices and used to build software that would send warnings of mental relapse or tailor treatment choices. The research is exploratory, and the claims upon which it is based are contentious. Drawing on interviews, we followed a research team that aspired to build a digital system that could send such warnings to patients with mental health disorders like depression and epilepsy. This enabled us to learn how a new instrument to measure mental function becomes constructed and what translations take place in this process. We paid particular attention to the role of patients as research collaborators. We also observed the frictions and debates in the research team between different mental health knowledge regimes, seeing them before they were black-boxed and lost from sight. We aimed to understand how actors anticipate software and data analytics to function alongside physicians and patients, as well as how different accounts reconstitute what counts as the "mental", "therapy," or the "social" itself. We discuss several "dissociations" that occur along the research trajectory regarding: less motivated and underrepresented patients, the role of clinical knowledge derived from patient self-reporting, and the social, political, and economic aspects of a patient's life affecting mental health. In this sense, we want to open the black box of this new behavioural technoscience.

11 JUNE 2025 14.30 - 16.30**SESSION 1****ROOM B2.2.1**

ID 341 - Attempting algorithmic embodiment: re-arranging diagnostic practices?

Justien Dingelstad, Erasmus Universiteit Rotterdam

Iris Wallenburg, Erasmus Universiteit Rotterdam

Claartje Ter Hoeven, Universiteit Utrecht

Francisca Grommé, Erasmus Universiteit Rotterdam

Keywords: Diagnostic practices, deep-learning algorithm, embodiment

We describe a 1,5-year participatory ethnographic case study of a deep-learning algorithm for tumour classification, developed by a radiologist in a Dutch academic hospital. The radiologist hoped to convince other neuro-oncology specialists of the algorithm's potential to diagnose brain tumours. To give the algo-



rithm physical presence, she wanted someone to represent it's results in person during weekly interdisciplinary diagnostic meetings. She asked the first author to do so, knowing her interest in algorithmic work practices as a social scientist. Subsequently, the first author was in the rather unique position to embody the algorithm, studying the question: what happens to interdisciplinary work practices if an attempt is made to integrate an embodied deep-learning algorithm into them?

The algorithm temporarily became part of the collective diagnostic process, a ritual in which each specialist brings specific expertise (Carr, 2010). Neurologists first provide patients' symptoms, radiologists then show tumour size and location and present an initial diagnosis using MRI-images, and finally pathologists present a diagnosis based on tissue analysis. Afterwards, a collective interdisciplinary discussion unfolds. Whilst arriving at a final diagnosis is always a collective process, there is agreement that the pathological diagnosis is the 'gold standard' against which the other specialist's expertise is evaluated. Within this ritual, the algorithm's results – a diagnosis based on MRI-images – were vocalised by the first author, in third place after the radiologist's and before the pathologist's. This was a conscious choice of the radiologist, to immediately showcase the 'performance' of the algorithm. If the algorithm's diagnosis matched the pathologists', early on specialists showed enthusiasm, and even speculated about how the algorithm could become the new gold standard. Yet the algorithm often deviated, in which case specialists turned to the first author seeking explanations. The first author wanted to but could not provide answers due to the opaque, deep-learning nature of the algorithm. After 1,5 years, the presence of the algorithm did not re-organise the diagnostic meetings, rather left most specialists wondering what the algorithms' contribution had been or could be.

These insights tie into scholars arguing that expertise is 'done' collectively (Carr, 2010; Mol et al., 2010), through entanglements of material, corporal and sense-making activities (Gardner & Williams, 2015). We demonstrate that, even if embodied, deep-learning algorithms do not speak for themselves, complicating algorithms becoming part of complex, collective diagnostic practices. We argue there is a gap between AI-systems rooted in a Cartesian split between mind and body (Adam, 2002; Gardner & Williams, 2015) and the daily diagnostic practices of multidisciplinary meetings. These insights can provide lessons into how and why algorithms re-arrange diagnostic practices.

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11 JUNE 2025 14.30 - 16.30

SESSION 1

ROOM B2.2.1

ID 880 - Passing the torch, keeping the trauma: how patients and kin experience transfers of responsibilities and information after ICD implantation

Mai Hartmann, IT-Universitetet i København

Jonas Fritsch, IT-Universitetet i København

Keywords: Algorithm, Healthcare, Affect, Cyborg, ICD

Implantable Cardioverter Defibrillators (ICDs) are sophisticated devices, that monitor the recipient's heart while wielding algorithms to detect and react to irregular rhythms and cardiac arrests with corrective shocks. Data reports are transmitted to monitoring clinics regularly and in case of dangerous activity. Tucked away in a subcutaneous chest pocket, with leads reaching the innermost chambers of the heart, this little machine promises to extend and save the lives of people with various cardiac conditions. Receiving an ICD is a simple operation, done with local anaesthesia and barring any complications, patients can leave the hospital within 24 hours. Most patients receiving an ICD do so after surviving a cardiac arrest.



As such, this simple procedure often happens in a complex affective space, characterised by the trauma of a near-death experience and dissonance between the contrasting memory loss for the cardiac arrest survivor and the next of kin's vivid remembrance.

In this presentation, we introduce preliminary results from an observational study at an ICD clinic and four qualitative interviews with two individual ICD patients and with two ICD patients and their respective spouses. The main objective of this study was to gain an understanding of the affective spaces surrounding ICD patients and their next of kin immediately after an ICD implantation, how patients and kin navigate, experience and interact with informational structures in healthcare and finally the role played by algorithmic agents such as the ICD.

A preliminary analysis of the empirical data suggests that the monitoring and algorithmic agency of ICD devices redistribute responsibilities and response-abilities and change the structure and transfer of information amongst clinicians, patients and kin. The ICD patients themselves become nodes in an informational infrastructure, transmitting data they cannot themselves access or read. The patients and their kin only get insight into this data during ICD consultations, where they are also faced with their cyborg reality, as their primary interface with the hospital becomes a technician rather than a doctor. Upon implantation of the ICD a transfer of responsibility happens and how this transfer is experienced depends on each preceding history. For the wife who resuscitated her husband, this transfer is difficult to accept and requires time and repetition for the new status quo to settle in: "if he has another heart attack, the ICD will take over, you do not need to save him again". For the wife who did not witness her husband's cardiac arrest, this transfer of responsibility is differently felt, as the responsibility of resuscitating him moves from one "unknown" agent to another. Her worries are not centred on whether she can save him again, but rather if it happens again.

This empirical study is part of a larger project which aims to understand the affective spaces and collectives of care of ICD patients and their next of kin at different times in their patient journey and how to better and more carefully design for it.



11 JUNE 2025 17.00 - 19.00

SESSION 2

ROOM B2.2.1

ID 565 - From the 'end-of-the-bed-o-gram' to algorithmic medicine: reconfigurations of data practices, care and learning in critical care

Catherine Montgomery, University of Edinburgh

Keywords: Data practices, care, learning, critical care

'Data saves lives' is an oft-repeated slogan in the world of data-driven healthcare. In the field of critical care, it has also gained traction, refracted in one project's strapline, "Using data better saves critically ill patients' lives". The use of routine data to develop algorithms for risk prediction in this population is now well underway, with one tool already on the market and others in development, based on de-identified vital signs data from critically ill patients' bedside monitors. As large-scale data analytics make their way into routine care, it is salient to ask how the embodied and sensory dimensions of practitioners' work, and the total system of socio-material relations which characterises the intensive care unit (ICU), intersect with the embodied and sensory dimensions of data science work. How do clinicians in critical care decide how to treat their patients in the era of algorithmic medicine? Is the craft work of critical care changing with increasing digitisation and recourse to clinical decision support systems? What role do 'clinicians who code' play in this transformation?

These questions animate a year-long ethnographic study of the changing relations of data, care and learning in critical care in the UK. In this work, I take up care as an object of study, building on substantial work in STS, which, amongst other things, alerts us to the fact that "the ideal of good care is silently incorporated in practices and does not speak for itself" (Mol 2008). Dissecting the rhetoric of patient choice in healthcare, Mol's defining work on the logic of care demonstrates how good care has little to do with choice and everything to do with the ways in which knowledge and technologies are attuned to diseased bodies and complex lives. In the same way, the promise of data to 'save lives' presents us with timely questions about how exactly data and patients together are worked on and with, and in which ways they are cared for. What does care mean in the data-patient assemblage, which logics drive the practices that healthcare now adopts and how do they challenge the repertoires we have for thinking and talking about care? In this paper, I present preliminary ethnographic findings spanning both clinical spaces in the ICU and the academic spaces of medical informatics which start to answer these questions.

11 JUNE 2025 17.00 - 19.00

SESSION 2

ROOM B2.2.1

ID 255 - Quantifying patient experience: The production of patient-centred metrics for algorithmically-driven analyses in remote clinical trials

Abby King, University of Edinburgh

Keywords: Metrics, algorithms, healthcare

This paper explores the process of producing patient-centred outcome measures for remote clinical trials and the ways in which this process is underpinned by particular power relations and forms of expertise that direct clinical knowledge and the provision of care.

Informed by an ethnography of a global tech company and the use of its bespoke application for measuring patients at a distance, this paper presents the processes of translation that underlie the production of these outcome measures. Through a fixed series of phases and protocols, patients are rendered knowable on the basis of algorithmic translations. Patient experience is produced, mutated into things that can be quantified and applied to algorithmic analysis, and ultimately transformed into outcome measures that inform clinical trials. This paper asks: what happens in this process of translation, in taking the precise, specific, qualitative narrative of patient experience and translating it into a different type of narrative, one that can be analysed by algorithms and that fits into the values and models underpinning clinical research?

There is a long tradition in the social studies of science of bringing into question processes of quantifica-



tion, of turning the nuances and complexities of social life into simplified metrics that can be organised into categories and packaged for transportation and comparison across contexts (e.g. Merry 2016). This movement from the qualified to the quantified, from the subjective to what is viewed as objective and impartial, is a tool of governance. Processes of quantification are embedded with forms of power, informed by particular configurations of expertise, and preference certain voices over others. They are complex and social, involving "assemblage[s] of human expertise and labour, relations, and infrastructures enacted through diverse care practices" (Avlona & Schlovski 2024).

This paper attends to the complex, social work this company does to actively transform patient experience into a format that can be measured and analysed quantitatively. It further attends to the work that this quantification does in the production of clinical knowledge, understanding of disease, and provision of care. Multiple actors from various disciplines – patients, patient advocates, data scientists, software engineers, compliance managers, user testing and configuration teams – come together at different points in these translations, bringing with them different forms of domain expertise, priorities, values, timelines, objectives, and understandings. Through mapping these translations and the articulations of people, technologies, and infrastructure, this paper argues that the process of making a patient-centred metric elicits a specific patient experience that is already guided by the values and power dynamics implicit in clinical research. The patient experiences within the translation process are not gathered. Rather, they are produced, existing only within the particular translation assemblage. What, then, do these patient-centred outcome measures assess? What forms of clinical knowledge do they produce? And who is cared for through these processes?

11 JUNE 2025 17.00 - 19.00

SESSION 2

ROOM B2.2.1

ID 505 - Datafication of nursing and its discontents (the case of implementing the Apotti system in Finland)

Eira Syvälähde, Helsingin yliopisto

Keywords: datafication, nursing practice, electronic health record systems

Apotti is an electronic health record (EHR) system used in the Uusimaa region of Finland. The system is based on structured records which aims to maximize the collection of big data, which is expected to bring long-awaited solutions for our health care system suffering from structural funding and efficiency issues. As such, Apotti reflects the paradigm of datafication, which means quantifying social reality into data to be later used in value-making purposes. This presentation focuses on the tensions emerging from increasing demands of quantifying nursing practice into discrete pieces of data (i.e., big data). Nursing is a profession relying on practices and knowledge operating beyond quantifiable grounds, and for this reason, attempts to define nursing and reduce its operations into discrete data might be problematic.

The material of this study consists of eight in-depth interviews of nurses using the Apotti system, collected during the year 2023. The analysis was done using theory-guided content analysis. As a theoretical framework, Hartmut Rosa's theory of social acceleration is used. According to Rosa, modernity is defined by acceleration in three domains: technological advancement, social change, and the pace of life. Rosa suggests that accelerated life leads to alienation, also in the context of care: the patient is fragmented into discrete pieces of parameters on which the health care staff focuses on under constant pressures of being efficient. Accelerated life roots back to the ethos of controllability which seeks to dominate the surrounding reality by technological and scientific processes. As such, for both datafication and controllability, value creation is linked to how successfully the surrounding reality becomes exploitable for humans.

The study shows that, contrary to the original promises of the Apotti system, the amount of data work in nursing practice has increased, adding pressure to already under-resourced work environments of nurses. Secondly, the data highlights "invisible" work that is not captured by the data. Thirdly, the medication process in Apotti is examined. Despite efforts to make Apotti's medication process robust, shifting deci-

sion-making from nurses to complex technological processes introduces new medication safety risks.

In short, the Apotti system has not lived up to its original promises of freeing up time for actual nursing practice, but rather has made the working environment of nurses more technical, complex and less patient-centred. Nevertheless, nurses resist the demands of quantifying their work by prioritizing patient care over data work. As a result, poor data collection compromises the overall quality of data in the Apotti system.

11 JUNE 2025 17.00 - 19.00

SESSION 2

ROOM B2.2.1

ID 535 - Algorithmic care at a distance: reconfiguring nursing practices

Gigi Vissers, Erasmus Universiteit Rotterdam

Iris Wallenburg, Erasmus Universiteit Rotterdam

Rik Wehrens, Erasmus Universiteit Rotterdam

Petra Porte, Erasmus Universiteit Rotterdam

Jan-jaap Visser, Erasmus University Medical Centre

Keywords: AI, healthcare, nursing, algorithmic

Increasing comorbidity and needs of chronic care due to an aging population and a relative decline in workforce call for new ways of organising care. Digital health technologies, often AI-driven, are presented as solutions to this looming crisis healthcare systems are faced with. The promise is that they could allow for greater efficiency by, amongst other benefits, reordering care outside the hospital walls (Oudshoorn, 2008). However, structural embedding in workflows is often hard to achieve, and may require more work than the technologies intend to reduce or replace (Kusta et al., 2024). Complexities arise when care is transitioned from the hospital to the patient's home environment, requiring not only new ways of working and knowing, but also shifting responsibilities, changing relationships between (non)institutional actors and newly configured sociotechnical infrastructures (e.g. Moore et al., 2023).

Building on an ethnographic case study of a telemonitoring centre in a Dutch hospital, we explore the reorganisation of care for nurses who remotely monitor chronic patients. This centre is a key example of how digitally mediated forms of care are not only reconfiguring nurses' professional identities, but also the content of their work and the broader organisation of care. Previously working at the bedside of patients, these nurses now use a digital application to monitor patients and more particularly their 'symptoms' remotely from a small office space at the far end of a hospital corridor. Performing routine tasks based on questionnaire data and AI-driven smart alerts, the materiality of care differs significantly from the physical care nurses usually engage in at the patient's bedside. Hence, nurses need new digital expertise and abilities to interact with patients and their health data, now primarily basing their judgements of good care on quantified metrics of health and illness - replacing 'hands on' knowledge with digital skills. Remotely enacted care simultaneously redefines the roles of patients, who must assume a more active role in their care process. Monitoring and controlling data being shared and fed to the algorithm raises ethical questions about the location of responsibilities and accountabilities.

Delivering algorithmic care thus calls for a reshaping of the organisation of care and consequent roles for nurses and other actors involved in these monitoring centres. Our analysis focuses on the specific ways in which nursing and organisational work becoming reconfigured in the telemonitoring centre, how their knowledge practices change in such algorithmic forms of care, and how new forms of 'good care' emerge. We situate the implications of our findings in existing theories on the sociology of digital health. By examining how nurses take on new organisational and algorithmic responsibilities, this study contributes to discussions on the evolving transformation of work and the tensions that arise in algorithmic-driven healthcare.



ID 507 - "People person is more important than to have a big fat degree": An Ethnographic Account of Algorithmic Homecare Assistance

Eliana Bergamin, Erasmus Universiteit Rotterdam

Iris Wallenburg, Erasmus Universiteit Rotterdam

Keywords: Homecare, Algorithms, Emotions, Efficiency, Artificial Intelligence

AI and algorithm-powered technologies are entering the healthcare field also at the level of homecare services. With an increasingly aging population and the predicted scarcity of medical personnel in the coming years, algorithm-driven solutions bear the promise of alleviating overworked staff, increasing efficiency and accuracy, and overall improving healthcare practices and results. This paper draws on an ethnographic study that investigates the impact of remote technology integration in homecare provision, with a focus on a Netherlands-based healthcare company's utilisation of remote care assistance, through the use of algorithms and AI tracking tools.

Over the course of three months, one of the researchers immersed themselves in the company's operations to explore how technology affects relational and empathic care dimensions. The company offers a series of algorithm-driven devices to care receivers in homecare settings, designed to substitute for nurses delivering in-home care. These technological implementations, spanning from sleep to insulin trackers, from smart scales to pill-cases with opening sensors, from fall detection devices to smart clocks and tablets, aim at reducing or completely substituting the presence of nurses in homecare setting. Central to these technological implementations is the replacement of face-to-face empathy provision from nurses with 15-minute online weekly coaching sessions, labelled as the "empathy of the week", that home-cared clients are supposed to receive. These sessions, delivered remotely by new professional figures called "coaches", represent a tangible reflection of the reconfiguration of healthcare practices due to algorithmic mediation. The company's overarching goal is to optimize care delivery by reducing or removing nurses' in-person interaction time, prioritizing efficiency, which include care receivers' empathic engagement. The study reveals a complex interplay between technological advancements and caregiving principles, highlighting the entanglement of relational and empathic practices with efficiency-driven approaches. The "warm" care delivered by coaches through empathy sessions mixes itself with the "cold" care of the screens and sensors that mediate this new practice (Neves et al., 2024; Pols, 2012).

The paper explores how the materiality of AI and algorithm-powered technologies in homecare practice come to shape new paradigms of care, where digital-human efficiency-driven mechanisms are applied to non-quantifiable, embodied aspects of care, such as empathy and compassion. While the importance of emotional labour is taken into account and accommodated into a new practice, this new practice is shaped by a very tangible understanding of the concept of efficiency. Empathic connection is neatly packaged in 15-minute online calls, outsourced to non-healthcare trained figures, and detached from its original embodied nature, following the same paradigm that pushes technological development in healthcare. At the same time, the expertise of healthcare professionals is substituted by the entanglement of coaching sessions and interpretations and data outputs – where the latter come to assume a relevant role and power in this new care setting (Weiner et al., 2020). The study offers an empirical glimpse into how, through algorithmic mediation, care practices are expanded and reshaped, leading to the creation of new actors and the reconfiguration of empathic encounters.



11 JUNE 2025 09.00 - 11.00**ROOM B3.3**

Panel 55. Infrastructuring AI: A view from the Global South

Convenors:

Iginio Gagliardone, University of the Witwatersrand

Stefania Milan, Universiteit van Amsterdam

Keywords: Africa, Artificial Intelligence, Global South, digital infrastructures, technopolitics

Unprecedented efforts are underway to harness Artificial Intelligence (AI) "for good". Unlike earlier initiatives using digital technologies to spur economic growth and improve service delivery, this new wave of digital innovation is fraught with ambivalence and complexity. While familiar narratives persist—portraying low-income countries as needing to "catch up"—new dynamics are surfacing. These include pushback against top-down innovation and fresh visions of the Global South's role in digital transformation. These tensions—rooted both in lived experiences and conceptual innovations—reflect the evolving stakes of digital progress.

Many individuals and groups have experienced first-hand the dramatic fading of the expectations digital tools will serve as "liberation technologies". They have also long questioned the promises of benevolent connectedness or entrepreneurship made by large tech corporations, whose hypocrisy has been dramatically exposed by a steady stream of leaks— from former Facebook employee Francis Haugen to Uber executive Mark MacGann.

Conceptually, innovative scholarship emerging at the intersection of Science and Technology Studies (STS), decolonial theory, and "computing in/from the South" is giving visibility both to legacies of colonial domination and to locally rooted forms of imagination and innovation. These reinvigorated efforts at decolonizing scholarship, as well as tech infrastructures and platforms, has begun offering new frameworks to interpret technological development. They challenge persistent stereotypes of low-income countries being condemned to uncritically replicate innovations from the Global North, while stressing new forms of agency in imagining distinct technological futures. With respect to AI, this means paying attention to "ground realities", centering the understanding of AI in the experiences and standpoints of particular geographies and communities, and in their histories.

To account for the complex interactions and the effects of these forces, this panel ask three orders of questions, accounting for infrastructure evolution, methods, and epistemological questions.

First, this panel seeks to analyse applications of AI as they interface with pre-existing infrastructures, and thus need to relate to long term trajectories of innovation, as well to localised visions and materialities. For example, how do AI-powered surveillance interact with existing forms of control and policing? How electricity- and water-hungry data centres emerge in countries struggling to provide these basic services to their citizens? Do legacy infrastructures deployed by specific external actors (e.g. US or Chinese companies) make it more likely to acquire AI-powered solutions from the same sources?

From a methodological standpoint, we welcome studies that are able to critically interrogate processes of innovation, follow the multiple cycles through which power and technology interact, disclosing opportunities for some, but silently excluding others.

Finally, from an epistemological perspective, we invite colleagues to explore how we can rethink the relation between AI and infrastructure from a Global South perspective. What theoretical building blocks can help to expand the rubric of STS for the Majority World? Here we seek to go beyond case studies to expand the theoretical toolbox of the discipline.



11 JUNE 2025 09.00 - 11.00

ROOM B3.3

ID 311 - Addressing Global Southern Data Scarcity: a review from African data policies

Beatrice Bonami, University of Edinburgh

Seydina Moussa Ndiaye, Université Cheikh Hamidou Kane

Charles Kimpolo, African Institute of Mathematical Sciences

Keywords: Southern data scarcity, Data justice and equity, Africa, Artificial Intelligence

Data justice studies highlight how marginalised groups bear the consequences of humanity's technological development. Whereas Artificial Intelligence (AI) is often labelled as a solution for reducing carbon emissions, there is a deeper issue tied to data materialism: the infrastructure supporting digital industry – often hidden from view – comes with significant human and natural resource costs (Crawford, 2021). However, data itself presents a paradox: as the fuel of the digital industry, it must be gathered in ever-increasing volumes to train algorithms. Just as fuel powers vehicles, data powers algorithms – as the mining of data parallels the extraction of natural resources (Ricaurte, 2018, 2019; Hassan, 2022). Yet, data regulatory advances are uneven worldwide, whilst data extraction often targets underprivileged regions where data protection laws are still underdeveloped (Floridi, 2014; Zuboff, 2019).

This phenomenon is not new; tech developers consistently assert that for algorithms to achieve the necessary accuracy, they require vast amounts of diverse data. What is relatively new, nevertheless, is the growing awareness of what we can call "Southern Data Scarcity": while massive amounts of data are being collected from populations in the Global South, data access remains scarce for stakeholders in the region and, even when data is available, it reflects Global Northern parameters. The paradox is evident: populations subjected to large-scale extractions of personal and sensitive data while denied access to training datasets. This paper will address this tension while looking into African Data Regulations and understanding (i) if countries are aware of this phenomenon, (ii) how do they address it, and (iii) which solutions they can forecast. The goal is to leverage social research mixed methods (systematic review, data triangulation and discourse analysis) to understand African preparedness to address "Southern Data Scarcity."

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11 JUNE 2025 09.00 - 11.00

ROOM B3.3

ID 494 - AI powered urban surveillance: hyped narratives and long-term trajectories of governmentality and control

Iginio Gagliardone, University of the Witwatersrand

Keywords: smart cities, Africa, China, US, AI, policing

Smart cities incorporate some of the most critical tensions introduced by advancement in AI, in relation to their social and political consequences. As initiatives that leverage the proliferation of intelligent sensors (from smart electricity meters to surveillance cameras to users' own phones) and AI-powered analytic



tools to monitor trends in urban life, smart cities enable a multiplicity of applications. They can inform and improve the provision of services – e.g., through better traffic and transport management – but they can also be used as instruments of surveillance and control. Their duality has been a source of increasing concerns, not only in authoritarian states, accused to exploit them as ways to expand their gaze in return for better services (Hoffman, 2022), but also in more open societies. As a recently published study suggested, smart cities "as systems with authoritarian affordances may become a dangerous temptation for democracies and 'swing states' as well; although appearing in the guise of hyper-efficient 'solutions' to optimize good governance for a modern state, they can also be a means for illiberal actors to install new levers of social manipulation at the public's expense" (Kerley et al., 2022, p. 7).

To date, accounts of the implementation of Smart Cities in Africa have had sensational headlines, accusing China to seek to deploy a global Panopticon (Andersen, 2020) or to act as a digital coloniser (Gravett, 2020). This approach has assumed that the expansion of Smart Cities in Africa has been guided by aggressive strategies by Chinese corporations (Huawei and ZTE in particular), and that the nature of the collaboration with these companies would have led to increased surveillance, in the absence of adequate checks and balances (Hoffman, 2022). The reality in the majority of countries on the continent is of a plurality of companies (including from the US, Japan and Europe) competing to offer solutions in an increasing lucrative market (Feldstein, 2019).

This study compares two AI-powered law enforcements projects deployed in Johannesburg and Cape Town, in South Africa. The first, the Safe City project developed by China's Huawei in Johannesburg, links cameras to form wide area networks that use artificial intelligence (AI) to index, sort and interpret data pooled into centralised surveillance-based "nerve centres". The second, the Shot Spotter project implemented by US company SoundThinking in Cape Town, uses smart sensors and AI to help law enforcement agencies collecting evidence on gun shooting incidents and help detecting patterns of gun violence. The structured comparison of the two projects allows moving beyond simplistic dichotomies between supposedly democratic and authoritarian uses of AI in urban environments. It illustrates instead the complex interactions between the socio-technical imageries originating in the countries from which specific technological solutions originate (China and the US) and the longer histories of attempts by South Africa's city administrations to seize digital technologies to fight crime and improve service delivery.

11 JUNE 2025 09.00 - 11.00

ROOM B3.3

ID 782 - Building strategic AI research at a country level: a case study of AI Applied Research Centres in Brazil

Guilherme Cavalcante Silva, York University, Canada

Keywords: Artificial Intelligence, Dependency, AI Governance, Science and Technology Policy, AI Research

Governing artificial intelligence has become a key concern within STS over the last few years, with scholars providing critical outlooks on current legislation or national strategies (Bareis and Katzenbach, 2022), ethical issues (Phan et al., 2022), political economy (Burkhard and Rieder, 2024), and the reproduction of technocratic discourses in the AI hype (Kitchin et al., 2019). Part of the focus has been on the transnational circulation of AI regulation, infrastructure, and discourse, with topics such as the influence of the EU AI Act in the Global South and the US-China dispute over key AI infrastructure in Latin America and Africa (Bradford, 2023). Despite the relevance of renewed extractivist impulses in AI development within the global geopolitical order, these approaches tend to miss the internal dynamics of technology development in Global South countries, such as how they articulate development against the historical underpinnings of dependency (Silva, 2025), often offering pathological views of AI development in these areas (Hassan, 2022).

In this contribution, I want to address this gap by engaging empirically with Brazil's first AI policy initiative 'in action': the creation of six AI Applied Research Centres in the country through a partnership between



the São Paulo Research Foundation (Fapesp), the country's Ministry of Science, Technology, and Innovation (MCTI), and the autarchy Internet Steering Committee (CGI.br). In a process that started in 2019 with the publication of the call for proposals, six centers were approved in 2021 focusing on four different areas: health, agriculture, manufacturing, and smart cities. Fapesp, MCTI, and CGI.br invested up to BRL 1 million per year in each center as long as recipients were able to find partner companies to invest a similar amount. The centres, which are hosted in different Brazilian regions, have been in activity since 2022-2023. Since the release of the first call, four other AI Applied Research Centres have been approved.

Drawing on a series of elite interviews with executive members of the first six applied AI research centres in Brazil, I intend to showcase how the institutes articulate AI development, socioeconomic impact, and an AI future for Brazil with the country's historical technoscientific dependency as well as infrastructural gaps. The analysis paints a picture of a policy initiative that navigates between a push for sovereignty and renewed dependency, dealing with opportunities such as a thriving scientific community and limitations such as a funding crunch.

As the country moves forward with key AI-related legislation, such as the new National AI Plan (PBIA, released in 2024), a new version of the National AI Strategy (to be released in 2025), and an AI Bill, approved in the Senate and waiting for approval in the House of Representatives, I conclude that AI governance in Brazil needs to be more strategic with the partnerships for AI developments both at a firm level and internationally, paying less attention to "catching-up" Western nations and more to the country's (and region) institutional capabilities.



11 JUNE 2025 09.00 - 11.00

ROOM B2.2.15

Panel 56. The Good and the Beautiful: visualizing science in the (post)-digital age

Convenor:

Valeria Burgio, Università Ca' Foscari Venezia

Keywords: Data Visualization; Scientific Image; Visual Design; Technological Object

In scientific practice, visualization is one stage in a series of transformations that begins with a collection of data, samples and specimens and results in a spatial arrangement and representation of relationships between entities. This diagrammatization of nature, which Bruno Latour (1999) calls inscription, can take different forms - depending on the nature of the relationships established or imposed between the entities studied - and traverse different materialities - depending on the instruments and machines through which the collected samples transit and transform themselves.

The panel aims to open the discussion on the semiotic features of different forms of scientific visualization, questioning their role in mediating, separating and connecting the observer and the observed phenomenon. We call the participants to explore different types of technical devices analysing the way in which they shape, discover and communicate scientific contents, whether through technologies of digitalization or through analogical techniques. This panel has the ambition to bring together the worlds of scientific research and that of information and visual design, semiotics and STS, to reflect together on the efficacy and heuristic power of data and scientific visualizations.

Therefore, we invite contributions that:

- think about the ways in which data visualization manifests itself, conveying, together with scientific information, cosmologies and structures of thought organisation;
- think about the role of the interfaces in shaping, managing and exploring data, but also about their limits of homogenizing information and reducing differences;
- compare the different uses of visualizations, from internal use in scientific laboratories to external use for a pedagogical and popularizing function;
- investigate and collect case studies of technical objects and visualizations that refer to the materiality of the observed phenomenon, attempting to maintain its presence in ostensive, metonymic or imprint form;
- collect and reflect on examples from both design and science that also use data physicalization and embodiment of the observer to communicate scientific data;
- think about the aesthetic component of communicating scientific data, which goes beyond cognitive recognition, involving the senses and working on the emotions of the user.

11 JUNE 2025 09.00 - 11.00

ROOM B2.2.15

ID 170 - Brain as a visual metaphor

Sébastien Lemerle, Université Paris-Nanterre

Keywords: Brain science, brain visualisation, brain images, popular neuroscience, science exhibitions

Brain science has always been a science of visualisation. It has been based on practices and technical devices capable of rendering visible the invisible inside our skulls through sketches, maps, and later, electroencephalographs, CT scanners, or magnetic resonance imaging machines. It has also involved social groups who have had and still have the authority to see and make others see, "the people who interpret, rephrase, and reframe the facts for us (the mediators)" (Dummit 2004, 5): physicians, physiologists, neurologists, researchers in life and medical science, imagers. The act of showing and making see have not always



produced images (think of anatomy lessons in hospitals) but the act of visualising and making images of the brain is nevertheless central to the development and the legitimisation of this scientific field over the past centuries, from neurology to psychiatry and to neuroscience. As a result, brain images have produced, and continue to produce a "visual imaginary [which] has been one pathway along which neuroscience has been able to move out of the laboratory and into the territory of everyday life, and to play a role in the management of normal and problematic conduct." (Rose and Abi-Rached 2013, 55).

However, this imaginary is not univocal. This communication will tackle the issue of the multiple types of brain images and their layers of meaning. We will first evoke the intertwined social, technological, conceptual and cultural frameworks that led to the production of the brain images themselves, with examples ranging from Japanese brain maps of the 18th century to Ramón y Cajal's and Golgi's early 20th century drawings of neurons to modern computer-assisted images of neural networks. Particular attention will be paid to the question of contemporary laboratory equipment such as CT scanners and MRI machines which shape and homogenise brain data, sometimes in a problematic way, in order to produce specific images (Dummit 2004, Anichini 2018).

We will then look at the different meanings these images can take and the kinds of questions they can raise across their many social uses, from specialists' esoteric discourses to popular science and the cultural industries. A special case will be made of exhibitions which present pictures of the brain, formerly scientific images, for their aesthetic quality, as in Paris (BeautyBrain, université Paris Diderot, 2017) and Venice (It begins with an idea, Fondazione Prada, 2022) (Lemerle 2025). We will see the multiple meanings at work behind the signifier brain image, a metaphor for a wide range of ideas about the mind, the soul or the human being, from the labyrinth to the rigid framework of localised functions, to the plasticity and dynamism of an organ open to its environment, synonymous with freedom and creativity. In many social universes, this combination of the convincing power of the icon (Peirce 1992) and the cultural reach of the brain proves to be "the nail on which the universe hangs" (Blumenberg 2017).

11 JUNE 2025 09.00 - 11.00

ROOM B2.2.15

ID 303 - The visual and narrative dimension of Winogradsky's columns in art and science: a microcosmological approach

Valeria Burgio, Università Ca' Foscari, Venezia

Keywords: Visualisation, microbiome, microcosm

In environmental microbiology laboratories, alongside digital techniques such as metagenomic analysis of the genetic heritage of microbes, cultivation and analogical visualisation techniques are making a comeback. Within these analogical techniques (also known as 'wet'), in addition to cultures based on the isolation of a single species, there is a growing interest in mixed cultures that combine different species, different chemicals and, consequently, different ways of producing and consuming energy. This mixed culture technique is called "microcosm", a concept central to ecology, as it involves studying the environment by putting a "piece of nature" in a bottle. This paper aims to analyse the visual and communicative component of the microcosm, in the light of the increasing spectacularisation and monumentalisation of that form of microcosm that is Winogradsky's column. In our opinion, Winogradsky's column can be read, in terms borrowed from design theory and semiotics, as a form of autographic visualisation where colours and position in space signify biochemical reactions and alternative forms of respiration. It is no coincidence that Winogradsky's column has also entered the artistic sphere, thanks to the work of New York artist Anicka Yi, to offer itself as a microcosmological model of coexistence and mutuality between humans and nonhumans.

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11 JUNE 2025 09.00 - 11.00

ROOM B2.2.15

ID 376 - Trees and Vectors: Knowledge Design between Language and AI

Niccolò Monti, *Università di Torino; Université de Paris 8*

Keywords: Artificial Intelligence, Visual semiotics, Data visualisation, Explainable AI, Linguistics

This proposal articulates a comparative approach to how visualisation methods have been employed in linguistic-semiotic theories, on the one hand, and artificial intelligence, on the other, detailing the extent to which the former have served as epistemic precedents and benchmarks for the latter and with the aim of advancing a set of answers in favour of AI interpretability.

The design of knowledge is central, whether in the context of linguistic units or data points; and, furthermore, several mapping techniques used in data science – such as word embeddings – reveal analogies between modelling semantic structures and organizing information. However, insufficient attention has been given to the genealogy of such designs. Arborescent models may seem unrelated to abstract, harder-to-visualize objects like high-dimensional vector spaces, yet both share underlying criteria of interpretability. Many AI model depictions today owe much to visual conventions established in linguistic systems, suggesting a shared visual habitus. This will be particularly evident in examples of tree-like and distributional structures – such as those formulated within Chomskyan generativism or within probabilistic linguistics – which foreshadow the normative and performative assumptions behind much AI data visualisation.

After all, a central challenge for deep learning today concerns the opacity of neural models – how difficult it is to determine what they “know”, how they internally represent the information encoded in their training data, and by what means this knowledge can be extracted and displayed. This challenge has motivated the use of prompt engineering as a strategy for reducing epistemic complexity, offering AI developers and users a conversational interface to interact with models. Yet, this issue is not new. In the early days of cybernetics and circuit theory in the 1940s, systems automating tasks such as calculation, decryption, and even language production were often conceptualised through an internal-external framework, exemplified by the image of the black box.

Building on these interpretative relationships as well as on the precedents drawn from linguistics, we enter the domain of explainable AI (XAI) – the effort to develop models that are more transparent and interpretable, for instance through improved interfaces; or else, as in our main focus, the effort to develop new epistemic tools and methods that allow for a better visual interpretability of such models. This final point underscores the urgency of fostering a more open and equitable understanding of AI technologies through diverse visual approaches – just as linguists concerned with system interpretability have done. If successful, this endeavour could encourage more interdisciplinary and transversal scientific collaboration in this scientific field, while also bridging the growing epistemic gap between developers and consumers.



ID 540 - The role of mediators in data visualisation: The case study of the Grounded AI map

Matilde Ficozzi, Aalborg Universitet

Keywords: data visualisation, knowledge mediation, public engagement

Data visualisation emerges as a scientific practice for translating expert knowledge in more accessible ways, bridging the gap between research institutions and broader audiences. However, scientists must be cautious, as visualisations can oversimplify or misrepresent information, inadvertently widening this gap (Drucker, 2021). This is particularly visible in network visualisations, which, while invaluable for exposing relational structures and driving analysis, often remain inaccessible to non-expert audiences (D'Ignazio, 2017).

We propose reframing visualisations as knowledge mediators-tools that do not simply transmit information but transform it. This solution entails designing encounters that allow diverse audiences to inhabit and explore knowledge spaces. Visualisation, in this sense, becomes a mode of translation and negotiation, a way to redistribute the epistemic labour of making sense of the world. This approach lets us see visualisations not as simple representations but as spaces where knowledge can be materialised and accessible through mediation.

Our case study presents a public exhibition featuring the "Grounded AI Map", which analyses millions of scientific articles, transforming them into annotations summarizing the most important topics around artificial intelligence (Munk et al., 2024). Such a visualisation takes the form of a 100 m² floor mat, inviting audiences to physically engage with scientific knowledge. The mediation between the viewers and the visualisation is facilitated by integrating LLM-powered bots, with the role of acting as digital companions. These bots are not merely translators but interlocutors, engaging visitors in dialogic confrontation that reframe the data in relation to their situated perspectives (Jensen et al., 2021). Through this, we synthesize and annotate over 2 million documents, balancing the fidelity of irreductionist representation with the interpretability afforded by reductionist techniques. The visualisation allows audiences to zoom in and out, shifting between granular and synthetic understandings of the data.

To deepen this engagement, we developed digital companions – LLM-powered bots – that function as translators and elicitation tools. These bots actively invite audiences into dialogue, mediating between the complexity of the source material and the situated interpretations of the audience. By eliciting responses and fostering exchanges between visitors, the bots transform the exhibition into a participatory space, where knowledge is co-constructed rather than passively consumed (Rodighiero et al., 2022).

To evaluate the exhibition as a mediating device, we employ a framework for quali-quantitative data collection and analysis. First, quantitative exploration of user interactions with the digital platform uncovers patterns of navigation and engagement with the data. Second, qualitative observation of spatial and social interactions within the exhibition captures how publics inhabit and make sense of the space. Finally, open-ended interviews with selected participants explore how visitors interpret, reprocess, and reappropriate the exhibited knowledge in their own terms.

This approach allows us to interrogate the conditions under which scientific knowledge becomes accessible and the ways in which visualisation can enact new forms of public epistemology. By emphasizing the aesthetics, materiality, and politics of visualisation, we contribute to ongoing conversations about critical and experimental modes of knowledge mediation.



11 JUNE 2025 09.00 - 11.00

ROOM B2.2.15

ID 738 - Designing Embodied Human-Data Intra-actions

Seçil Uğur Yavuz, Libera Università di Bolzano – Freie Universität Bozen

Maria Menendez-Blanco, Libera Università di Bolzano – Freie Universität Bozen

Rocco Lorenzo Modugno, Libera Università di Bolzano – Freie Universität Bozen

Keywords: data visualisation, embodied experience, human-data interaction

Since ancient times, people have tried to record and visualise data in meaningful ways. For example, the Quipu necklaces (or "talking knots") is a sophisticated information system created by different cultures in the Andean regions to track agricultural resources, historical events, and even taxes. Moving fast forward, nowadays data have become intangible and core to many industries as a resource to be extracted, stored, and analysed. Beyond extractivist perspectives, data can also be a resource to shed light on the environmental crises and their interconnectedness with the human-led actions within our epoch of Anthropocene. As the consequences of these crises become more evident, visual representations of quantitative scientific data can help people understand causes and consequences by depicting facts through representational visual symbols. However, these representations lack experiential qualities which limit the extent to which people can grasp their complexity and interconnectedness. We wonder: How can we produce, collect, and analyse data in more experiential, collective, and hopeful ways?

In 2017, Lupton coined the term "data sense," to bring to the fore the "embodied, affective and material nature of engaging with and learning from data" (pp. 1603-4). Relatedly, Karyda et al. (2020) defined "data-objects" as artefacts that can be used "for individual and collective reflections through a physical portrayal of data." An increasing corpus of work focuses on first-person experiences with digital data (e.g., Homewood, 2020), while others bring forward the materiality of data addressing how embodied experiences with data can help people relate to the matter at stake (e.g., Jansen et al, 2015, Offenhuber, 2024). Aligned with this body of work, in this abstract we present the Intra project (2023-ongoing), a design research engagement that leverages on data to help people recognise intra-actions with living and non-living beings in their environments. In so doing, the project goes beyond visual and tangible representations of data and towards embodied data experiences. The project poses an alternative perspective on data visualisation, highlighting the possibility of tracing and representing data through bodily and material means. Through turning invisible phenomena, such as microplastics, heat, water-footprint, etc, into embodied experiences, the project explores alternative ways of engaging with data through auto-ethnography, design probes and designing interactive installations. Starting from the intra-action concept coined by Barad (2007), this project investigates new forms of designing relationalities within the world that is continuously altered, enhanced and augmented with digital technologies. This abstract addresses the methods and tools developed during the project to experience data through bodily and material means while creating tangible traces of data to reflect on environmental issues.



Panel 57. Creating, Crafting, Designing, Fashioning, Moulding, Shaping, Fixing. Aesthetic Practices as Instauration Practices: How to Account for Them and for the Good they Produce?

Convenors:

Alvise Mattozzi, Politecnico di Torino

Laura Lucia Parolin, Syddansk Universitet

Carmen Pellegrinelli, Università di Trieste

Keywords: Instauration, Souriau., aesthetic practices, instauration practices, work-to-be-made

Aesthetic studies refers to a diverse field of research that deals with art, works of art and, more generally, issues related to the sensory dimension. STS and "aesthetic studies" share certain commonalities, including an interest in finding ways to describe and analyse both artefacts and their agency.

This panel aims to discuss descriptive and analytical frameworks and methods for studying the role of artefacts within aesthetic practices. Taking up Mattozzi & Parolin's (2021; see also Hennion, 2007) suggestion, we consider 'aesthetic practices' to be those practices and activities that are characterised by both aesthesis and poiesis, with aesthesis understood as feeling or sensory perception and poiesis understood not only as making, but, more specifically, as making something that can produce aesthesis both during and after the process of making. Thus, when mentioning aesthetic practices, we refer to all those practices related to craft, design, creation, art or other work-to-be-made practices, which require attention to the aesthetics of the outcome in order for it to unfold all its affective potential.

Following the rediscovery of Etienne Souriau (1956) by STS scholars (Hennion 2013, 2016; Hennion & Monnin, 2015; Stengers & Latour, 2009), we propose the term 'instauration' as a way to frame the above mentioned practices. 'Instauration' refers to the process by which an object is given a relatively autonomous existence through an ongoing exchange among human and non-human bodies. Accounting for the ongoing instauration process entails focusing on "little gestures" that allow "the gradual passage" from the work to be made, to the work as a relative autonomous entity" (Souriau, 1956: 12).

We invite papers that reflect on the role of artifacts in the unfolding of practices where artifacts' becoming take place, like in the field of craft, design, fashion, art, product manufacturing, digital fabrication, building, but also maintenance and repair, among others. Other topics are welcome like – but not limited to:

- How to account for good work-to-be-made in the instauration practices?
- How to account for the good produced by the instauration practices?
- Which kind of care do instauration practices require?
- How to account for the collective organisation of instauration practices?
- How are instauration practices well designed and managed?
- How are are instauration processes organised collectively within and across organisations and territories?

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11 JUNE 2025 09.00 - 11.00

SESSION 1

ROOM B2.116

ID 162 - «Plaster and paint make it look great»: crafting functionalism across multiple aesthetic practices and instauration of ontornorms in shipyard industry

Francesco Bertuccelli, Università di Pisa

Keywords: Ontonorm, aesthetic practice, craft, design, shipyard

This paper proposes a theoretical reflection on the development of functional work organisations and the creation of finished goods tailored for the market, based on an empirical study conducted on the luxury yacht industry. More specifically, it examines the generation of the impression of functionality in operations and the refinement of shipbuilding products, stemming from the sector's control over the evolution of defining aesthetical criteria for the optimal organisation of the production chain and the excellent quality of the manufactured vessels. Indeed, in yacht production, the absolute perfection of finishes – whether it involves the “flow” of the external hull structure's lines or the geometric alignment of the interior furnishings' profiles – is a *conditio sine qua non* for the clients' approval of the ships and, consequently, for the commercial success of the companies. The adequacy of the finishes depends on translating an initial ideal design – characterised by approximate timelines and planning – created by engineers and designers in the form of drawings and renderings devoid of detailed specifications, into the actual construction of the vessel. This translation process involves the progressive and uncertain specification of these details during the production stages, segmented by area of work and carried out by various operators. Thus, through the way these tasks are performed – shaped by scheduling constraints, unforeseen events, the specific needs of subcontracting companies, the judgment and expertise of the workers, and especially the surveyor's assessment – piece by piece parts of the ship get instaured, and continuously renegotiated ontornorms are defined through them. These norms determine the acceptance of the workmanship, whether more or less successful, and are rooted in the transformation of materials and the potential they offer to fulfil the drafted project. As a result, the vessel, observed contextually during the production process, and through the description and judgement provided by workers in interviews, emerges as a prototype assembled with less coherence than planned. Nonetheless, at the end of the process, it retrospectively presents itself as a “blackboxed” entity, implicitly perceived as well-conceived from the outset. This perception omits the flaws in craftsmanship, that is, the historical variation of ontornorms from one project to another, which influence the tasks, roles, and skills of the workers who perform the operations. These omissions are facilitated by techniques such as painting and the installation of furnishings, which can mask other aspects like carpentry and systems engineering hidden underneath. Eventually a diffusion model, which promotes technological and economic determinism by transforming the contingent historical product of transformative processes into an immutable essence, manages to assert itself not as a mere “cultural” narrative, but as an image emanating from a text of its own: the finished yachts, presented tautologically as irrefutable evidence of their own flawless realisation. Therefore, the study and documentation of these aesthetic practices, while highlighting the experience and values of the informants, is also what prevents their work and their world from being lost, moving towards a “substantial appearance” at the expense of “substantial substance”.

11 JUNE 2025 09.00 - 11.00

SESSION 1

ROOM B2.116

ID 449 - Haute Couture as Instauration: Crafting a Dress Through Material, Corporeal, and Relational Aesthetic Practices

Maria Cursach, Universidad de Barcelona

Keywords: Haute couture, instauration, aesthetic practices, translation, materiality

Haute couture sits at the intersection of craftsmanship, design, and artistic creation, positioning itself as a space where poiesis and aesthesis overlap. Its apparent functionality and reproducibility have been used to justify its exclusion from the arts, but by approaching haute couture as an instauration, we can understand



it as a field in which artefacts gain autonomy through a complex network of relations between human and non-human actants.

This exploratory study analyses how haute couture, as a field, is structured to establish a network of actants that, while inevitably linked to the fashion system, operate with relative autonomy from it. Through the interaction between designers, pattern makers, seamstresses, fabrics, techniques, and technologies, haute couture unfolds as an instaurative practice in which fashion objects emerge through a continuous process of transformation. Its materiality is not static; rather, it is constantly redefined through processes of experimentation and social re-signification. Thus, haute couture becomes a laboratory for technical innovation where material manipulation and the exploration of new forms challenge the boundaries of what we understand as fashion and craftsmanship.

Each transformation within this process constitutes a translation in the Latourian sense: between the initial sketch and the première d'atelier's interpretation, a first transformation of the object occurs, which continues to evolve through every intervention within the workshop, through the métier d'art, and even through the interpretations of fashion journalists, who translate the garment into text. This network of actants not only structures the production of the piece but also defines its circulation and re-signification over time. Haute couture, therefore, is not completed upon its manufacture but remains a malleable artefact whose existence is continuously reconfigured through new interactions. Furthermore, this study considers how the sensitivity and material awareness of those working in haute couture generate products that are not only beautiful post facto but embody beauty within themselves. This leads us to understand haute couture through the concept of beauty as a capacity, in which beauty is not a fixed attribute of the final object but a property that manifests through the relationship between materials, technical gestures, and aesthetic sensitivity.

Beyond its functionality or its status as luxury, haute couture embodies an instaurative aesthetic practice that produces meaning both in its creation process and in its reception, blurring the boundaries between fashion, art, and craftsmanship.

11 JUNE 2025 09.00 - 11.00

SESSION 1

ROOM B2.116

ID 310 - The porous instauration of Arnaldo Pomodoro's cuttlebone inscriptions

Aurora Donzelli, Università di Bologna

Keywords: instauration, sculpture, art market, substrate

In this paper, I examine the artistic practice of a contemporary Italian sculptor, Arnaldo Pomodoro (b. 1926), to explore the transformations of the role of the substrate (or support, to use Jacques Fontanille's term) through a series of instaurative practices that unfolded throughout the artist's career. Drawing on observations in the artist's atelier, interviews with the artist and his collaborators, and analysis of critics' reviews, the paper focuses on the interaction between Pomodoro's elective material substrate (cuttlefish bone) and the artist's gestures of inscription. A distinctive feature of Pomodoro's work has concerned experimenting with different types of tension between material support and gestural intervention – what Fontanille (1998) calls *le support et l'apport*. The goal is to highlight how, throughout the unfolding of the artist's career, the transition between the "to-be-made" into "the-made" (Souriau 2015 [1943]) has resulted into a progressive separation between non-human organic support (cuttlebone) and technological interventions (geometric shapes and hieroglyphic-like inscriptions), which culminated in the installation Pomodoro produced for the XLIII Venice Biennale, in 1988. In the combination of *Scudi* and *Rive dei Mari* (huge aluminium reproductions of bare or minimally decorated cuttlebones) and *Scettri* (tall poles surmounted by enlarged reproductions of Pomodoro's typical signs) prepared for the Biennale, Pomodoro offered a synoptical representation of the autonomisation of the two elements or forces underlying most of his oeuvre: the non-human organic texture of the cuttlebone and the human (non-natural) signs impressed by hand on the cuttlebone surface.



The discussion is aimed at generating a broader reflection on two apparently opposite polarities on instauration. On the one hand, in line with Souriau and Latour's antidemiurgic view of (art-)making, a close look at the artist's aesthetic practice shows how the production of a work of art is "the exact opposite of a project" (Stengers and Latour 2015: 17); revealing the collective and impersonal dimension of art-making and highlighting how aesthetic practices rely on the recruitment of multiple human and non-human actors. On the other hand, the diachronic analysis of the progressive decoupling of apport and support underscores the author-centred and biographical dimension of art-making, which entails looking at "the made" in a diachronic perspective through the artist's successive instantiations of a repertoire of forms, his reflexive meta-aesthetic elaboration of his own practice in relation to the art-market responses and critics' reviews. Indeed, in spite of their being positioned around rather than inside the actual artwork production, the paper argues that art-market and critics' feedback are key elements in shaping instaurative processes within the money-fuelled art-market of our contemporary moment.

11 JUNE 2025 09.00 - 11.00**SESSION 1****ROOM B2.116**

ID 319 - An Example of Instaurative Practice: Neri Oxman's Work Between STS and Aesthetics. An Aesthetic-Ecological Inquiry.

Enrico Comes, Università degli Studi di Milano Statale

Keywords: Bruno Latour, Neri Oxman, ecology, aesthetics

Recent discussions between Science and Technology Studies (STS) and aesthetics have primarily focused on issues of sensoriality, artefacts and their agency, as well as the concept of "instaurative practices," fostering a productive theoretical and methodological exchange. This paper aims to contribute to this debate by adopting an aesthetic-ecological perspective, which has thus far received limited attention. Drawing on the work of Bruno Latour, we argue that ecology represents a distinctive form of sensitive relationship with the whole, a type of knowledge that is simultaneously local and global, spanning nature and culture, the living world and design. In this light, ecology emerges as a privileged framework for broadening the discourse between STS and aesthetics.

Building on this premise, the objective of this paper is to interpret Neri Oxman's work through the lens of instaurative practices. Positioned within the realm of contemporary art, Oxman's work represents one of the most concrete expressions of ecological design deeply intertwined with technoscience. A defining characteristic of her practice is the emphasis on the harmonious interaction of human and non-human actors in the creation of artefacts. To support this reading, the argument will unfold in three stages.

First, we will provide a brief historical and theoretical clarification of aesthetics, no longer understood as a mere theory of art but as the domain of sensibility capable of overcoming the conventional subject-object dichotomy. This will lead to an exploration of the concept of "instaurative practices." Particular attention will be given to the contributions of Arnold Berleant and Yuriko Saito, key contemporary proponents of practice-oriented aesthetics, in dialogue with figures such as Étienne Souriau and Antoine Hennion.

Second, we will present Bruno Latour's work through an aesthetic-ecological lens, positioning it as a bridge between aesthetics and STS. We argue that Latour's reflections contain elements that enable the conceptualisation of a distinctly ecological aesthetics, while also integrating the technoscientific dimension of design and artefact creation. This approach allows us to address certain intrinsic limitations of traditional aesthetic thought. As Latour repeatedly emphasised, doing ecology means envisioning a democracy of sciences, one that gives voice to all actors involved in shaping our shared world.

Finally, we will apply these theoretical insights to an analysis of Oxman's work. Through the aesthetic-ecological perspective informed by Latour's philosophy, the notion of instaurative practice finds tangible realisation. Oxman's projects reveal a dynamic interplay between the engineering of nature and the naturalisation of engineering, embodying a clear vision of harmonic "poiesis" with strong ecological-political implications. This perspective not only rethinks aesthetics in dialogue with technoscientific advancements



but also contributes to STS from an explicitly aesthetic standpoint, emphasizing the ecological and political awareness that should underlie all poetic practices.

11 JUNE 2025 09.00 - 11.00

SESSION 1

ROOM B2.116

ID 404 - In Praise of Dust: Maintenance, Materiality, and the Poetics of the Unseen

Gianluca Burgio, Università degli Studi di Enna Kore

Keywords: Dust, Instauration, Maintenance Practices, Intra-action.

Dust, a liminal entity between the organic and inorganic, plays a central role in instaurative processes (Souriau, 1956). This paper explores dust removal not as mere cleaning but as an instaurative aesthetic practice, where aesthesis and poesis intertwine to shape new material and symbolic meanings. As dust accumulates and is removed, it participates in co-emergent dynamics (Barad, 2007) between humans, tools, and spaces, redefining the very notion of "good" produced by instaurative practices.

Often dismissed as matter out of place (Douglas, 1966), dust embodies a paradox: it is both an intrusive residue and an archive of time, composed of skin particles, pollen, and chemical traces (Burgio, 2023). Its removal is not simply an act of erasure but one of material reorganisation, transforming objects into new entities. Nina Katchadourian's *Dust Gathering* (1998), which collects museum dust and turns it into artwork, demonstrates how maintenance is a creative act – an instaurative process generating new aesthetic and affective configurations. This aligns with Souriau's vision: instauration is never a finished act but an ongoing dialogue between humans and non-humans, where dust functions as a material mediator.

Ethnographic research has revealed the networks of actors, tacit knowledge, and invisibilisation within maintenance work (Burgio, 2023). Studies on cleaning practices show how dust "enrols" tools, infrastructures, and bodies. Its removal requires embodied knowledge, a sensitivity to map critical points, interpret traces, and adapt strategies. As Malafouris (2013) argues, matter itself shapes cognition, suggesting that maintenance is not a neutral technical act but a continuous negotiation between materials and subjects. Yet modernity has rendered these dynamics invisible: rationalist architecture expelled maintenance spaces from official representation, relegating dust to a noise to be erased (Serres, 1980). Andrés Jaque's *Mies as Rendered Society* (2013) exposes this paradox: the Barcelona Pavilion, an icon of purity, is only preserved through unseen infrastructures and maintenance collectives.

Reframing dust as an instaurative entity allows us to rethink the "good" generated by maintenance beyond its functional role in preserving objects and spaces. Aesthetically, dusting enhances tactile and luminous qualities, while ethically, it exposes the hidden labour behind material care (Burgio, 2024). Cleaning is never neutral; it reflects a partition of the sensible (Rancière, 2000), shaping what remains visible and what must disappear.

Dust also challenges the modernist utopia of purity, reminding us that material control is always provisional – a perpetual struggle against entropy (Amato, 1999). Vacuum cleaners attempt to discipline unruly matter, yet this battle is never won. Instead, dust invites us to embrace an ecology of almost-nothing (Dagognet, 2009), where waste becomes a generator of meaning. Maintenance emerges as a creative and political act redefining good work (work-to-be-made), recognising the agency of matter and the collective value of care. In this perspective, instauration is not just object-making but intra-action (Barad, 2007), where humans, dust, and tools co-create the material world.



ID 340 - Performance as assemblage: from score to system, co-creation in musical practice

Elide Sul senti, Conservatorio G. Frescobaldi di Ferrara

Keywords: Contemporary music, Actor-Network Theory, Agency, Technical Objects, Instrumental Design, more-than-human dialogue, instauration

Technical objects constitute a meeting point between contemporary classical musical practice, where they are employed to explore aesthetic transformations, and Science and Technology Studies (STS), which observe and describe them to explicate the mediations they enact. The latter approach, particularly through Actor-Network Theory (ANT), offers common ground to explore the more-than-human dialogue among performers, technology, and instruments.

Considering this interest, this study analyses Lisa Streich's *Pietà* as a paradigmatic example of establishing complex relationships in contemporary music. The work employs motorised instruments that, through technology, transform the modes of action of musical objects, integrating mechanised activity with the intrinsic capabilities of the instruments themselves. These instruments, already active within the performative network, acquire new forms of agency, expanding and redefining their role within the performative system. However, *Pietà* raises critical questions related to the design and use of technical objects (TOs).

The instrumental apparatus, comprising analogue and motorised instruments, is not immediately functional or complete. It becomes coherent and usable only through a process of adjustment and interaction, where the performer, technology, and other elements collaborate to define its operation and meaning within the performance. This requires the performer to reconsider their role, transitioning from an executor to a co-creator, engaging in constant negotiation with all the involved actors: the score, technical devices, and performative space. This dynamic reflects a broader issue in musical technology design, which is often conceived without sufficient consideration for ergonomics and user interaction.

This study adopts an autoethnographic approach, combined with the analytical description of the technical object (de-description), to investigate the relationships and mediations among the actors. Autoethnography enables the performer's direct experiences with *Pietà* to be thematised, highlighting the challenges and negotiations required by the creative process.

Simultaneously, the analysis of TOs as actors in a performative network is informed by ANT, which provides the theoretical framework to explore the dynamics of instauration and agency. This dual approach addresses the aesthetic and practical implications of the work, proposing a reinterpretation that bridges the design gaps in the original TO.

The paper proposes a reinterpretation of the work using Arduino combined with a DAW, introducing an automated timeline to make the motors autonomous and achieve greater operational coherence. This case study explores the concept of instauration as a process in which the relationships among humans, technology, and sound materials are redefined and reorganised through dynamics of translation and mediation. In this context, technology becomes a co-author in the performative process, directly influencing and participating in musical creation.

Finally, the study reflects on the broader implications of *Pietà* and its reinterpretation for transdisciplinary practices. The dialogue that emerges from the relationship between humans, non-humans, and technology promotes a vision of music as a dynamic assemblage of interconnected actors. This performative model not only fosters a more inclusive and collaborative interaction among all actors involved but also paves the way for new perspectives on the design of instrumental apparatuses that are more adaptable, accessible, and conducive to experimentation.



11 JUNE 2025 17.00 - 19.00

SESSION 2

ROOM B2.116

ID 445 - How wine sounds good. Contemporary polysensorial wine tasting as instaurative practices

Emiliano Battistini, Università di Parma

Keywords: Wine tasting, Music, Polisensoriality, Instaurative practices

Recently, in contemporary Western society it is possible to find different texts and practices that reinvent the historical relationship between music and wine. Facing change given by socio-economic and ecological crisis, music market and wine markets – both at industrial and craft level – propose new aesthetic experiences, products and communication strategies. One of these is to create polysensorial products and experiences crossing borders between proper domains, working on the music wine pairing: books which suggest music records and wine bottles, specific stores of selected records and bottles, fairs and exhibitions of music and wine. In this specific semiosphere (Lotman 1990) composed by wine-music syncretic texts and practices – that we can call oeno-musical semiosphere (Battistini 2024) – particularly interesting is the case of the new polysensorial wine tastings (Battistini 2019), in which not only the senses of sight, smell and touch/taste is at work but also the sense of hearing, thanks to the presence of selected music. First of all, in their coupling music and wine are intended both as allographic arts (Goodman 1968, 1984), that are developed in two steps: the step of the project/composition and the step of execution/interpretation. In this sense, winemakers and musicians are both performers, the former giving interpretations of terroirs and grape varieties, the latter giving interpretations of music compositions. Moreover, the use of music during wine tasting contributes to activate (Goodman 1984, 1992) the wine, underlining further aspects and characteristics. Viceversa, music is activated by wine: i.e. music temporal development is doubled by tasting temporality and rhythmized by sips to the wine glass. On the one hand, the activation process becomes source of new meanings (semiosis), producing effects on the objects of tastings (i.e. music and wine), that disclose their aesthetic characteristics and start to have a relatively autonomous existence (Souriau 1956) and effects on tasting subjects. In this sense, the tasting practice can be considered an instaurative practice (Hennion 2013, 2016; Hennion and Monnin 2015; Stangers and Latour 2009). On the other hand, this activation and instaurative process produce effects on the subjects of tasting (i.e. the taster-listeners), that are "activated" themselves too. In fact, participants to the oeno-musical tasting improve their aesthetic competence, question their taste and the taste of the others, reconsider their values, improve their aesthetic judgement. The oeno-musical tasting becomes a passionate and fascinating experience. The role of the amateur (Hennion 2013, 2018) becomes central and contributes to question the traditional wine tasting expertise, giving voice to "hedonistic tasters" (Hennion 2015) who choose to explicit their tastes and share how wine "sounds good" to them. Through the analysis of some specific case studies and following an interdisciplinary approach between STS and Aesthetic Studies, Pragmatics of Taste and Semiotics, Drink and Sound Studies, our aim is to account for the good produced by polysensorial wine tastings as instaurative practices.

11 JUNE 2025 17.00 - 19.00

SESSION 2

ROOM B2.116

ID 825 - Visualisation in architectural practice: constructing the knowledge about a spatial object-to-be

Anna Ryzhenkova, Universität Wien

Keywords: architectural representation, design practices, material semiotics

This work contributes to the body of literature concerning visualisation in design practices and the strands of STS work dealing with technical artefacts within design practice. It is concerned with architectural design and places architectural representations into a unique position of an intermediate step between an idea and material reality: an object which already contains a relational arrangement of entities (=spatial) but clearly possesses qualities of a text, both material and symbolic; which is easy to modify and therefore it



acts as a "laboratory" for further material rearrangements, where the knowledge about the object-to-be is produced.

The complex nature of representation in the design process and its relation to the design outcomes is explored with a focus on the shared spatial nature of both the representation and the designed objects. The analysis primarily concerns the software space used to create visualisations and its dual role as a tool of both design and representation, which are seen as inseparable iterative processes in creating spatial material artefacts.

How is space constituted within architectural project representation? To answer this question, the concepts of 'immutable mobile' (Latour, 2012) and 'network-object' (Law & Mol, 2001) are applied to the kinds of visualisations used by students of architecture in their design practices to investigate visualisation's ability to mobilise resources while moving through different contexts. Further, Law and Mol's notion of 'fluid spatiality' is applied, describing how an object changes while remaining the same (Law & Mol, 2001).

The methods include interviews, observations and semiotic analysis of architectural visualisations within software space, aimed to enrich the range of methodological approaches in STS. The ethnographic work is being conducted within an architectural department at one of the universities of Vienna.

11 JUNE 2025 17.00 - 19.00

SESSION 2

ROOM B2.116

ID 894 - How to Tell A Story: Drawing on Relational Approaches in STS to Account for 'Good' Aesthetic Practices

Renata Mandzhieva, Austrian Institute of Technology

Keywords: aesthetics, Vienna, infrastructures

Although other forms of participation might seem more pervasive, recently (living) labs appear to have been achieving some of institutional and societal robustness. As the qualitative and the embodied alternative, (living) labs might provide a sound empirical case for exploring and accounting for the role of artefacts in aesthetic practices. One aspect that differentiates labs from other qualitative forms of participation, such as interviews, workshops and surveys, is the long-term engagement they render, while also bringing a certain affect for participants lifeworlds, which in comparison to other rewards or motivations can be seen as "good" or better.

Drawing on relational approaches developed earlier in STS, this paper aims to understand how to account for the good produced by the aesthetic and instaurative practices, as well as care and organisational management needed for these practices to come about. By noticing the non-discursive (Davies et al., 2012), insights can come from unexpected sources, such as human, non-human, living and non-living relations and other bodily interactions (Mattozzi & Parolin, 2021.)

The empirical case for this paper relates the repair and maintenance project housed in a warehouse building that was planned for demolition but served as a temporary site for a neighbourhood lab developed in line with the strategic vision of the City of Vienna. I explore how instaurative practices, infrastructural effects and aesthetic practices can figure in conceptions about a 'good' (smart) city and how this relates to the experiences of those who were involved in organizing and caring for the project by drawing on relational approaches developed earlier by STS scholars. Michael Guggenheim discusses buildings as only quasi-technologies and not technologies proper, in other words mutable immobiles (2009), because their use is not achieved only by the building's (socio)materiality, but is mediated by the law, as well as the environment where the building is located. Urban assemblages (Fariás and Bender 2009; McFarlane 2011a) is another key framework to account for the ways in which urban encounters figure in the economy by producing affects and passions (Tironi, 2009), and not-strictly-economic demands for goods and services (Färber 2014.) Infrastructures is another way to describe-analyse where bodies' properties are not ontologically fixed but are instead a relational arrangement which enables some and hinders other activities,



bodily interactions, or social groups (Star and Ruhleder 1996, Fariás & Blok, 2017.) The concept of endangered attachments (Marres, 2007) articulates "a relation between human and non-human entities that is characterised by both 'active commitment' and 'dependency'" (p. 774), or in the words of Davies et al. (2012), "the unspoken, material, or affective" (p. 352.)



12 JUNE 2025 11.30 - 13.00

ROOM B3.3

Panel 58. Caring for “Care”: Feminist STS Perspectives on Researching Robots and AI

Convenor:

Stevienna de Saille, University of Sheffield

Keywords: Feminist STS, health and social care, ontologies of care, robots and AI

In some languages, such as Italian, there is a distinction between caring for/caring about (“cura”) and providing health or social care (“assistenza”). In other languages, particularly English, “care” can become a catch-all encompassing the emotive, the transactional and the systemic. This semiotic slippage, particularly in discussions about emerging technologies such as robots and AI, means that things which cannot actually care are increasingly touted as the solution for “the crisis of care” for disabled and older people, ie. those who advanced capitalist societies tend to care the least about.

Based on the work of Tronto and Bellacasa, this panel asks how “care” becomes constructed, deconstructed, entangled, detangled, implicated and alienated in these discussions in different languages and different cultural contexts. It asks how those of us doing empirical research on the use of robots and AI in care can develop scholarship that uses feminist STS sensibilities, paradigms and practices to inform our participation. How can the confluence of the robotic, the human and the social be studied with care, when neither the problems, context, purpose nor users are well defined and the language of “care” is not universal? What other forms of knowledge production could we utilize as an antidote to instrumental engineering imaginaries, particularly where these claim to be solving the “problem” of caring for societally vulnerable groups? How do we as STS scholars work against technosolutionism, and avoid being co-opted into instrumental imaginaries when working on interdisciplinary projects? In other words, how do we care for “care”?

This panel invites papers which discuss these and similar questions about mobilizing STS sensibilities to help transform and make visible the care in care robotics, in ways which can shape and influence the trajectory of engineering projects. We are especially interested in qualitative empirical research that examines the positionality and reflexivity of STS scholars with regard to the study of “robots/AI for care”, as well as those examining the new and experimental forms of normativity and relationality which are beginning to arise around robots, AI and human engagement in this field. Contributions may include (but are not limited to) those which discuss “care” as:

- an ontological object, an ontology, an object conflict;
- an epistemology;
- a verb, an action;
- an ethics, a politics, a moral imperative, a normative orientation;
- a set of relations, a system;
- a metaphor;
- a synonym for maintenance, responsibility, nurturance...
- or any other way of approaching robots and AI in care as a topic for (feminist) STS.



12 JUNE 2025 11.30 - 13.00

ROOM B3.3

ID 351 - From Theory to Prototype: Designing Care Robots for Older Adults through feminist STS perspectives

Ralf Vetter, ITU – Interdisciplinary Transformation University Austria

Anna Dobrosovestnova, Technische Universität Wien

Christopher Frauenberger, Interdisciplinary Transformation University Austria

Keywords: Care Robots, Good Care, Matters of Care, Participatory Design, Design Process, Speculative Design

The imaginaries of robotic technologies designed to address tensions in elder care, such as staff shortages, loneliness, and physically demanding tasks, raise fundamental questions about how robots enter the socio-material fabric of care. Typically introduced from functionalist or instrumental perspectives, robots risk reducing care into isolated, mechanisable tasks. However, care is relational, emotional, embodied, and shaped through human and non-human actors. In the project "Caring Robots//Robotic Care", we draw on feminist STS perspectives of care to re-envision our design processes of robots.

Building on Maria Puig de la Bellacasa's Matters of Care, we understand care as an entangled practice, both material and affective, carrying significant ontological, epistemological, and ethical implications. Conceptualising care as an ongoing intervention in human and non-human relations reframes robots as socio-material actors that shape relationalities, reconfigure labour, and mediate ethical dimensions. Understanding how to care best demands a dual approach: examining the status quo and desires from situated perspectives while also speculating on alternative futures. This underscores the active role researchers and designers play in shaping the technological mediation of care.

Our methodological framework highlights the performative, relational, and subjective facets of care by emphasizing co-creation, critical reflection, and speculation. Using participatory design (PD) approach, we collaborate with care recipients, caregivers, and other stakeholders in iterative processes that prioritise what care robots should do over what they could do. We draw on speculative design, to shift inquiries from problem-solving to question-asking. This allows us to engage with the inherent tensions and ambiguities when robots enter everyday care.

In our project, we first conducted ethnographies in geriatric care contexts capturing how care is embodied, negotiated, and relationally enacted through trust, emotional reciprocity, and routines. Next, we explored which and how participants envision relations with robots through engagement with technologies such as computer vision and large-language models. We then worked with care workers and experts co-create and enact care scenarios with low-fidelity prototypes, critically analysing their potential to configure meaningful care relations. Currently, we are co-designing working prototypes for real-life settings, assessing how they intervene in care relations.

Our contribution will demonstrate how feminist STS and relational ontologies reorient designing care robotics towards ethical and situated interventions. Our approach foregrounds care robots as an ongoing negotiation of relations, ethics, and socio-material entanglements rather than a fixed system to be optimised. By integrating participatory and speculative design, we not only reconsider how care robots are developed but also trace evolving care configurations such designs might enable or constrain. Looking forward, we intend to explore how our prototypes function over time, addressing tensions between imagined interventions and realities and constraints in care contexts.



12 JUNE 2025 11.30 - 13.00

ROOM B3.3

ID 371 - Robot imaginaries and ontologies of "care"

Stevienna De Saille, University of Sheffield

Keywords: feminist STS, robots and AI, health and social care, sociotechnical imaginaries, matters of care

At present, millions of pounds are being poured into research on robots to ameliorate the shortage of workers for social care for health-related issues. Amongst those tasked with developing these technologies, however, social questions tend to fall into two categories: how to make the robots "trustworthy" (ie. reliable, safe, effective) and how to make them desirable (ie. functions, aesthetics, cost). What is not generally asked is "How might X robot fit (or not) into the health-social care system we presently have and how will that reconfiguration affect what it means to care?"

This paper addresses that question using data from two connected projects, both funded by the UKRI-Trustworthy Autonomous Systems hub. In "Imagining Robotic Care" we examined the socio-technical imaginaries (Jasanoff & Kim 2009) held by care system stakeholders, care users, publics 18-75, academic researchers and roboticists in the UK with regard to the use of robots to fill social care needs arising from health issues. In our follow-on project, "Mapping Trustworthy Systems for Robots in Social Care" we brought a dressing robot currently in the early stages of development to two day-long workshops with care managers and workers from different local councils, developing an interactive, 3D map of their adult social care system to explore what adaptations to robot and system might be needed for it to be productively deployed.

Drawing from the work of Joan Tronto, Maria Puig de la Bellacasa and Annemarie Mol, this paper discusses the ontologies of "care" revealed through thematic analysis of the narratives employed by this broad range of stakeholders. How do different conceptions of "care" – as a service, an emotive response, a reciprocal relationship, a task to be performed – shape the sociotechnical imaginary of a useful robot, and how does this differ from the imaginary embedded in policy documents directing funding towards the development of robots and AI for adult social care? Is it even possible to develop an ontology of care which can be translated into machine design specifications, without advancing an agenda that reduces "care" to its most transactional elements? The results aim to contribute to the development of "matters of care" (de la Belacasa, 2017) as a theoretical paradigm for feminist STS, as well as to the practical design of robots for care.

12 JUNE 2025 11.30 - 13.00

ROOM B3.3

ID 674 - Technosolutionism and the Care Crisis: AI, Platformisation, and the Feminist Politics of Care

Angelica Martinez Ochoa, University of Texas at Dallas

Keywords: FemTech, Digital Platforms, AI and Care, Matters of Care, Technosolutionism

In the ongoing U.S. care crisis, the FemTech industry has received unprecedented investment, positioning technology as a solution to labour shortages and care infrastructure gaps. In 2024, the Biden administration allocated \$1 billion to women's health research, while venture capital firms invested another \$1 billion across 111 FemTech deals. Despite this surge in funding, the crisis persists. This paradox raises urgent questions about how technological imaginaries frame care as a "problem" to be solved and how AI-driven solutions risk reinforcing, rather than alleviating, structural inequalities.

This paper examines how AI-driven FemTech platforms conceptualize and intervene in care through case studies of maternal well-being technologies: Emma, a Generative AI assistant evolving from Social Mama, a platform combating maternal isolation; Maven Clinic, the largest virtual maternal health provider in the U.S.; June Care, a childcare-sharing platform; Nanni AI, a cry detection app that "translates" a baby's needs; and Sonio, an AI-powered voice recognition tool for OBGYN ultrasound reporting. While all five platforms employ AI to mediate care, they articulate distinct visions of care: Nanni AI and Sonio frame care as voicing authority, using AI-powered sound recognition to enhance parental and medical decision-making. AI is not



just facilitating care but reshaping which forms of knowledge – baby cries, ultrasound interpretations, medical guidance, or childcare exchanges – are legitimised within an increasingly technologized landscape.

Using discourse and platform analysis, this research interrogates how these technologies frame care at the intersection of digital platforms, economic investment, and maternal responsibility. It situates these platforms within broader historical patterns of technologized care, drawing on Jennifer Denbow's (2024) analysis of how policy shifts in the Reagan and Nixon eras reconfigured care as an individual burden while expanding private investment in applied technologies. Additionally, it builds on José van Dijck et al.'s (2018) work on platformisation to examine how digital infrastructures shape expectations around maternal responsibility.

This study engages feminist theories of care, particularly María Puig de la Bellacasa's (2017) concept of "matters of care," which challenges the instrumentalization of care by foregrounding its affective, ethical, and relational dimensions. Rather than treating care as a problem to be optimised, this framework situates it as a practice entangled with social, material, and political infrastructures. Through this lens, the study explores how AI-driven care technologies construct new norms of relationality between caregivers, care receivers, and institutions and how these digital interventions reconfigure both the labour and meaning of care.

Further, this research examines who ultimately benefits from AI-driven care technologies and in what ways. By analysing the beneficiaries – whether investors, platform owners, employers, or users – this study sheds light on dominant understandings of care within FemTech, which often mobilizes care under the narrative of improving women's wellness and health.

This research contributes to feminist STS debates by asking: What imaginaries of care are embedded in AI-driven platforms? How do these technologies construct new normative expectations around care relationships? By moving beyond critiques of AI's discursive framing to interrogate its material and economic effects, this paper offers a nuanced analysis of the tensions between investment in FemTech and the persistence of the care crisis.



11 JUNE 2025 09.00 - 11.00

ROOM B2.2.1

Panel 59. Disentangling AI and Health/Healthcare: imaginaries, Narratives, Values

Convenor:

Elisabetta Locatelli, Università Cattolica del Sacro Cuore

Keywords: AI, health, healthcare, imaginaries, values

Health and healthcare are among the fields with the most promising and innovative applications of AI technologies, for example for accelerating diagnoses; identifying rare diseases; interpreting diagnostic images; improving communication (i.e. if added in devices for disabled people or for dissemination purposes).

Besides the hype and the enthusiasm, a deep understanding is needed to unfold the hidden values and risks of AI for health and healthcare. Relevant issues include how fundamental concepts are conceived (such as health, healthcare, care, person, life, death, illness, efficiency); who should lead AI innovation; who is in charge to define boundaries and limits regarding the use of data (i.e. data collection and storage, avoiding biases, AI training). Beside the study of the technology per se, previous STS research demonstrated the importance of imaginaries and visions in shaping technology outcomes (Bijker, 1995; MacKenzie, Wajcman, 1999). Decoding such imaginaries would be helpful to better understand the issues above sketched out and direct the AI development for health and healthcare towards the common good.

Despite the number of investigations on AI imaginaries (well summed up by Sartori, Bocca, 2023; see also Bakiner, 2023), the association between AI and health/healthcare is still underinvestigated, as Hoff highlights in his analysis of how governments construe sociotechnical imaginaries of AI and healthcare services (Hoff, 2023; see also Tucker, 2023). Beside governments, several other actors contribute to build this imaginary, such as innovators, companies, news media, institutional documents, popular discourses.

The panel proposes, thus, to put together different perspectives on the intersection between health/healthcare and AI, to investigate its technological, cultural, and sociological underpinnings, bias, and risks. Submissions of theoretical or empirical research regarding, but not limited to, the following topics are welcome:

- National and/or international imaginaries on AI and health/healthcare;
- Media (news media, social media...) imaginaries of AI and health/healthcare;
- Imaginaries of AI and health/healthcare from governments, public institutions, physicians, healthcare professionals, scientists, patients, patient's organisations, common citizens, etc.;
- AI for health/healthcare communication;
- STS analysis of design and implementation of AI for health/healthcare.

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11 JUNE 2025 09.00 - 11.00

ROOM B2.2.1

ID 205 - Transformation of the Clinic. Data-driven pre-emption of disease and the politics of health

Niels Van Dijk, Vrije Universiteit Brussel

Katerina Sideri, Panteion University of Social and Political Sciences

Keywords: predictive medicine, artificial intelligence in healthcare, remote patient monitoring, healthcare innovation, actor-network theory

Public health policies are currently reimagining the function of healthcare systems in the light of a new explicit set of problematised challenges of an aging population with chronic disease, skyrocketing health expenses and costly treatments. Digital devices such as remote monitoring technologies and big data analytics are increasingly positioned as crucial nodes in enabling their transformation to address these issues. They are imagined by European regulators and funders to provide continuous real-time clinically relevant information about patient's everyday behaviour. In this line, these funders have announced calls to develop RMTs to enable data-driven pre-emption of episodes of chronic disease to avoid rehospitalisation of patients. This would allow more detailed preventive action, no longer merely based, in the words of Foucault, on 'the perpetual observation and measurement of the state of health of the population' through statistics, but that of the individual patient through concrete data-driven techniques of personalisation.

We will present the results of our case study of the work of a consortium of investigators of a European research project funded by the European Commission and pharmaceutical industry, which was seeking to develop such pre-emptive digital devices. We focus specially on their work of exploring ways in which these technologies could work in the clinic. The project here simulated and explored the transformations of the clinic and clinical action due to the introduction of these RMTs. Through exercises of 'interessement' of different actors in the clinical ecology, they solicited the views of clinicians, patients, healthcare managers and pharma companies regarding the 'value' their devices could bring. In this way they tried to make these digital devices the 'obligatory passage point' for innovation in healthcare. We argue that their proposals can be viewed as exercises in clinical world-making in action and thus as specific kinds of politics of health.

These exercises raise a series of questions regarding which actors are or are not included in these proposals and what different roles they are given, which actors reject these technologies and what kind of counterproposals they produce. We show how, throughout the stakeholder consultations, certain limits of these proposals become gradually apparent, and which other possible avenues are opened. In this way, these exercises also offer glimpses of other ways of 'world-making'. These counterproposals go hand in hand with diverse understandings of what healthcare is or should be about, what therapy is, and they would require a different organisation of the clinic and its link to the home, and of the patient-doctor relationship. As we show, the direction of the transformation of the clinic is still highly uncertain.

11 JUNE 2025 09.00 - 11.00

ROOM B2.2.1

ID 288 - The risk of trust: promises and pitfalls of Artificial Intelligence in radiomics

Marta Gibin, Università di Bologna

Riccardo Pronzato, Università di Bologna

Antonio Matura, Università di Bologna

Keywords: Artificial Intelligence, radiomics, trust, socio-technical imaginaries.

The introduction of artificial intelligence (AI) systems in healthcare has stimulated numerous debates regarding their potential benefits and risks, including their implications for professional roles, doctor-patient relationships, and trust. Different research areas, such as sociology of health (Lombi and Rossero, 2024), STS (Miele and Giardullo, 2024) and critical digital health studies (Lupton and Butler, 2024), have highlight-



ed the need to analyse these narratives in practice.

Within this framework, this paper aims to investigate narratives of risks, hopes and trust regarding the implementation of AI-based systems in healthcare and, more specifically, how people interpret and attribute meaning to the role of AI in breast cancer detection.

Narratives around technologies contribute to shaping the visions, fears and expectations people have around them, as well as personal and professional technological adoption (Bareis and Katzenbach, 2022; Sartori and Bocca, 2023). Specifically, a key dimension in the narratives surrounding AI is the "trust" towards it (Brown and Bahri, 2019; Hallowell et al., 2022), which can favour socio-technical and moral environments where new risk categories are created (Brown and Van Voorst, 2024). In this context, narratives have also been linked to "socio-technical imaginaries", i.e., an ambivalent term indicating both future and normative visions imbued in technological projects (Jasanoff and Kim, 2009), and end users' experiences (Bucher, 2017). Within this framework, we aim to show the contested and generative nature of AI narratives, and how "future individual expectations and trust" are key dimensions in "the study of technology put in context" (Sartori and Bocca, 2023: 446).

Given this scenario, this study provides insights into the visions and tensions surrounding the implementation of AI software programs to detect breast cancer. To do so, we conducted a content analysis of 701 online user comments responding to a New York Times article discussing AI use in breast cancer detection (Barker and Galardi, 2015). After several rounds of coding, we chose to apply Sztompka's trust framework (1995, 1999) to analyse AI narratives, which emerged as deeply interwoven with various forms of trust and distrust towards the medical profession, the U.S. healthcare system, the medical industry and the government. Specifically, findings reveal divergent visions of AI in healthcare, associated with four forms of trust identified by Sztompka: positional, segmental, organisational and technological trust. Findings show that positional trust in AI and physicians varies, with some viewing AI as complementary, others fearing dehumanisation and errors. Segmental trust in the profit-driven U.S. healthcare systems negatively influences attitudes toward AI, as does low organisational trust in medical institutions and governments. Technological trust both drives optimism and scepticism.

Our analysis underscores the need for a balanced approach to AI integration in healthcare, emphasizing collaboration between AI and physicians. Collaborative intelligence is proposed as a model for future practice. Such a framework would require physicians to develop technological competencies while maintaining their traditional skills in empathy and contextual interpretation.

11 JUNE 2025 09.00 - 11.00

ROOM B2.2.1

ID 298 - Unraveling AI imaginaries in radiomics: Beyond exoticism, mentalism, and technologism

Jakub Mlynar, HES-50 University of Applied Sciences and Arts Western Switzerland

Mélanie Champendal, HES-50 University of Applied Sciences and Arts Western Switzerland

Lluís Borràs Ferris, HES-50 University of Applied Sciences and Arts Western Switzerland

Ricardo Ribeiro, HES-50 University of Applied Sciences and Arts Western Switzerland

Adrien Depeursinge, HES-50 University of Applied Sciences and Arts Western Switzerland

Keywords: AI, healthcare, radiomics, exoticism, mentalism, technologism

Sociotechnical imaginaries of 'AI' in healthcare are embodied in the design and practical implementation of AI-based technologies. Our paper is based on STS studies in radiomics (see, e.g., [1], for an overview), a new field of medical imaging analysis that involves extracting large-scale quantitative features using machine-learning (ML) algorithms. Specifically, we have been studying how radiomics is taught – formally and informally – among medical professionals and students at a university hospital in Switzerland, and how novice users interact with the radiomics platform QuantImage ([2]; [3]). The platform allows for the extraction of several types of features from PET/CT images, providing a simple environment that can be further



adjusted for more refined analyses. It enables clinical researchers with no programming background to develop and validate radiomics models using their own data, which can be easily exported from the hospital information system. QuantImage, initially designed as a tool for radiomics research, is currently being repurposed for education in this emerging field. Although the platform itself does not produce communicative actions, our findings show that autonomous agency is routinely ascribed by the participants to the machine, even though it functions as an object rather than an agent [4].

In this paper, building on our studies in radiomics and earlier work on AI imaginaries [5], we critically disentangle three aspects of sociotechnical imaginaries involved in teaching for and about AI in healthcare: exoticism, mentalism, and technologism. First, most of the existing insights and ways of working are obtained from settings in which AI has not yet been incorporated into the routine structures of everyday life, but is rather seen as a novel and unusual object (cf. [6]). The exoticist framing of AI in radiomics uncovers tension with the mundane work routines in which it is eventually embedded. Second, much of the social studies of AI reproduce (intentionally or not) the mentalist conception of AI, based on cognitivist notions of thinking, intelligence, or learning (cf. [7]). Such mentalism of AI in radiomics is connected to the imagery of an isolated single user taking part in individualised 'human-AI interactions'. Third, it is taken for granted that AI is a form of computational technology: AI and its manifestations – e.g., algorithms, neural networks or ML processes – are located inside the machine. Social imaginaries consist of technologist 'use cases/scenarios' that are produced to provide an optimal environment for the technology's operation. Against the backdrop of the three aspects, I will propose a reformulation of AI in healthcare that starts from the publicly observable, situated, embodied conduct in the world of daily life and professional activity, avoiding both the "academic and theoretical imperialism" [8] and the imperialism of computing [9]. More generally, I will argue that AI is not 'inside the machines' but emerges from the situated organisation of social events in which an agentive artefact's self-sufficiency is constituted and maintained.

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11 JUNE 2025 09.00 - 11.00

ROOM B2.2.1

ID 314 - STS interventions in causal AI: the case of clinical prediction model validation

James Lowe, University of Exeter

Niccolò Tempini, University of Exeter

Keywords: Causal AI, Clinical prediction models, anticipatory governance, interventionist STS, validation

As STS researchers leading RRI practices in CHAI - Causality in Healthcare AI Hub - involving six UK universities, we are engaged in interventions in the governance of novel technoscience.

CHAI has the stated ambition of developing Causal AI methods that raise scientific and ethical standards together. As they allow scientists to explicitly model scientific knowledge into the machine learner, Causal AI models should be more sustainable, scalable and reliable. They also create the opportunity for directly addressing the algorithmic causes of health outcome inequities. For the opportunity to be seized, the CHAI Hub recognizes the need to adopt a model of anticipatory research governance centred on bodies convening different configurations of Hub affiliates. Through using social scientific co-creation methods, these bodies will ensure that expertise and stakeholder contributions are available to inform key decision-making and maximise social impact.

Anticipatory research governance requires qualitative research to be a key component of the Hub's strategy. Accordingly, we aim to intervene in scientific debates as they develop, and to use our attention to data practices and their wider social context to inform practical suggestions and plans for action. Our ambition is to espouse and enact an expansive definition of Causal AI, as not limited to embedding scientific theory and demographic considerations but including knowledge of social systems as well.

In this paper, we discuss how we are using qualitative research methods to directly contribute to a key frontier in causal AI development: the targeted validation of clinical prediction models. Clinical prediction models aid in diagnosis, prognosis, risk prediction and therefore in informing testing and treatment options for patients. Clinical prediction models can have external validity problems due to the inescapable differences between the context of model training and the context of model application.

Targeted validation is an approach to developing and rolling out clinical prediction models that has been argued for by health statisticians (Sperrin et al 2022). It calls for developing methods to allow local modification and validation of models. This should help ensure maintenance of performance across implementation sites, thereby improving the distribution of outcomes across different populations. Translation of the model beyond the initial context requires assessment of a potential 'validation gap' then the modification of the model to fit the characteristics of the target population and setting, and its consequent validation.

As qualitative researchers we contribute to the endeavour of identifying and responding to drivers of validation gaps by pushing the agenda of targeted validation beyond concerns with data sources and demographic differences identified in the literature and by developing social scientific techniques for addressing anything relevant that cannot be directly modelled. This will encompass the broader context of the delivery of healthcare, including socio-technical process analysis. At stake is the scalability and systemic feasibility of the whole approach.

In our paper we will explicate our research and engagement concerning targeted validation and will elaborate lessons for the anticipatory governance model CHAI is committed to.



11 JUNE 2025 09.00 - 11.00

ROOM B2.2.1

ID 551 - Scalable Screenings: A Critical Analysis of Narratives Surrounding Mental Health Apps

Greta Von Albertini, University College London

Keywords: mental health, AI, personalisation, apps, narratives

Mental health smartphone applications (MH apps) are presented as urgent and scalable solutions to rising mental illness rates that burden individuals and societies worldwide, offering low-cost interventions, increased accessibility, reduced stigma, and flexibility. However, framings of a 'global mental health epidemic' neglect systemic inequalities and "underlying social causes of mental ill health" (Rose et al., 2021: 4), resulting in an erroneous sense of a 'universal cure' as desirable—or even possible. While the technologisation of mental health care shapes experiences of mental illness and therapy, it also raises critical questions of who bears responsibility for 'getting better'. Drawing on digital ethnographic fieldwork with an MH app company, my research examines how disruptions to existing care infrastructures are legitimised through narratives emphasising scalable and personalised care, alongside expectations that the future of therapy will inevitably involve AI. I investigate how such narratives draw on psychiatric and computational epistemologies and how these are enacted through conceptualisations of 'users' as quantifiable and diagnosable, where diagnostic screenings classify individuals as either healthy or unhealthy, and personalised data analysis determines appropriate therapy. I argue that these narratives depoliticise and commodify both care work and suffering while sidelining alternative approaches to mental health. This research challenges claims for the marketisation and automation of mental health care. It contributes to the sociology of expectations and literature on sociotechnical imaginaries, as well as the politics of scaling and personalisation in healthcare.



[GO TO SESSION 1](#) [GO TO SESSION 2](#) [ROOM B3.1](#)

Panel 60. Assemblages of the Broken World

Convenor:

Minna Vignen, Lappeenranta-Lahden Teknillinen Yliopisto

Keywords: Broken world, care, maintenance, repair

The concept of the 'broken world' suggests that a more sustainable future lies in commitments to repair, maintenance, and care of existing systems. Following the invitation by Jackson (2014), this panel invites scholars to "take erosion, breakdown, and decay, rather than novelty, growth, and progress" as starting points for their presentations. This shift in perspective requires us to acknowledge the limits of our fragile world and recognize the importance of reimagining what needs to be studied and how amidst all the brokenness.

The presentations of this open panel can explore the configurations of the broken world and related practices of repair, maintenance, and care in research settings, research methodologies, and eventually research ontologies and epistemologies. Different types of presentations from provocations to research papers and from research ideas to work-in-progress are welcome.

Proposals may respond to, but are not limited by, the following themes:

- failures and fixes of digital infrastructures;
- resilience and vulnerability in broken systems;
- consumerism, repair and maintenance;
- technological obsolescence and sustainable innovation;
- imagining beyond brokenness;
- cultural narratives of breakdown and repair;
- ethics of care in research and knowledge production;
- indigenous knowledge and traditional practices of repair;
- urban decay, renewal, and community care;
- art, aesthetics, and visualizations of brokenness and repair.

[11 JUNE 2025 14.30 - 16.30](#) [SESSION 1](#) [ROOM B3.1](#)

ID 260 - Sustaining Science: Repair, Maintenance, and Everyday Innovation in Laboratories

Federica Zanardi, Università degli Studi di Padova

Keywords: repair, maintenance, care, innovation, ethnography, scientific laboratories, vulnerability, creative solutions, knowledge production

In the context of increasing technological fragility and resource constraints, the concept of the "broken world" (Jackson, 2014) urges a shift in focus from novelty and growth to repair, maintenance, and care as fundamental pathways to innovation. This perspective is particularly relevant in scientific laboratories, where the daily practices of repair and maintenance not only sustain research infrastructures but also foster various forms of innovation. Drawing on ethnographic research conducted within the Neuratron project – a collaboration between an Italian university and the National Research Council (CNR) – this study investigates how these practices contribute to scientific developments. The Neuratron project, which integrates fields such as physics, biotechnology, and neural networks, illustrates how scientific work heavily relies on continuous maintenance. While laboratories are often perceived as hubs of cutting-edge technological advancement, their functioning depends on seemingly mundane yet essential activities: cleaning microscope



lenses, replacing worn components, and recycling materials to prevent equipment failure. Far from being incidental, these practices are foundational for ensuring instruments' functionality and, consequently, for maintaining the stability of scientific practices. Through participant-observation, four main types of innovation emerging from these practices were identified: machine innovation; problem-solving innovation; operational innovation and methodological innovation. Machine innovation manifests in the gradual improvement of scientific technical apparatus (e.g. microscopes; microchip; oscilloscopes), through regular maintenance and the optimisation of existing scientific materials and tools. Problem-solving innovation arises when researchers face equipment failures or experimental errors, prompting creative solutions to overcome specific challenges. Operational innovation involves the inventive reuse of everyday objects, such as repurposing kitchen thermometers or polystyrene foam to create tools essential for experiments, thereby challenging the notion of technological obsolescence. Methodological innovation stems from the continuous adaptation of scientific procedures based on experience and the demands of maintenance, driving a constant evolution of research methods. This research contributes to discussions on resilience and vulnerability within broken systems, challenging the traditional view of technological progress as linear and growth-oriented. Instead, repair and maintenance practices emphasize continuity, adaptation, and care as essential elements of scientific work (Latour, 1987; Knorr-Cetina, 1999). By examining the daily maintenance work, this study invites a rethinking of how innovation is conceptualised, suggesting that breakdowns and failures can be transformative, offering opportunities for renewal and reconfiguration. In conclusion, repair and maintenance are revealed as foundational practices for sustaining scientific systems, demonstrating that innovation does not solely emerge from revolutionary breakthroughs but also the ongoing, often invisible labour of care. By focusing on the "broken world," this research calls for a reevaluation of scientific progress, viewing fragility and decay not as obstacles but as opportunities to reconsider knowledge production.

11 JUNE 2025 14.30 - 16.30**SESSION 1****ROOM B3.1**

ID 840 - Mission critical – dialectic reparative imaginaries

Cecilie Hillmer, University of Manchester

Keywords: Missions, coproduction, dialectics, repair, utopia, crisis

Europe is facing multiple, entangled crises. The Horizon Europe research and innovation (R&I) programme acknowledges challenges such as climate change, environmental breakdown, population health, migration and waning trust in democratic institutions, and unfulfilled promises of past Research and Innovation (R&I) policies. In response, the European Commission suggests a mission-oriented approach to public R&I funding in Europe aimed at driving societal transformation. The five proposed EU missions aim high, for example to "improving the lives of more than 3 million people by 2030 through prevention, cure and for those affected by cancer including their families, to live longer and better" (European Commission). R&I plays a central role as missions imagine Europe's social crises as transformable into technoscientific problems, actionable through policy infrastructure, and justifiable through a universal common good. In doing so, this paper will argue, the missions imagine a Europe that transcends its broken reality. The paper explores missions as a sociotechnical imaginary (STI) (Jasanoff and Kim, 2009), taking a dialectical co-productive approach to missions that focuses on the tensions that emerged in the first years of their implementation. The tensions reveal underlying contradictions with a long history, such as the conflict between economic growth and climate change, and directed and disinterested science. These contradictions, I argue, are part of the torn fabric of Europe that missions seek to leave transcend. I will outline how contradictions regarding progress, territory and sovereignty are imagined as transcendable while ignoring their roots in colonial modernity. These contradictions are not appropriately addressed within mission-work - they aim to transcend the fractures of modernity rather than holding them in tension. Drawing on black abolition feminism scholarship on utopia and reparation, I tentatively suggest a reparative approach to missions which holds these fractures open to acknowledge and repair them. This is an approach which does not reproduce the need for (violent) optimism and progress in an ever more dystopian experience of the world; but learns to



accept its brokenness to work towards loving repair. A dialectical and reparative approach to coproduction turns our focus towards contradictions inherent in sociotechnical imaginaries, revealing not only where power lies and how it operates but also why, enabling a deeper political analysis.

11 JUNE 2025 14.30 - 16.30

SESSION 1

ROOM B3.1

ID 423 - Disassembling the Good: Design, Power, and the Daimonic Unknown in a Broken World

Francesco Galli, IULM University

Keywords: Power, Unknown, Negative Knowledge, Education, Creative Leader

The imperative to assemble, repair, and sustain assumes that brokenness is inherently negative – something to be fixed or optimised. However, this paper challenges the constructivist determinism underlying the notion of "Technoscience for Good," questioning whether disrupting and disassembling paradigms may be more generative than repairing them. Drawing on Byung-Chul Han's *Non-Thing* (2021) and Carl Sagan's *The Demon-Haunted World* (1995), it proposes a radical rethinking of brokenness, negativity, and indeterminacy, using the Daimonic (Δαίμων) as a bridge between reason and mystery.

Modern design education and leadership reinforce positive constructivism, assuming that progress is linear, knowledge accumulates, and innovation leads to improvement. This epistemic determinism prioritizes measurable, evidence-based methodologies, restricting the potential of negative knowledge, uncertainty, and rupture as intellectual and creative tools. Perhaps the problem is not what we can fix, but what we are willing to leave broken.

Three Critical Disassemblies

- **Breaking the Constructivist Paradigm.** The dominant model of "good" in technoscience and design is based on optimisation, coherence, and problem-solving. However, not all systems should be repaired – some demand rupture, disintegration, and unmaking. True epistemic transformation may arise not from fixing but from breaking, allowing disorder and uncertainty to reveal new pathways of thought and action.
- **The Demon and the Daimon: Reclaiming the Negative.** Sagan warns against a world ruled by certainties, where the demonisation of the unknown suppresses critical inquiry. Yet, the Greek Daimon (Δαίμων) was never purely evil; it was a force of intellectual and creative motivation. By rejecting negativity, ambiguity, and disruption, design pedagogy risks closing itself off from the very conditions that foster innovation. The unknown, rather than being feared, should be embraced as a productive space of engagement.
- **From Soft Power to Negative Knowledge.** Design education, increasingly a site of soft power, frames itself as a human-centred, problem-solving discipline. Yet, true leadership in a broken world demands an epistemology of negative knowledge – the ability to unlearn, resist closure, and engage with the speculative and indeterminate. Rather than seeking resolution, pedagogy should cultivate intellectual discomfort and speculative curiosity, training designers to navigate complexity rather than control it.

A Speculative Conclusion: Toward a Pedagogy of Disintegration. Instead of focusing on repairing the broken world, this paper proposes a pedagogy of disintegration, where not knowing, breaking, and embracing the daimonic unknown become fundamental to the education of creative leaders. The world does not need another generation of designers who seek to fix problems within a deterministic framework of "good." Instead, it needs thinkers, makers, and leaders who can engage with uncertainty, rupture, and negative knowledge – seeing the demon not as a threat, but as an invitation to explore the unknown.



11 JUNE 2025 14.30 - 16.30 **SESSION 1** **ROOM B3.1**

ID 642 - Boxes and brokenness: experiments in creative reparations in trans-disciplinary research methods

Róisín O'gorman, University College Cork

Keywords: creative reparations, use, uselessness, wax moulages, categories

This presentation emerges from a transdisciplinary research group, Living Well with the Dead Collective, at University College Cork in Ireland. Since 2019 we (scholars from archaeology, law, social science and theatre) have been exploring the legacies and lineages of colonial complicity which form and inform the contemporary university. More recently this on-going collaborative medical humanities project has been working on an archival trove of medical wax moulds which were made at the end of the 19th century. These remains flicker across representational, ethical, and performative epistemologies as they were cast from very particular bodies of the socially disenfranchised, those suffering advanced stages of disease (most often syphilis). Individuals' body parts were cast with plaster, from which wax moulds were made (moulages) and these circulated to medical schools across the West. The moulds were offered as an effective technology for rendering pathologies in specific detail and they are readily celebrated as artefacts which contributed to the establishment of the field of dermatology.

Our project seeks to find other ways to engage with the legacies and performative webs these objects offer to our social and medical imaginaries. Rather than recuperate the institutional 'good' of these obsolete technologies of science, our work resonates with Jackson's acknowledgement of the broken world (2014). While certain kinds of documentary work can elaborate on the social and medical details of the ensemble of those cast in the name of science, this paper will specifically reflect on how embodiment based arts practice research opens up new investigative modes of responding to the fraught legacy of these objects. The paper argues for modes of arts practice that attune to the ways in which these objects were made, how their impressions can form new ways of understanding the histories and legacies of medical touch and gaze. This attention to methods will focus on the material and metaphoric work of boxes, the ways in which the broken world is boxed up, sorted out, sorted away, memorialised or left to moulder. It further extends Jackson's arguments through Kondo's lenses of reparative creativity, where "[r]eparation – what I call reparative creativity-reconfigures the shattered world into a mobile, always incomplete, integration." (2018: p212). Thinking through the propositions of brokenness and reparation in this way, we can attend to the lowly box and the habits and affordances of tidy categories. However, the box too is a space of the imaginary, the black of theatre, of a camera, flight recorder, document ongoing flights of fancy. In this space of imaginaries (social, aesthetic, political etc.) brokenness offers space for potential play in the empty, left over disused boxes or spaces of our institutions and culture.

11 JUNE 2025 14.30 - 16.30 **SESSION 1** **ROOM B3.1**

ID 396 - Interstices of the broken world. Doubt, Technoscientific Infrastructures and Care in an Autoethnography of Illness

Giuseppina Pellegrino, Università della Calabria

Keywords: breakdown, technoscientific infrastructures, care, illness, autoethnography

Breakdown can start from and bring out breaches in the invisible texture of infrastructures, which can be compared to the obvious and routinary structure of everyday life characterised by the Schutzian epoché, for which the doubt of the otherwise is suspended. What is broken suddenly puts to the fore the ordinary, mundane and continuous processes of maintenance, repair and care, otherwise neglected.

In this contribution assemblages of the broken world are interpreted drawing on an autoethnography of illness (Pellegrino, 2021), from an inadvertent but performative positionality of STS researcher-not naive patient, immersed in different organisational cultures of research and healthcare, where multiple infra-



structures are at work and subject to contingency and vulnerability. The aim is to frame the concepts of breakdown and repair through three key concepts: doubt, technoscientific infrastructures, and care.

First, doubt. Doubting sheds light on the opacity of classification systems and infrastructures, which are not ordinarily accessible to sight and scrutiny. Doubt can be a resource to better understand the dynamics of breakdown and vulnerability; concurrently can hinder the assemblage of the broken world, showing an ambivalent potential. In my illness story, doubting was the key to understand the multiple breakdowns (e.g. relapses) intervening in the path.

Secondly, technoscientific infrastructures. In illness and medicine, where classifications and information infrastructures shape diagnoses and therapies, (Bowker and Star, 1999) technoscience is the core of research and care. Multiple vulnerabilities in my illness trajectory arouse from an inadequate or lacking articulation of infrastructures (e.g. an incomplete and wrong diagnosis; sclerotisation of the clinical protocol).

Third, care. Care is a logic (Mol, 2008), and "a form of tailoring, appropriation and resistance" as much as "an important moral and political terrain" (Jackson, 2014, 231). Care is also the key to maintain and repair the horizon of everyday life disrupted by illness, demanding an order occurring in the interstices of routine and breakdown (Denis and Pontille, 2019), when doubt can make a difference and orient towards temporary recovery and transformation.

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11 JUNE 2025 14.30 - 16.30

SESSION 1

ROOM B3.1

ID 497 - The Broken World of Digital Excess

Minna Vigren, LUT University

Olli Pyyhtinen, Tampereen yliopisto

Tero Karppi, University of Toronto

Keywords: digital excess, digitalisation, broken world thinking

The world we live in is broken: the impact of human-made crises are increasingly evident and far-reaching, displacing communities and destroying entire ecosystems. Technology is often perceived as the most viable solution to the crises. Yet, the accelerating technological development and digitalisation are also largely liable for the brokenness of the current system. In the presentation, we explore how the generation and accumulation of what we call digital excess undermines such endeavours of seizing an open future of progress and possibility. Our take on digital excess is inspired by the work of philosopher Georges Bataille. By bringing it into dialogue with the so-called broken world thinking (Jackson, 2014), we reflect the brokenness of our digital society, fundamentally built on ideas of excess, and the related processes of breaking. We portray digital excess as a condition of technological a priori that defines contemporary digital existence beyond the experiences of subjects, affecting not only social relations and the production and uses of technology but ultimately also planetary systems. Ultimately, by focusing on digital excess, the presentation critically contests ecomodernist and solutionist perspectives which perceive digital technology as an enabler and driver of green transition and ecological sustainability.



11 JUNE 2025 17.00 - 19.00

SESSION 2

ROOM B3.1

ID 156 - Algorithms for which good? Friction, breakages and value resonance in algorithmic systems in the Finnish public sector

Antti Rannisto, Aalto yliopisto

Keywords: values, breakages and repair, public sector innovation, artificial intelligence

The algorithmisation of society seems to spark only little political friction among citizens in Finland. In the Netherlands, for example, things are very different with the childcare benefits scandal from 2018 making obvious the potential dangers of automated societies, gradually generating a public problem to the degree of prime minister Mark Rutte's cabinet eventually resigning from office in 2021. Similar debates around discriminatory fraud detection algorithms in social insurance have started to surface in Sweden and Denmark in late 2024 following reporting by Lighthouse Reports and Amnesty International. To understand differences in how the deployment of uncertain algorithmic technologies in society sparks public interest and political awareness, I propose the concept of value resonance. The approach that I propose situates values within a processual conception of action and studies them within the dynamics of action processes. I start by complementing and extending Steven J. Jackson's (2014) suggestion of focusing on cracks and decay of technologies (see also Ananny 2022) by laying out a pragmatist conception of action (Dewey 1922; Kilpinen 2000; Joas 1996) and values (Joas 2001; Dewey 1939; Westbrook 1991). According to this approach, value resonance – and through that: value articulation – can be seen as happening during moments of friction, crisis, and breakage of habitual conduct in interaction with algorithmic systems. These frictions and crises of habit are moments of uncertainty where reflexive and creative agency is called for, for generation and valuation of possible paths for future action, and finally to repair habit. As Hans Joas, drawing on Dewey, provocatively puts it: "values only exist when problems of action arise" (Joas 2001, 107), corroborating Westbrook's (1991, 410) account according to which "[v]alue judgements [are] at bottom appraisals of means" for resolving problematic situations in processes of action. To better understand when and why certain situations are especially prone for value resonance, I propose combining complementing elements from the theory of moral intuitions by Jonathan Haidt (2012) with the theory of pragmatic regimes of engagement and cultural forms of common good by Luc Boltanski and Laurent Thévenot (2006; Thévenot 2001; Ylä-Anttila 2013). This enables to formulate a socially stratified approach to value resonance from individual to cultural levels. After this theoretical framing, I will outline my ethnographic fieldwork following value resonance in action in and around a highly esteemed Innovation Team working in the Finnish public sector to support the design, development, and piloting of generative AI tools to be embedded in their processes. For 18 months I closely followed the team encounter anticipated and unanticipated frictions and breakages as well as creative repair to tackle problems faced. I will share my preliminary findings on how value resonance is enacted, how values are discovered and articulated as navigational devices in these problematic phases of Finnish public sector technology innovation and development.

11 JUNE 2025 17.00 - 19.00

SESSION 2

ROOM B3.1

ID 294 - Breaking Down 'Breakdowns': Using a More-Than-Human Approach to Understanding the Role of Technology and Care within Activist Assemblages

Antonio Starnino, Concordia University

Keywords: social movements, relationality, Research-creation, breakdowns, care,

Social movement scholars and practitioners have shown that relationships and embracing relational ontologies are the foundation of successful outcomes for activist assemblages. Due to the voluntary nature of these groups, internal tensions can erode these relationships, causing the assemblages to break apart before achieving their goals. Much of current social movement research explores this dynamic through human-to-human relationships. However, what can be learned by understanding the role of non-humans



in this dynamic? How does the technology mediate these relationships and maintain the assemblage's functioning? How do they support groups that experience these tensions or amplify these fractures?

In this paper, I will interrogate these questions through an ongoing research-creation project, Active Objects. This project draws upon my positionality and experiences as an activist working within non-hierarchical and digitally mediated groups and critical designers, seeking to explore the impact of digital tools on mediating the internal relationships of activists. Drawing upon what Tharpe and Tharpe define as discursive design, Active Objects represents a series of digital/physical sentient artefacts whose function is to intervene and introduce what Arturo Escobar refers to as breakdowns in an activist group. The provocative nature of Active Objects can be seen as a form of anticipatory repair, a concept from Behamin Sims as a way of instigating 'breakdowns' in a 'controlled setting.' Rather than viewing breakdowns as negatives, it aims to show how fractures emerging within activist groups can hold what Jackson calls 'world-disclosing' properties of breakdowns. In doing so, it also seeks to position the role of technology within activist assemblages as a 'matter of care', holding an agency within the group. This paper aims to spark general conversations among social movement scholars and activists on themes of relationship, care, internal practices and the 'active' role of tools mediating those interactions.

11 JUNE 2025 17.00 - 19.00

SESSION 2

ROOM B3.1

ID 696 - Solar Poetics of Repair: Care, Maintenance, and the Affective Dimensions of Intermittent Infrastructure

Benedetta Piantella, New York University

Keywords: care, infrastructure maintenance, intermittence

This presentation explores how care and maintenance emerge as everyday practices of repair in Solar Protocol, a planetary network of solar-powered web servers that operate intermittently based on sunlight availability. Rather than striving for seamless operation, these servers function according to planetary rhythms, making their dependencies on the environment and human stewardship explicit. Through interviews with stewards, this research highlights the affective relationships that develop in their ongoing engagements with these infrastructures – acts of tuning, troubleshooting, and waiting that challenge dominant imaginaries of always-on digital connectivity.

The network's intermittence foregrounds an ethic of care (Tronto 1993; Puig de la Bellacasa 2017), where computing is no longer abstracted from material conditions but experienced through cycles of presence and absence, function and failure. Unlike mainstream cloud infrastructures that obscure their extractive logics and demand constant availability, Solar Protocol requires small, recurring acts of repair that cultivate attunement to energy rhythms, seasonal patterns, and computational limitations. Stewards describe a shift in their relationship with infrastructure: from passive users to active caretakers, where downtime is not failure but a reminder of shared dependencies with the environment.

To translate these experiences into an embodied form, this project presents solar-powered "I poems": poetic fragments distilled from interview transcripts using The Listening Guide (Gilligan et al. 2003). Hosted on miniature solar-powered servers, the poems flicker on and off with the availability of energy, requiring audience members to engage in small acts of care (like adjusting positioning toward light and waiting for energy to accumulate) in order to reveal their contents. These poems serve as both documentation and a provocation, offering a material-discursive representation of infrastructural care.

These works and this research engage with broken world thinking (Jackson 2014), shifting focus from progress-oriented narratives of innovation to the everyday labour of keeping things operational. It wants to argue that, rather than resisting breakdown, we can and should learn from infrastructural failure by attending to its rhythms, working with its limits, and finding meaning in small, sustained acts of care. By bridging STS scholarship on care and maintenance (Denis & Pontille 2015; Mattern 2018) with experimental infrastructure studies, this work calls for deeper engagement with the lived experiences of maintaining



digital systems in an era of ecological precarity. What does it mean to care for computational infrastructure? How can digital systems acknowledge their dependencies rather than obscure them? Rather than optimizing for efficiency, what happens when we optimize for care?

11 JUNE 2025 17.00 - 19.00

SESSION 2

ROOM B3.1

ID 391 - Politics of Mundane Materiality: An Ethnography of Elevator Brokenness in Underground Stations in Munich

Yigit Ülker, Technische Universität München

Keywords: elevators, brokenness, infrastructure

This study positions itself at the intersection of STS and critical infrastructure studies by studying elevators in their social and spatial contexts. It seeks to establish conversations about visualisations, daily experiences, and representations of elevator brokenness in public transportation systems. This aim is produced and justified by elevators' untapped and undertheorized qualities as sites of mundane technologies with different kinds of social and material configurations. To bring out these perspectives, this research examines elevators' distinct spatial and social roles in the underground metro stations in Munich, Germany, focusing on brokenness. Fieldnotes are generated by conducting semi-guided observations and talking-whilst-walking ethnography (Anderson, 2004) in Munich U-Bahn stations and analysed through script theory (Akrich, 1992; Latour, 1992) and technological mediation theory (Verbeek, 2006). The analysis reveals that elevators showcase instances and boundaries where material prescriptions come to reality, get disregarded, and create new scripts of human-materiality engagements. More importantly, elevator brokenness is perceived in various ways (elevator design choices, understanding re-appropriation of elevator space as "brokenness", etc.) and not only in the face of technological failure. Moreover, different ways local communities cope, protest, and find alternatives are illuminated in everyday life of brokenness. In all cases, elevators arise as sites where the assumptions, spatial arrangements, and human-materiality engagements are hosted and transformed. They create discourse and a unique field of research, which opens further possibilities for study at the intersections of STS, cultural studies, ethnography, and infrastructure studies.

11 JUNE 2025 17.00 - 19.00

SESSION 2

ROOM B3.1

ID 792 - Transformational Disruptions in Rome

Marco Ranzato, Università Roma Tre

Keywords: urban disruption, urban tangle, Rome

It is too easy to say: Rome is broken. For those who come to the city and have the opportunity to spend some time in its surroundings, this condition strongly infiltrates the urban image and experience. In this vibrant landscape of archaeology, this ever-present disturbance hammers at the head. It is as disturbing as it is breathtakingly creative. It may sound dystopian, but the possibility of knowledge and rethinking that disruption brings suggests that it is sometimes even desirable.

Stephen Graham's powerful idea is that disruption is a heuristic device. I think this is what I find most triggering about the disrupted landscape of Rome. Revealing the often-invisible massive complexes of contemporary urban infrastructure carrying energy, communication, transport, and water, disruption also unmask the social control of nature operated throughout technology. Abruptly, overflowing water floods us, we protect ourselves from the cold because the heat is off, we resort to fire for light because electricity is cut off, and so on. Disruption accelerates the change which global warming data and forecasts should lead us to during our lives. Disturbing as it may be, disruption seems to be the closest thing to what Tim Ingold defines as knowing from the inside what we generally find bound up in a technological apparatus that is inscrutable and taken for granted. As a window on the circuits that underpin our modern lives and our relationship with nature, disruption is highly political. It moves us into action and to seek a novel corre-



spondence with the world. In disruption, change is no longer a forecasted figure far away in time. Instead, change is bodily experienced in all its substance. Disruption is a "transformative place" opening up to new possibilities of being.

But to be transformative, disruption should inhabit our everyday lives and transcend the mere observation that Thomas Hirschhorn's ruptures offer in museum halls. This is what happens for example in Brussels where, the Marias Wiels, a railway-side pond created by the leakage of groundwater following excavations for real estate transactions, is now a park where you can learn about horticulture and the multispecies overlayers that inhabit the vacant lot. Almost the same happens in Rome, at the Ex-Snia Lake. Yet these places are oftentimes isolated, marginal and only for counterculture.

This contribution wishes to legitimise Rome's Broken Landscape, literally making disruption the proudest image and innovative sign of Rome, at its most luminous and generative level. To this end, some of the urban disruptions of Rome, known for the recurring annoyance they cause to their inhabitants and a reason for stigmatisation by those passing through or visiting who notice them, are discussed together with the possibilities of knowledge that the disruption brings, the possibilities of habitation, repair and care.



13 JUNE 2025 09.00 - 11.00

ROOM B5.1

Panel 61. Public Sector, Public Interest?

Convenor:

Philip Boucher, European Commission

Keywords: Public sector, artificial intelligence, digitalisation, interoperability, public services

The public sector includes the administration and delivery of public services such as healthcare, education, justice, social services, and mobility. Over the past decades, we have witnessed the emergence of increasingly digitalised and interoperable public services. These developments now provide a springboard for a further wave of innovation, the application of technologies such as artificial intelligence (AI) with the promise of services that are faster, cheaper, smarter, and closer to the citizen.

While many citizens are used to AI chatbots and recommendation systems in commercial contexts, public sector innovations often sit at the interface between the citizen and the state and, as such, have a higher benchmark for responsibility and accountability. Highprofile misuses of technology in public decision-making – such as the Dutch childcare benefits scandal and the UK Post Office scandal – have led to substantial breaches of trust in both technology and governance, and raised questions about the role and interest of the of private sector actors in public sector service delivery.

Public sector technoscience should suggest technoscience for public good. Yet the classic questions remain: Good for which public? On what basis? Papers are invited to examine any aspect of technoscientific innovation in public sector contexts, including:

- case studies of public sector technoscientific innovation;
- defining and defending public interests;
- the role of private actors in public service delivery;
- maintaining standards, accountability, quality, and trustworthiness in public services; strategies and narratives accompanying interventions;
- defining indicators for public benefits;
- forms of public interest, consultation, and engagement;
- the role of legislation such as the Interoperable Europe Act and AI Act in promoting public good.

13 JUNE 2025 09.00 - 11.00

ROOM B5.1

ID 209 - AI Agents for Public Deliberation and Simulated Stakeholder Negotiations

Denisa Reshef Kera, נליא-רב תמיסרבינוא (Bar-Ilan University)

Frantisek Kalvas, University of Western Bohemia

Keywords: regulatory sandboxes, AI regulation, AI agents, public engagement, simulation

As AI systems are increasingly integrated into public services (healthcare, justice, social services, and mobility) governments face mounting pressure to balance efficiency with democratic accountability. While AI promises faster, more responsive services, recent scandals have eroded public trust by exposing the risks of algorithmic opacity, bias, and corporate influence in public decision-making. This paper introduces AI agent-to-agent simulations as a method for testing AI-driven public sector governance models before their implementation, allowing policymakers, civil society, and citizens to actively prototype, stress-test, and negotiate AI's role in public services (example of simulations <https://agentsim.streamlit.app/>)

These participatory simulations invite stakeholders to design and define AI agents representing government institutions, private-sector service providers, advocacy groups, and citizens, then observe their in-



teractions in simulated public sector dilemmas. The experiments raise key questions about AI in public services: How can we ensure that AI systems uphold the public interest rather than private-sector priorities? Can participatory AI simulations offer a transparent and accountable method for evaluating AI-driven public services? How do AI agents mediate conflicting interests in public sector decision-making, and what governance structures are needed to maintain democratic oversight?

By framing AI not just as a tool but as an active participant in governance, this approach repositions AI ethics from top-down regulatory compliance to dynamic, stakeholder-driven deliberation. It explores how AI policy sandboxes and simulated negotiations can serve as experimental space, providing public sector leaders with a means to anticipate risks, refine regulatory frameworks, and foster AI systems that are truly accountable to the public good. Example of previous work which we extended from one agent to many agent interaction <https://dl.designresearchsociety.org/drs-conference-papers/drs2024/researchpapers/11/>

13 JUNE 2025 09.00 - 11.00

ROOM B5.1

ID 258 - European Human-Centric Digital Transformation Projects as Case Studies for Approaching Public Interest

Regina Sipos, Technische Universität München

Keywords: human-centric approaches, digital transformation, public interest

This paper is based on a Compendium written for the International Telecommunication Union (ITU), based on a series of workshops titled "Spotlight Series on Human-Centric Digital Transformation". The goal of the Compendium is to enhance the understanding of human-by-design digital features, and it features project-based case studies from Albania, Czech Republic, Estonia, France, Georgia, Hungary, Latvia, Lithuania, Moldova, the Republic of Poland, Serbia, Slovenia, Spain and Ukraine.

Human-centric digital transformation is an emerging term, but the importance of societal considerations in technological development is not new. Similar notions have been explored in different contexts, such as Responsible Research and Innovation (RRI), a framework in the European Union, or Digital Social Innovation (DSI), for collaborative types of innovations to address SDGs. The ITU has published a toolkit on Digital Transformation for People-Oriented Cities and Communities, highlighting the urgency of promoting sustainable, inclusive, resilient and improved quality of life to be considered when planning the digital transformation of cities. Furthermore, GovStack was initiated to help governments build sustainable digital infrastructure and human-centred digital services. These are just a few recent examples.

As the term human-centred inherently suggests that the public sector projects are for the public good, findings from this compendium will be utilized to (1) showcase case studies of human-centred public sector technoscientific innovation (2) the role of private actors in the development of the projects, specifically PPP and intrapreneurship (3) attempts to maintain trustworthiness in the transition process (4) forms of public engagement and (5) the role of national and EU-level legislation as an enabler.

The human-centric digital transformation process is seen by many technical experts as an opportunity to finally systematically address challenges and shortcomings of the public sector, including simplifying or re-engineering complex bureaucratic systems, saving time and money for the citizens, and creating thorough consultation processes with all stakeholders. Technical experts highlighted that the inflexibility of the public sector hinders innovation. As an answer to this issue, governments are stepping up and either adapting approaches from the private sector or creating close collaborations with it by learning to use constant exchange and agile methods to accelerate processes. Furthermore, human-centric private-public-community collaborations are explored to cover any last-mile gaps. In addition, regional strategies can increase international knowledge exchange, and national regulations and policies can foster consistency in approaches- but as findings show, the two need to be combined to achieve inter-regional collaboration while also taking local contexts into account.



Building on hands-on examples of successful projects, the paper summarizes five key principles of Human-Centric Digital Transformation, namely Privacy and data security, Responsiveness, Interoperability, Agile approaches, and Simplicity.

Through the cases, several socio-economic benefits of human-centric digital transformation processes become clear. However, the transformation process also carries worries and threats with itself, including leaving citizens behind, not safeguarding personal data, "digitising the chaos" and creating solutions without a proper use case. These shortcomings are highlighted in the conclusion of the paper to generate further reflection.

13 JUNE 2025 09.00 - 11.00

ROOM B5.1

ID 309 - Transforming Parenting and Welfare: Public Sector Apps in Digital Parenting

Victoria Andelsman, Københavns Universitet

Keywords: welfare state, Care, citizen-state apps, infrastructures, Digital Parenting

This study examines the role of citizen-state apps in digital parenting, exploring how parents use digital media to manage child-rearing within Denmark's welfare state. The study focuses on the Aula app – a mandatory communication tool connecting parents and schools – and is based on 35 interviews with parents and app walkthroughs. It argues that parental agency and responsibility are not solely matters of individual choice but emerge through complex interactions with digital technologies and state institutions. The paper demonstrates how the use of digital media is reshaping parenting responsibilities and redefining what it means to be a "good parent."

Research emphasising voluntary digital practices often overlooks the powerful role state institutions play in shaping the necessity of digital parenting. Instead, this paper advocates for a relational approach, addressing the interconnected dynamics of care, coercion, and responsibility. Although universal childcare and state involvement might seem at odds with intensive parenting – often associated with privatized child-rearing – studies indicate that intensive parenting remains a dominant cultural norm in Denmark (Dannesboe et al., 2018; Gilliam, 2022; Gilliam & Gulløv, 2017). This norm likely reinforces expectations for both parents and public institutions regarding children's socialisation in "shared care arrangements," with digital tools increasingly facilitating this collaboration. The paper argues that data-intensive apps like Aula are transforming care arrangements, reshaping the timing and location of parenting, increasing expectations for parental involvement, and reinforcing extensive data-sharing practices.

While parents appreciate Aula's convenience, its integration into public education raises concerns about data privacy, potential risks for marginalized groups, and the additional workload placed on institutional staff. Moreover, assuming control and responsibility within the care collective imposes further obligations on parents. These findings situate digital parenting within broader welfare state datafication, prompting questions about shifting welfare values in the Global North. The paper aligns with critical data studies, advocating for a shift from individual to collective efforts in developing caring, equitable digital infrastructures.

13 JUNE 2025 09.00 - 11.00

ROOM B5.1

ID 348 - Robots and the Production of "Publicness" in Urban Spaces

Anna Dobrosovestnova, Technische Universität Wien

Keywords: urban robots, publicness, public spaces, democratic participation

Service robots have recently emerged as a significant area of interest for geographers and critical urban studies scholars, as they are increasingly integrated into and shaping the socio-spatial realities of public



spaces. As Del Casino et al. (2020: 606) argue, robotic technologies are entangled in "making and remaking the structures, conditions, and relations of everyday life." Examples of urban robots currently in use include delivery robots navigating sidewalks, security robots patrolling transport hubs, cleaning robots in airports, and robots performing tasks in hospitals.

These robots, defined here as physically embodied and (variously) autonomous machines with specific tasks that interact with their surroundings (Beer et al., 2014; Sumartojo et al., 2021), reconfigure existing spatial practices and relations. However, their role in shaping "publicness" – a critical dimension of public space – remains underexplored.

At the same time, the concept of "publicness" is notoriously difficult to define. Urban studies and political economy have long grappled with the political and social dimensions of public spaces, while fields like human-computer interaction (HCI) and human-robot interaction (HRI) focus on technological performance in public environments. Existing studies in these fields tend to overlook the political significance of publicness as a site for democratic expression and the common good.

In this presentation, I seek to test whether a deductive approach can serve as a useful tool for exploring the relationship between urban robots and "publicness" in its political dimension. Situated at the intersection of critical urban studies, STS, and HRI, my analysis draws from Nemeth's (2021) framework for analytically and empirically studying publicness. Specifically, it evaluates whether deductive criteria – such as ownership structures, fit within communal life, and impact on access – can effectively capture how robots deployed in urban spaces contribute to or hinder "publicness". Case studies of functional service robots currently deployed in urban environments serve as a test bed for this approach. The chosen examples offer preliminary insights into how robots interact with and potentially reshape "publicness". This exploratory analysis is informed by publicly available data, existing empirical studies, and my research on delivery robots such as Starship robots.

Rather than providing definitive conclusions, I aim to interrogate whether deductive approaches to "publicness" can illuminate the political dimensions of robot interactions in public spaces. By doing so, I also challenge simplistic categorisations of "public robots" as mere occupants of public spaces (cf. Pelikan et al., 2025) and consider the active role of the robots in producing or hindering democratic participation and expression.

Throughout my analysis, I will also raise critical questions about the ethical and political implications of robotic technologies in public spaces. How do they affect democratic participation? Whose interests do they serve? And how might we refine frameworks and methodologies to better understand and govern these interactions?

13 JUNE 2025 09.00 - 11.00

ROOM B5.1

ID 364 - AI and Public Security: Balancing Technological Innovation for the public good

Luca Mattei, CyberEthics Lab

Carmela Occhipinti, CyberEthics Lab

Keywords: public security fundamental rights drones

Public security is a foundational responsibility of the state, which has evolved over time to meet the changing nature of threats. From Ancient Rome's Vigiles, who maintained order and responded to emergencies, to the complex networks of police forces of modern times, the way we ensure safety has adapted. Today, Artificial Intelligence (AI) is emerging as a key player in this process of change. This paper examines how the integration of AI technologies in public security shapes the relationship between state, technology, and citizens, asking: how can AI-driven public security systems be developed and implemented to effectively address emerging threats while ensuring alignment with European values and fundamental rights? Through the analysis of the EU Horizon PRESERVE project, which tackles the threat of civilian Unmanned



Aerial Systems (UASs), we explore the technical, ethical and regulatory dimensions of this challenge.

AI has significantly transformed public security. For instance, predictive policing has long been recognized and used by institutions, but its emerging AI applications continue to push boundaries. This is the case of the PRESERVE project, which tackles the threat of civilian Unmanned Aerial Systems (UASs) – or drones – repurposed for malicious attacks against public spaces, individuals and critical infrastructure through AI-powered technology. The PRESERVE project is developing new approaches and a Hybrid Counter UAS platform to support police in detecting, preventing and managing drone-related risks in real time, aligning with the EU's Counter-UAS policy. In a technoscientific progress, the development of new science drives and at the same time is driven by the development of new technological infrastructures.

However, this technology is not without its criticalities, which must be properly considered to keep the final solution in line with EU values and for the public good. There are several cases that have highlighted the danger of misuse of AI in public service delivery. Responding also to these concerns, the AI Act has been enacted, providing a path for the development and deployment of AI while respecting fundamental rights. It is underlined that this approach is not limited to mere compliance, as must be applied by design from the inception stage of the technology: developers are the first responsible for ensuring that AI systems are ethical, transparent and aligned with European values.

Legislative frameworks like the AI Act play a critical role in guiding ethical AI usage in public services. By promoting transparency and accountability, these regulations help balance technological progress with the protection of individual rights. However, there are also other technical and vertical documents coming from the Joint Research Centre's (JRC) that are relevant for the PRESERVE's approach. Together, these documents form a multi-disciplinary framework that can be adapted to the technical and design contexts of development and the social aspects of deployment.

While AI holds transformative potential for public security, its successful integration depends on robust governance that prioritizes citizens' needs and rights. Through transparency, ethical safeguards, and meaningful public engagement, governments can harness AI's potential to improve public security while ensuring the protection of the public good.

13 JUNE 2025 09.00 - 11.00

ROOM B5.1

ID 859 - Configuring procurers: how innovators re-imagine the public sector

Carlos Cuevas-Garcia, Technische Universität München

Keywords: Public procurement, robotics, climate services, co-production, user configuration

Emerging societal, technical and environmental challenges often invoke a call for public sector transformations. In the last two decades, innovation and public policy scholars have seen the state as an active player in the production of markets for new products and services that can simultaneously address public needs. The EU has vigorously encouraged the adoption of pre-commercial and innovative procurement. This talk explores how research and development projects have tested innovative procurement instruments in the domains of robotics and climate services. Both highly future-oriented areas aim to help make public services more resilient. Robotics are expected to replace or reduce the amount of workers required in (arguably) dirty, dull and dangerous tasks such as inspecting bridges or sewers; in turn, climate services intend to facilitate the use of climate data in the production of climate adaptation and mitigation strategies. In particular, this presentation examines how the figure of the "public sector (end-)user" emerges from participatory and co-creative procedures through which challenges, solutions, stakeholder roles, and even standards are proposed and put to test. Building on STS studies focused on the configuration of users and on the coproduction of technoscience and social - particularly European - orders, the argument is that configurations of public sector users of emerging technoscience are always, at least partially pre-determined by pre-existing socio-political arrangements: configurations of public sector and innovations cannot simply go in any direction. How do visions of innovative resilience interact, shape, and face public procurers' contestation? How do they expose different ways of understanding the public good?



12 JUNE 2025 14.00 - 17.00

ROOM B2.2.9

Panel 62. Technoscience and the Self: Emotions, Identities, and Self-knowledge

Convenors:

Jacopo Domenicucci, Dartmouth College

Serena Ciranna, Università di Napoli Federico II

Keywords: Epistemic injustice, Identity, Machine empathy, Self-expression, Self-knowledge

By capturing and analysing actions, behaviours, facial expressions, and vocal inflections, computing technologies and computational sciences are increasingly used to explore and invest the domain of the personal. Machines, in their practical applications and scientific uses, infer moods, emotions, intentions, and identity traits about us. In this way, they enter the sphere of self-knowledge and self-expression, which is par excellence an epistemic and moral competence of the individual. How do we know ourselves and how do we construct and express our identities in this context? How might the entry of machines into the exploration of our inner life challenge the preservation of our epistemic authority over who we are and what we can know about ourselves? Can we think of us as agents capable of self-reflection, selfconstruction, and self-regulation?

Spanning philosophy and STS, this panel will explore the epistemic and ethical issues of self-knowledge, self-expression, and identity construction from the perspective of increasingly close cooperation between machines and human individuals.

We are particularly interested in papers that:

- explore how our self-knowledge increasingly integrates machine perception;
- explore how information from digital technologies can be internalized by our selfunderstanding, or, in contrast, how it can be refused and opposed;
- investigate how our personal narratives and our computational identities might compete or work together;
- interrogate the risks of a distinctive form of epistemic injustice emerging from these technological possibilities;
- bring to the fore the specificity of diverse identities in this context (namely, along the lines of sex, gender, race, age, abilities, and intersectionality);
- study the contribution of computational sciences and computing technologies to how we think about the self;
- interrogate how "Artificial Intelligence" can support or hinder emotional intelligence;
- focus on specific "AI companions" ("AI friends", "AI partners", and other bots) from the perspective of their contribution to our sense of self and emotional life.

12 JUNE 2025 14.00 - 17.00

ROOM B2.2.9

ID 192 - Decoding Gender: Addressing Algorithmic Misgendering in Face Recognition

Camilla Quresmini, Politecnico di Milano

Giacomo Zanotti, Politecnico di Milano

Keywords: Algorithmic Gender Recognition, Gender Identity, Algorithmic Fairness, Misgendering, Self-termination

Automatic Gender Recognition (AGR) systems are an increasingly widespread application in the Machine



Learning landscape [1]. Their use goes from general identity verification to behaviours and preference prediction for content recommendations, up to person categorisation for surveillance purposes. While these systems are typically supposed to detect gender, as the very label suggests, they often classify data points based on observable features such as the individual's gender expression and/or physical characteristics correlated at best with either male or female sex. In addition to questionable binary assumptions, from an epistemological point of view this is problematic for two reasons. First, there exists a gap between the categories the system is meant to predict – e.g., man versus woman – and those onto which their outputs reasonably map – e.g., male versus female (expression). What is more, gender cannot be inferred on the basis of such observable features [2]. This makes AGR systems often unreliable, especially in the case of non-binary and gender nonconforming people [3,4].

Far from representing a mere accuracy problem, AGR systems' errors come with relevant ethical repercussions. After providing a taxonomy clarifying the dimensions which constitute sexual identity as well as their interaction, this work suggests a theoretical and practical rethinking of AGR systems and their contexts of application. To begin, distinctions will be made between sex (biological and/or attributed at birth), gender, and gender expression, insisting on the independence between these components of sexual identity, and its implication for AGR. Then, we build upon the observation that, unlike algorithmic misgendering, human-human misgendering is open to the possibility of a re-evaluation and correction. We suggest that analogous dynamics should be recreated in AGR, giving users the possibility to correct the system's output, also considering that AGR systems should account for the situation in which the correct classification changes over time [5]. While implementing such a feedback mechanism could be regarded as diminishing the systems' autonomy, it represents a way to significantly increase fairness levels in AGR. This is consistent with the conceptual change of paradigm that we advocate for AGR systems, that should be understood as tools respecting individuals' rights and capabilities of self-expression and determination.

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12 JUNE 2025 14.00 - 17.00

ROOM B2.2.9

ID 372 - Mind, and Machine, and Me: Mental Health Chatbots and Techno-selfhood

Briana Vecchione, Data & Society

Livia Garofalo, Data & Society

Keywords: mental health, AI, subjectivity, chatbots

As artificial intelligence integrations become more present in mental health care, many people have turned to using mental health chatbots and other generative AI tools like ChatGPT for emotional support and therapeutic relief. With the promise of "solving the mental health crisis" and the perennial shortage of professionals, companies like Woebot and Wysa, among others, have sought to provide "mental healthy allies," a perennially available conversational agent and companion that can give mental health advice and support. Some users in dialogue with these agents are employing them in conjunction with professional



psychotherapy, while others are relying on them as their primary means of mental health support.

The presence of automated psychotherapy, along with the fears and hopes it elicits, is both an emerging phenomenon and one that has its roots in the history of computation. ELIZA, the first chatbot developed in the 1960s, was named after the literary character Eliza Doolittle from *Pygmalion*. ELIZA's creator, Joseph Weizenbaum, modelled its conversational patterns on a Rogerian psychotherapist.

In this paper, we present some preliminary findings from qualitative and media research focused on users of mental health chatbots in the United States. Drawing on focus groups, interviews, and diary studies with these users, we examine how these participants relate to the chatbots, but also how they are configuring and reconfiguring their relationship to self via these tools. How do users perceive the presence of mental health LLMs in their daily lives and routines? What are the technological possibilities of these tools, and how might they be generating new and old forms of "auto-intimacy" (Zeavin 2021)? Focusing on understanding how users themselves perceive, make sense, and deploy these AI therapy agents, we seek to provide a grounded perspective on the inter-subjective effects of this emerging "techno-selfhood" (Luppiccini 2013; Brubaker 2020). We explore how algorithmic mediation and algorithmic therapies aid and impede the desire for self-knowledge, further examining histories, futures, politics, and lived experiences of how we know ourselves by talking through chatbots.

As an interdisciplinary research duo – a medical anthropologist and a computer scientist – we also reflect on the epistemic, methodological, and theoretical convergences and divergences of collaboration. We chart ways forward to potentially ethical development, implementation, and governance of mental health AI systems.

12 JUNE 2025 14.00 - 17.00

ROOM B2.2.9

ID 455 - Generic Listening to Generative Listener: Vocal emotion detection and simulation in GenAI

Jessica Feldman, The American University of Paris

Keywords: emotional AI, affective computing, voice, machine empathy, self-expression

How does AI (attempt to) describe and intervene in our emotional life? What claims does it make about its emotional sensitivities, and what is it actually doing? What might be the moral, political, and psychological consequences of emotional AI? To begin to address this question, this talk draws on my research on the genesis of the design of AI for emotion detection in the voice, and subsequent vocal genAI tools which mimic these emotional templates in voice synthesis. An analysis of open-source code, patents, and marketing language traces the attempt to quantify and categorize "genres" of affects (joyful, sad, depressed, angry) and to connect them with patterns of vocal inflection.

Vocal emotion-detection AI, which began in the early 2010s, has proliferated recently, used in call centres, job hiring, and security screenings, among other cases. It has also developed into GenAI tools (such as speechify or IRCAM's DAVID project), which experiment with inflecting the voice with emotions according to these limited rubrics of affect, in close-to-real-time with a human speaker, or in completely synthetic AI-generated text-to-speech. Most of these tools claim to detect or invoke something affective, what Massumi would call a "non-conscious, pre-personal intensity" (1995). They claim, thereby, to reveal an understanding of the speaker (in the case of detection), or to incite in the listener (in the case of synthesis), something that operates prior to consciousness and therefore beyond their control. Further, they assume that the effects are universally expressed across all human cultures and fit into discrete, codable rubrics.

In most cases, the training data used for these tools draws on libraries of recordings of actors performing a small number of generalized emotions. A values-in-design analysis of these AIs and their training data reveals, therefore, that they rely on a language of emotional expression which is culturally coded and performative. Pattern recognition tools like neural networks only further amplify dominant habits of



expression. This presentation then asks questions about the ethics and political implications of the use of these tools, as they present us to ourselves: what are the effects and implications of (mis)understanding emotional expression in these terms? How will this change (or not) in the future, as emotional AI becomes more "finely tuned" with individual training data?

12 JUNE 2025 14.00 - 17.00

ROOM B2.2.9

ID 510 - From Generic Listening to Generative Listener: Music Recommendation Algorithms, Generative AI, and the Shaping of Musical Identity

Stéphan-eloise Gras, Conservatoire national des arts et métiers

Keywords: emotional AI, music, taste-making, algorithms, self-expression

For Western culture, music has long been a medium for self-expression, a way to construct and communicate identity, and a tool for emotional exploration. Since the modal music of ancient Greece and throughout the history of classical music to contemporary popular and electronic genres, different musical tones have been thought to express unique feelings innately. Over centuries, composers and musicians have shaped the emotional lexicon of music, embedding cultural and personal narratives into sound. Today, artificial intelligence artefacts intervene in this tradition – not just as a tool for access or production, but as a system that captures, predicts, and shapes musical emotions and identities. Drawing on my research on music recommendation algorithms through an analysis of the Echonest API, which was acquired by Spotify in 2014, and subsequent contemporary music generation platforms such as Suno launched 10 years later, this presentation explores how AI affects not only what we listen to but also how we may or may not understand ourselves through sound.

Recommendation algorithms have transformed individual taste-making in music, using complex data analysis to infer listeners' moods and preferences. By analysing behavioural patterns, streaming platforms curate personalized experiences, reinforcing familiar sonic environments rather than encouraging sheer difference or discovery. Over time, listeners are subtly guided into sonic bubbles – algorithmically optimized musical landscapes that reinforce their existing preferences and act as what I call "taste-maker machines." Now, generative AI music artefacts extend this logic of mechanical taste-making further – not merely recommending but actively producing music that fits within learned aesthetic and emotional patterns. This marks a significant shift: rather than selecting from an existing corpus, AI systems generate the most statistically probable tunes in response to a user's self-expression.

By recommending and generating music that is statistically probable, these AI systems reinforce established patterns of musical consumption and aesthetic expectation. The result is a form of automated musical self-expression that is less about genuine individuality and more about reproducing normative, data-driven sonic templates. This dual role of AI in music – both as an enabler of sheer personalisation and as a force of standardisation – raises key epistemic and ethical questions. On one hand, generative AI offers new opportunities for musical creativity, allowing individuals without formal training to engage in composition, externalize emotions through sound, and experience musical textures. On the other hand, by operating on the principle of probabilistic optimisation, these systems reinforce dominant sonic norms, subtly shaping users' self-perception through algorithmic predictability.

From a Science and Technology Studies (STS) and philosophical perspective, this presentation critically examines how generative AI functions as a continuation of recommendation systems in shaping musical identity. Rather than simply reflecting or shaping personal taste, these systems actively construct and constrain the way we listen to and experience music, forming a new kind of epistemic authority over self-expression.



12 JUNE 2025 14.00 - 17.00

ROOM B2.2.9

ID 524 - Touching the Self: STS and Psychoanalysis

Stephen Hughes, University College London

Keywords: Affect, Psychoanalysis, Touch, Responsible Innovation, Emotion

STS has a poor concept of the self including associated notions like subjectivity, intention, feeling, interiority, belief, meaning, and suffering. Drawing from empirical research conducted with engineers developing "touchless" mid-air haptics technologies, I would like to make the case for drawing from psychoanalytic psychosocial studies to help STS conceptualise the affective technopolitics of the self. To do this, I will explore the psychosocial dynamics of fantasy, emotional defendedness, and reparation that are implicated when engineers are asked to consider the potential harms and risks of novel haptic technologies. The paper aims to support the panel in exploring how "information from digital technologies can be internalized by our self-understanding, or, in contrast, how it can be refused and opposed". It will do this by tracing the emotional investments and (inter)subjective understanding involved in innovation and the affective work required to develop responsible haptics technologies - up to and including saying "no" to them.

This paper draws on my work with the EU-funded Touchless project, which aimed to develop mid-air haptic technologies using "novel neurocognitive models and AI frameworks" to "affect and enrich our online social interactions" through "agency, bonding, and attachment". As the project's resident social scientist, my role was to advise on responsible innovation (Cornelio et al. 2023). I focused on the political implications of the Touchless project, particularly the accumulation of power embedded in the development of a "touch dictionary" and the potential risks of digital touch substituting for physical touch in contexts such as "distant relatives, hospital patients, and prisoners". I also drew attention to a view amongst haptics engineers that human emotions were reducible to and encodable by a computational language, memorably described by one researcher as "Chat-GPT for touch". Through this research, I came to see responsible innovation not just as a matter of guiding development but also as one of considering refusal or opposition to certain technologies.

Drawing from concepts spanning psychoanalysis and STS, the paper will explore the relational emotional dynamics that are involved when innovators are asked to confront the potential harms of their work. It will trace psychosocial relationships between engineers and their technologies and how uncomfortable feelings are managed and defended against during the practice of responsible innovation. It will outline the affective requirements for an integrated and reparative approach to responsibility.

12 JUNE 2025 14.00 - 17.00

ROOM B2.2.9

ID 784 - Novel technologies with ancient gazes? FemTech and menstrual tracking devices

Giorgia Burzio, Politecnico di Milano

Venere Ferraro, Politecnico di Milano

Keywords: Data, Datafication, FemTech, Surveillance, Optimisation

In the digital age, personal data has become a highly valuable commodity, critically compared to oil due to its vast economic and political implications. The rise of self-tracking as both a socio-technical and cultural phenomenon has led to an increasing reliance on Information and Communication Technologies to monitor biological traits (Hendl, 2022). This process, often referred to as "datafication," transforms bodies, habits, and behaviours into digital forms (Lupton, 2020; Zuboff, 2015). Within this context, FemTech - a rapidly growing sector that applies technology to women's health - has emerged as a key industry, with a projected worth of \$50 billion by 2025 (McMillan, 2024).

This contribution explores the intersection of digital self-tracking, reproductive health, and the FemTech industry. FemTech products, such as menstrual tracking apps and smart menstrual cups, shape contem-



porary understandings of the female body. While positioned by many as an empowering tool for women's health, FemTech raises ethical concerns regarding inclusivity, privacy, and the reinforcement of gendered surveillance.

Overviewing the historical and social implications of technology's role in reproductive health, shows how past medical advancements, from the birth control pill to contemporary tracking apps, have often been shaped by male-dominated industries and power structures (Tripaldi, 2023). Although the current FemTech landscape is increasingly led by women, this does not automatically guarantee equity or inclusivity. Studies and data show that many FemTech solutions primarily refer to middle- and upper-class white women, often excluding the needs of marginalized communities, non-binary, and trans individuals who also menstruate (Lee Mathiason, 2023).

Analysing the content of the interaction with several FemTech tracking devices reveals the double-edged, controversial action of self-tracking. While menstrual tracking apps promise personalized insights and control over reproductive health, they subtly reinforce neoliberal ideals of self-optimisation. Users are encouraged to monitor and manage their symptoms not simply for well-being, but for performance enhancement, particularly in the context of relationships, reproduction, and productivity. The language used within these apps prioritizes sexual desirability and partner satisfaction over individual health. Moreover, several apps have faced serious privacy concerns, with allegations of sharing users' intimate health data with third parties without explicit consent.

An emergent product category is the smart menstrual cups, which integrate biosensors to track menstrual flow and provide real-time health data. While this innovation offers potential medical benefits, and independence, they might represent a new form of bodily surveillance, since they embed technology directly within the body. Drawing on feminist theories of digital embodiment, particularly those of Donna Haraway and Deborah Lupton, the study argues that these technologies blur the line between self-awareness and corporate control, raising questions about consent, data ownership, and optimized interpretation of oneself. A call for a more intersectional approach to FemTech is pressing – one that prioritizes genuine bodily autonomy and well-being over corporate profit, fostering a model of reproductive health that is ethical, and beneficial to all.

12 JUNE 2025 14.00 - 17.00

ROOM B2.2.9

ID 820 - Rethinking Attention in the Digital Age: A Cultural and Regulatory Approach

Stefana Broadbent, Politecnico di Milano

Keywords: attention, regulation, culture

Attention is often analysed as an individual cognitive resource, yet it is also a crucial element of relational competencies. In developmental, and social psychology, shared and joint attention are recognized as fundamental mechanisms for cooperation, collaboration, discussion, and decision-making. A democratic society relies on the ability, cultivated from childhood, to regulate attention and balance individual focus with shared attentional engagement. However, contemporary digital environments exploit attention as a commodity, driven by business models designed to maximize user engagement. This phenomenon, known as the attention economy, monopolizes attentional resources, posing both individual risks – by undermining agency – and democratic risks – by impeding collective action.

The growing awareness of these risks has led to various initiatives aimed at regulating the design and deployment of attention-capturing digital systems. However, relying solely on restrictive legal measures is proving insufficient as social media companies are increasingly deploying new technologies that aim at maintaining users on their platforms. Addressing the challenges of attentional capture requires a broader, ecosystemic transformation. We propose an expanded framework that treats digital interfaces as part of the common space, necessitating a cultural policy that better defines and supports individual and col-



lective attention. This approach integrates economic considerations, cognitive science insights, pluralistic conceptions of attention, and legal perspectives to establish a set of guiding principles that (a) regulate exploitative practices, (b) enhance transparency, and (c) empower users to leverage digital tools for collaboration and democratic engagement.

In this presentation, we will explore strategies to support this transformation, including:

- Measures to curtail manipulative practices, particularly through the prohibition of dark patterns – design strategies that deliberately undermine user autonomy.
- Strategies to enhance user agency by granting key rights, such as interface configurability, interoperability, collective action, and recourse mechanisms. These measures aim to restore attentional control and strengthen individuals' and groups' power to act.
- The development of reflexive design principles and user-centric tools that promote informed engagement and equitable access to information.

By integrating regulatory, cultural, and technological perspectives, we outline a pathway toward a more equitable digital ecosystem that fosters constructive democratic debate and collective agency.



Panel 63. Addressing Scientism through the Lens of STS

Convenors:

Marianna Musmeci, Politecnico di Milano

Alessandro Ricotti, Università Cattolica del Sacro Cuore

Keywords: Scientific knowledge; uncritical trust; deference to science; scientific literacy, media

STS have significantly contributed to shed light on the influence and authority of science in our contemporary Western societies. Despite the several risks associated to the technoscientific progress (e.g. health problems) and the crisis of scientific expertise (Eyal 2019), science keep enjoying a high level of trust and expectations. Nevertheless, the public authority of science does not mechanically lead to a widespread scientific literacy among lay people. Instead, under specific circumstances, it can foster an extreme form of deference grounded in an uncritical trust in science (Brossard and Nisbet, 2007; Haack 2012), even to the point of embracing anti-democratic positions (Howell et al., 2020).

This particular way to relate to scientific knowledge is usually defined in terms of scientism. Mostly debated in philosophy, scientism broadly refers to the belief that science is the only valid form of knowledge and that only the scientific method yield true knowledge (Stenmark, 2018). However, philosophers view scientism as more a program of action than a way of understanding science, thus limiting our capacity to understand and explain people attitudes toward science. In this regard, STS scholars can offer valuable analytical tools to explore how individuals and groups relate to scientific knowledge in everyday life, particularly in our highly mediatized society.

This panel aims to critically discuss scientism from a STS perspective, by exploring its social and political implications both on institutional and individual level. We encourage theoretical, empirical and methodological contributions that engage with, but are not limited to, the following themes:

- media and uncritical trust in science (e.g. how media representations shape uncritical trust and how science communication influence people attitudes and behaviours toward science);
- scientism and democracy (e.g. the impact of deference to science on political discourse and decision-making, especially during crises);
- scientific controversies and alternative belief systems (e.g. how scientism shapes public perceptions of scientific controversies and encourages public debate polarization between established scientific knowledge and refused knowledge communities);
- scientism and socio-technical imaginaries (e.g. how scientism influences sociotechnical imaginaries and shape people future expectations)
- educational programs (e.g. the role of education in fostering scientific literacy while avoiding scientism).

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12 JUNE 2025 11.30 - 13.00

ROOM B2.2.13

ID 305 - Audiovisual Science Communication in Italian Television: Scientism, Trust and Perspectives in RAI Programming

Marta Rocchi, Università di Bologna

Keywords: Science Communication, Scientism and Media, Italian Television, Public Trust in Science, Gender Representation in STEM

This paper examines the evolution of audiovisual science communication on Italian television, with a particular focus on Rai. By adopting a historical and critical perspective, the study traces how Rai has mediated scientific knowledge from the early days of public broadcasting to contemporary digital platforms. Over the years, various conceptions of science were presented on Italian television (Giaccardi 1998), which, along with several analytical categories (such as context, involved actors, presentation styles, and narrative techniques), have contributed to shaping the discourse on television's ability to offer an accurate representation of science. Through the concepts of scientism and trust, this paper aims to outline a possible shift: from representing science predominantly as a "product" (Cannavò 1995) to portraying it more as a "process", emphasising its dynamic, iterative, and collaborative nature.

The paper is divided into two sections, each aiming to outline key trajectories in engaging with scientism. The first section briefly examines the narration of science in RAI's cultural programming, starting with *Una risposta per voi* (1954–1968) and progressing through landmark shows such as *Quark* and *Superquark* by Piero Angela, before addressing more recent productions like *Superquark+* (RaiPlay, 2019–2022) and *Quinta dimensione – Il futuro è già qui* (Rai 3, 2022–present). The analysis explores how these programs construct scientific narratives, questioning whether they position the "populariser" as an unchallenged authority figure or instead present science as an open, dialogical field. Particular attention is dedicated to the most recent programs.

The second section investigates how the COVID-19 pandemic amplified the role of science in media. Specifically, it examines whether RAI programming adapted its approach to audiovisual science communication during this period, focusing on the direction of these changes and the formats or features involved. Particular attention is given to two distinct lines of analysis: first, the renewed presence of programs centred on health and medicine, such as *Elisir* and *Check-up* (which resumed broadcasting after a 20-year hiatus); second, the increased representation of women in STEM through RaiPlay catalogue. This latter shift is analysed in terms of its contribution to reshaping broader attitudes about who can embody the role of a scientist. By making women more visible in both fictional and factual narratives about science, these portrayals help create inspiring images of science associated with women, who are no longer depicted solely as rare exceptions but as integral and competent figures within the scientific community (Chambers 2021).

By situating the Italian context within broader discussions of media, scientism, and public trust (Scheufele Krause 2019), this study contributes to understanding how national traditions and global trends intersect in science communication. It also addresses how television, through its unique capacity for storytelling, can challenge or reinforce the socio-political dynamics of scientism in a highly mediatized society.

12 JUNE 2025 11.30 - 13.00

ROOM B2.2.13

ID 502 - Fictional Technofutures: Exploring the Role of Science Fiction in contributing to a global hype of emerging technologies

Wenzel Mehnert, Austrian Institute of Technology

Keywords: Fictional Technofutures, Speculative Fiction, Science Fiction, Imaginaries, Hype

Science fiction (SF) serves as both a mirror and a guide to society's relationship with technological innovation, simultaneously reflecting cultural anxieties and aspirations while shaping the discourse around new and emerging technologies (NEST). From Isaac Asimov's benevolent robots to dystopian visions like



HAL 9000 or the Terminator, SF constructs technoimaginaries – visions of possible futures that attribute meaning to technology and influence public expectations.

This presentation investigates the interplay between SF and technology development through the lens of technofutures – speculative depictions that extend beyond prediction to actively shape the socio-technical discourse. By tracing SF's role in fostering cultural imaginaries, this work highlights how these narratives impact societal acceptance, inspire technological innovation, and reinforce unfounded hype beyond the entertainment industry.

Building on frameworks from science and technology studies (STS), this research offers a critical, hermeneutic perspective to evaluate SF's influence on technology. It explores the dialectic between utopian and dystopian narratives, emphasising the risks of reductive readings that commodify SF into mere product roadmaps, neglecting its nuanced critique of sociocultural dynamics.

Ultimately, this analysis calls for integrating SF into a systematic approach to technology assessment, recognising its dual role as a repository of sociotechnical imaginaries and a driver of global technology hype. This approach enriches our understanding of how speculative storytelling shapes not just perceptions but the material development of technological futures on a global scale.

12 JUNE 2025 11.30 - 13.00

ROOM B2.2.13

ID 732 - Scientific Misinformation and Naïve Scientism in High Schools: Insights from a Qualitative Study in Lombardy

Simone Tosoni, Università Cattolica del Sacro Cuore di Milano

Alessandro Ricotti, Università Cattolica del Sacro Cuore di Milano

Marianna Musmeci, Politecnico di Milano

Keywords: Scientism, communication of science, public understanding of science, scientific misinformation

This talk presents the findings of a research project conducted by the Politecnico di Milano and Università Cattolica, investigating scientific information and misinformation among high school students in Lombardy. The study, that lasted 2 years, was carried out between 2023 and 2024 in twelve classes across six high schools in Lombardy, and employed a diverse range of qualitative research methods, including focus groups with students, media use diaries and scientific information engagement diaries, in-depth interviews, shared TikTok scrolling sessions, and in-depth interviews with parents and teachers.

Contrary to widespread concerns, scientific misinformation did not emerge as the primary issue. In fact, scientific information holds a marginal position in students' media consumption habits; moreover, they are aware of the existence of misinformation, especially on social media; they rather perceive older generations as the ones truly vulnerable to it. Moreover, students demonstrated a fair ability to recognize misinformation, though their skills are mostly limited to identifying well-known patterns of disinformation within the media landscape they have been socialized into – particularly those linked to populist or conspiratorial narratives.

A more pressing concern that surfaced across all classes was the widespread presence of what we term "naïve scientism" (Tosoni & Ricotti 2024). This refers to a simplistic view of science that assumes the scientific method, when correctly applied, leads to absolute, uncontested, and immutable truths. In this perspective, scientists are seen as unquestionable authorities, even when they speak on topics beyond their expertise. As we will show, this perception not only fosters misunderstandings of public debates but also leads to a significant decline in trust in science when its actual, often contested, working processes become visible (Collins & Pinch 1993) – such as during the COVID-19 pandemic.

To mitigate these risks and vulnerabilities, the research culminated in the development of an educational module tailored to the study's key findings (Musmeci et al. 2024). This module aims to introduce students to science as a dynamic and iterative process, fostering a more nuanced understanding of its methodolo-



gies and the nature of scientific knowledge.

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12 JUNE 2025 11.30 - 13.00

ROOM B2.2.13

ID 871 - Is the Media Uncritical of Science? Scientism and the Media in the 21st Century

Bernhard Isopp, Technische Universität München

Keywords: scientism, the media, ideology critique, deficit model, public understanding of science, science communication

Offering a corrective to scientism has long been a defining political project of STS. Indeed, this defines a key form of engaged STS and its relation to publics; "anti-scientism" might even be posited as a defining STS sensibility. A background assumption of this disposition is that mainstream or dominant images of science are largely scientific. Formative early STS work identified the media as a key source of these images and posited the media as "uncritical of science." What is the current state of affairs? In the last two decades, especially in the light of controversies like climate change, and more recently, Covid-19, a counterview has become increasingly common: the media, or at least certain segments of it, is too critical of science, or at least cynical and often antagonistic towards experts. Indeed, STS scholars have prominently tried to confront this trend. How can we make sense of scientism in light of these developments? Surprisingly, there has been relatively little systematic recent empirical work exploring how scientism might be reflected in the media. This paper reflects the results of a project analysing different media constructions - and contestations - of expert authority over the last twenty years. Empirically, the question is open as to whether scientific discourses prevail. The results of this analysis are ambivalent, not only because of the diversity of discourses and different registers for talking about science in the media, but also because scientism has been characterized in different ways. This, in turn, informs the larger question of this panel: how does one understand scientism? It frequently overlaps with the notion of "ideologies of science," thus constituting a "dominant ideology." However, does this point us back to "ideology critique," a sociological disposition that STS scholars have been inclined to reject? Here, this project also explores STS scholars' own media activities. This problematizes our enactments of expert authority and raises questions about whether "correcting scientism" produces our own imagined public deficits. I suggest that one approach to think about these issues is by paying more careful attention to the legitimacy of science as an actor category, not to create analytical distance, but to rather allow a more dialogical response to public reverence for and critique of science.



12 JUNE 2025 09.00 - 11.00

ROOM B2.2.15

Panel 65. Designing Worlds, Worlding Design: The Ethics and Politics of Value Creation in Digital Health and Health Data Integration

Convenors:

Joseph Donia, Università degli Studi di Milano

Luca Marelli, Università degli Studi di Milano

Keywords: Design, Digital Health, Ethics, Health Data, Politics, Worlding

Worlding is a conception of practical ethics that calls attention to multiple and contingent ontologies that are shaped by values, and performed or enacted in efforts to impose order. Worlds are ethical and political precisely because they are often associated with efforts to impose a singular order through sanctioned values and practices, but also occasionally coercion or force. In this sense, 'worlds' have been taken up as a way of highlighting modern metaphysics of singularity enacted in 'centres of calculation' often located in the Global North (Latour, 1987; Escobar, 2018; Blaney & Tickner, 2017). For example, McCann et al. (2013) describes how cities link people and infrastructures to global regimes of value and power. Cities are 'worlded' through the imaginaries of policymakers, urban planners, architects, and venture capitalists. Health systems are worlded by physicians' associations, clinical practice guidelines, hospitals, clinics, policymakers, private insurers, and increasingly, Big Tech. Design and governance can also be worlded in different ways. In contemporary terms, design is often associated with Silicon Valley, or the broader modernist impulse to approach all problems solvable through technological means. At the same time, design can be, and often is, worlded differently. Technology governance too, often associated with top-down technocratic interventions, can instead be understood as distributed practices of modified use, non-use, or dis-use, across different worlds that make those objects of governance real in different ways (Briassoulis, 2019).

In this panel we invite papers that examine different worldings of digital health, and the conflicts, contradictions, and contestations that accompany the datafication of health and health care. Contributions may include (but are not limited to): (i) efforts increasingly undertaken by a diverse set of actors (from national governments to corporate entities) to establish or maintain platforms and infrastructures purposed towards extensive health data sharing across borders; (ii) the design of AI systems, and their apparently inexorable (though seldom uncontested) rise in health practice and policy; (iii) the establishment of supranational and international regimes of digital health governance; (iv) the rise of AI nationalism and the securitization of health, and (v) experiments with new modes of accountability, agency, or representativeness that resist the "data oligarchs" of the information age, or move toward new practices of democratic or pluriversal decision-making.



12 JUNE 2025 09.00 - 11.00

ROOM B2.2.15

ID 276 - Borders of digital health – digital bordering practices in healthcare system in Germany

Reza Bayat, Georg-August-Universität Göttingen

Cheshta Arora, Vestlandsforskning

Keywords: Digital Health, Migration, Fault lines, Bordering practices

Healthcare systems have always been conjunctions where several economic, political and socio-cultural relations come together on a global, national and local level to draw clear borders for the accessibility of their services. These bordering mechanisms should answer the question of who benefits the services and who does not. In this regard, Healthcare systems not only represent borders (e.g. cultural, social and national), but also function as bordering practices contributing to the controlling and governing border regimes. Considering access to suitable and equitable healthcare a basic human right, these systems fall into a paradox that they often fail to reconcile.

Within this landscape, Digital health in Germany is emerging as an "integrator concept" around which crucial concerns related to health, healthcare, research and innovation, economy and politics converge. Given the advancements in digital technologies, digital health promises to offer simultaneous solutions to the state, the service providers, healthcare workers and patients by improving access to health-related information, offering personalized healthcare, reducing workload, enabling cost-effective delivery of services, improving efficiency and developing integrated welfare services. In addition, digital health in Germany is being promoted as a panacea for several challenges, including providing equitable services to the entire population to address the aforementioned paradox.

While integrating different actors and infrastructures, digital healthcare also coproduces frictions as it redefines the relations between the 'body/citizen' in need of healthcare and the state as a service provider. Based on a critical discourse analysis of the recent acceleration of digital health in Germany and the policies produced and circulated in this context, this paper aims to shed light on the mechanisms of inclusion/exclusion in digital health in Germany.

The paper foregrounds fault lines and bordering practices emerging at the intersection of digital and healthcare services in Germany and how it re-worlds the relationship between healthcare, state, body and the citizen-subject. By adopting 'borders' or 'bordering' as an analytical concept, the paper underscores the need to reevaluate how digital healthcare is redefining relations and matters of care in the contemporary.

12 JUNE 2025 09.00 - 11.00

ROOM B2.2.15

ID 291 - Making genomic data reusable. The case of the "data collector-analyser"

Quentin Dufour, Aix-Marseille Université; Centre national de la recherche scientifique

Keywords: Data reuse, genomics, health data warehouse, Collecteur-Analyseur de Données, Plan France Médecine Génomique

In 2015, the French government launched the Plan for French Genomic Medicine (PFMG), which aims to integrate genomic diagnostics into the healthcare circuit and stimulate scientific research on the topic. In this context, the PFMG built a specific infrastructure: the data collector-analyser (CAD). Officially created in 2022, the CAD is a health data warehouse whose mission is twofold. On the one hand, to centralize genomic data produced in France (notably by medical biology laboratories and dedicated research projects). On the other hand, promoting data sharing and reuse by making genomic data available to research and healthcare communities.

Grounded in STS and Data Studies, this communication analyses health data reuse policies by focusing on the CAD case. We tackle the following question: what kind of work, and what kind of organisation, are



involved in the process that makes genomic data reusable? Our hypothesis is that, to make data available for new users, the CAD needs to directly intervene on and transform genomic data. This transformation occurs at the crossroads of several scientific, ethical, and legal issues.

After outlining the genesis of the CAD, we explore the issues involved in the process of collecting, storing, and making genetic data available. More specifically, we show that there is a major friction between two re-use goals – research and care. This friction affects data characteristics and their ability to circulate among different communities of users.

The communication is based on an ongoing investigation into the political and ethical issues of health data reuse. It relies on qualitative methods (interviews and observations of work situations).

12 JUNE 2025 09.00 - 11.00

ROOM B2.2.15

ID 796 - 'NeuroCovid' disease definition: technoscientific and political practices instructing the order of things

Benedetta Muda, Università degli Studi di Milano Statale

Janneke Kuiper, Katholieke Universiteit Leuven

Nicolò Caporale, Fondazione Human Technopole

Emanuele Villa, Fondazione Human Technopole

Giuseppe Testa, Fondazione Human Technopole

Luca Marelli, Università degli Studi di Milano Statale; Katholieke Universiteit Leuven

Keywords: neurocovid, disease-category, health-data, review, ethnography

The World Health Organisation (WHO) estimated that the Coronavirus Disease 2019 (COVID-19) has caused more than 2 million deaths in the European Region¹. Far from having exhausted its course, an increasing amount of clinical evidence associate COVID-19 infection with an elevated risk for neurological and psychiatric complications (i.e. 'NeuroCovid') in 33-49% of patients after 6 months from the infection^{2,3}. NeuroCovid is thus de facto emerging as a new disease category whose ontology-in-the-making bears the mark of the political and technoscientific upheavals characterising the current times. Firstly, the latest technoscientific advances in the life sciences are reconfiguring epistemic practices of disease categorisation and investigation, as the spectrum of methods by which researchers find agreement on newly discovered biomedical facts are increasingly converging toward one scale of analysis: the single cell data. In parallel, the European Union is promoting a profound normative restructuring towards supranational health data sharing, through the European Health Data Space (EHDS) Regulation⁴, fully impacting current governance of data-flows among public and private actors, and thus their power to govern advances across the digital- and the life-sciences.

To investigate these epochal changes as they come to bear on the 'NeuroCovid' disease, this paper adopts a two-fold approach: first, a critical review of the literature, from the medical and STS fields alike, will provide insights into the multifaceted, contingent and conflicting disease ontology by posing foundational questions such as: what is NeuroCovid, and who has the power to adjudicate it? How are stakeholders' lives impacted by the fashion and timing of disease definition? Second, this analysis will be enriched by an ethnographic study conducted within the European Consortium NeuroCOV⁵, particularly in its Milan-based team of researchers and clinicians, aimed at documenting the state-of-the-art epistemic practices of NeuroCovid disease definition through participant observation and interviews. Leveraging "NeuroCOV" as an invaluable case-study and closely observing key research nodes, from patients' enrolment phases to single-cell omics data harmonisation, occurring in one of the largest consortiums currently investigating the disease, will further enlighten disease categorisation practices in the current medical field, characterised by thrusts of political reconfiguration and datafication.

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12 JUNE 2025 09.00 - 11.00

ROOM B2.215

ID 799 - Digital Twins, Digital Dreams: Who Guides the Visions of Tomorrow's Healthcare?

Elisa Elhadj, Katholieke Universiteit Leuven

Maiju Tanninen, Katholieke Universiteit Leuven

Ine Van Hoyweghen, Katholieke Universiteit Leuven

Keywords: digital twins, in silico medicine, imaginaries

The growing prominence of computational simulations and modeling (CM&S) tools in healthcare has, in recent years, attracted significant attention, funding, and, arguably, hype. At the heart of this development is the field of in silico medicine, which leverages these simulations to improve the diagnosis, treatment, and prevention of medical conditions, and is further evolving through so-called digital twins. These advanced models represent human biological systems, including specific processes, cells, bones and organs such as the heart or the liver. Yet, through this emerging technology, we observe a further step in the infusion of engineering logics and automation-related values into healthcare. This incites reflections on what type of healthcare (and world) is being imagined here and by whom?

In this paper, we empirically study the making (and imaginaries) of digital twins in Europe, exploring how the in-silico community envisions the future of medicine and how these visions manifest in their practices, talks, texts and visualisations. We draw on an extensive multi-sited ethnographic study where we engaged in i) an in-depth analysis of the leading Virtual Physiological Human Institute news archive ii) participant observation and interviews at various events, workshops, and meetings of associations, laboratories and projects within the in silico community, iii) document analysis of white papers, reports, policy briefs and academic literature discussing digital twins in medicine, and iv) focus groups within the In Silico World Project.

We demonstrate how digital twins act as a charismatic technology, with the in silico community overlooking their multiplicity, and capitalising on the growing uptake of CM&S in other fields. Building on this, we highlight how the transfer of logics from engineering to healthcare introduces frictions between engineers and clinicians, raising broader considerations about the datafication of health and healthcare. In particular, we discuss how the uncodable elements of medical practice, such as experiences, human senses, and tacit knowledge fall through the models. This reveals an intriguing dynamic of nearness and remoteness, showing how those who play a crucial role in pushing forward certain visions of how healthcare should look and is envisioned, as well as how human bodies should be understood, are, in reality, remote from the actual healthcare practices. This invites reflections on expertise and the 'worlding' of healthcare, highlighting the need for further attention to the socio-ethical implications of digital twins.



12 JUNE 2025 09.00 - 11.00

ROOM B2.2.15

ID 811 - Inside the European Health Data Space Regulation: Following the Trail of Standards and Power

Anamika Kundu, European University Institute

Farid Mahsouli, Radboud Universiteit

Keywords: Healthcare, Data Spaces, Power Structure, Innovation, Infrastructure

The Data Strategy unveiled in 2020 by the European Commission (EC) presented data sharing as the cornerstone of economic development for businesses and individuals. Coincidentally, the COVID-19 pandemic showed that the current framework on health data sharing could be burdensome in times of need and highlighted its problems for scientific research and innovation. The following Data Spaces Initiative 2022 combined both approaches: sharing data can be helpful for the economy and, at the same time, reach objectives of public interest. The European Health Data Space (EHDS) text is close to publication. The next step is the development of its technical aspects. The EHDS relies on standards to achieve interoperability of Electronic Health Records systems across Member States and to set up its technical infrastructure for sharing patients' health data to foster research and innovation. The EHDS is not just a legal framework but an act of world-making. It establishes a new order in which health data is governed, standardised and circulated. This paper maps out how the EHDS conceptualises standardisation to achieve the goals above. We propose a taxonomy based on four different layers in which we identify the methods and actors involved in the technical construction of the legislation. In practice, standards are essential in establishing the necessary infrastructure for data sharing and interoperability while serving other non-technical purposes such as data labelling. From a worlding perspective, standards are not merely technical instruments but mechanisms through which specific values and ontologies are enacted. The construction of the EHDS is shaped by the imaginaries of policymakers, regulators, and industry actors who seek to impose a particular order on health data governance. Their construction depends on adopting implementing acts and delegated acts by the EC, which gives it a de facto incommensurate decisional power with only limited institutional safeguards as a recourse. This governance model raises concerns regarding the disproportionate influence of industry players. Based on these findings, this paper follows the power distribution embedded in the EHDS. It explores its implications for privatisation, regulatory balance and stakeholder (such as patients, healthcare providers, researchers and technology companies) interests. Focusing on the socio-technical dimensions of standardisation, our findings contribute to broader discussions on EU data governance and its potential to shape future data spaces.

Methodology: First, we map out the legislation to effectively demonstrate where the infrastructural power lies. We will begin by identifying the key actors and institutions involved in drafting, approving and enforcing the legislation. Inspired by legal design, we will bring the relationships between these bodies to light, underlining their interactions and place within and outside the law. Once the legislation and standard-making processes are mapped, we shall analyse how governance creates chokepoints of power. Second, we discuss how this newly established power is reflected and how it ultimately reshapes healthcare. We will focus on two elements, i.e. 1) the impact of new power structures on healthcare delivery and 2) how health data standardisation blurs traditional boundaries.



12 JUNE 2025 09.00 - 11.00

ROOM B2.2.15

ID 816 - Worlding Data Ecosystems for Rare Cancers: Tensions and Values in IDEA4RC

Claudia Egger, Universiteit Utrecht

Susan Van Hees, Universiteit Utrecht

Wouter Boon, Universiteit Utrecht

Keywords: health data ecosystem, worlding, values, tensions, rare cancers, digital health innovations

Values play an important role in the development and maintenance of worlds, as they help shape dominant visions and provide directions on how to bring desired worlds into being (Haraway, 2016; Mol, 2002). Healthcare is a domain where the importance of worlding could hardly be overestimated. This is because digital innovations are increasingly framed as viable solutions to important challenges plaguing this field (Hoeyer, 2024), yet their successful development is shaped by alignments, but also collisions of different worlds and often requires new worlds to emerge. Inherent in worlding are the drawing and redrawing of the emerging world's boundaries, which can have important consequences for how roles and responsibilities, benefits and obligations are distributed. These processes are particularly important in the case of digital health innovations, given the rather opposing attitudes towards borders among the main actors engaged in worlding. Thus, whereas digital innovation developers seek to develop expansive, borderless worlds, medical actors, ranging from clinicians to regulators, engage in worlding by deploying categories, classifications, borders.

This paper therefore examines worlding practices in IDEA4RC, a Horizon Europe-funded project, aiming to develop a European data ecosystem for rare cancers through federated analytical approaches. The development of such ecosystems is driven by the growing value of health data, technological advancements, and EU regulatory frameworks. IDEA4RC brings together over 50 medical researchers, clinicians, data scientists, legal experts, and ethicists. Our role in IDEA4RC involves deploying a longitudinal co-creation approach informed by Responsible Innovation principles. This provided us with access to project documents and enabled us to collect data from 3 co-creation workshops, 30 interviews, and notes from over 200 hours of participant observations of project meetings and validation workshops of IDEA4RC prototypes.

We thematically analysed how the IDEA4RC contributors mobilized current and anticipated data-related practices, technologies, norms, and values to world this ecosystem. Our findings indicate that in their worlding practices, the IDEA4RC contributors grapple with two main tensions between (1) centralisation and de-centralisation of data governance (e.g. standardized data access application requirements vs. clinical centre-specific requirements) and (2) generalisation and contextualisation of IDEA4RC-mediated practices (e.g. mandating results visualisation options vs. allowing for personal habits and preferences). We argue that these tensions remain unresolved, as the IDEA4RC contributors need to address multiple and often divergent values in the development of this data ecosystem, such as autonomy, solidarity, data altruism, cooperation, competition, effectiveness, convenience. Our findings further indicate that these tensions are rendered more or less pronounced depending on the past, present, and future worlds that the IDEA4RC contributors envision as aligned or in potential collision with the one they are seeking to bring about. Thus, different associations concerning data centralisation or de-centralisation are foregrounded and different ways of conducting research in the IDEA4RC emerging world are envisioned when such data practices are considered as adjacent to worlds marked by the commodification of data and the dominance of a few important players or by altruistic, common-based approaches.



12 JUNE 2025 14.00 - 17.00

ROOM B3.2

Panel 66. More-than-(Just)-Human Politics of Relating

Convenors:

Elisa Giaccardi, Politecnico di Milano

Valentina Rognoli, Politecnico di Milano

Emma Sicher, Humboldt-Universität Berlin

Francesco Nappo, Politecnico di Milano

Francesco Vergani, Politecnico di Milano

Laura Forlano, Northeastern University

Martín Tironi, Pontificia Universidad Católica de Chile

Keywords: artificial intelligence, biodesign, more-than-human, multispecies, politics

Recent focus on human-nonhuman relations has prompted a rethinking of policy frameworks and governance models that integrate diverse perspectives and needs beyond the human (Heitlinger et al., 2024; Tironi et al., 2024). Instances such as the legal recognition of rivers as rights-bearing entities challenge anthropocentric assumptions and suggest policies that honor the needs and agency of other entities as well as their entanglements with human life (Te Awa Tupua, 2017). Extending this perspective, emerging technologies are provoking inquiry into the political and social roles of artificial entities (Lupetti et al., 2019), questioning conventional human-technological boundaries (Bridle, 2022). These perspectives align with concepts of situatedness (Haraway, 2016) and diffraction (Barad, 2014), which emphasize the contextual, relational, and non-linear ways in which entities interact across ecological and technological dimensions. Situatedness stresses that perspectives are shaped by specific contexts and interactions, while diffraction points to the ripple effects of these interactions across boundaries and scales, expanding our understanding of more-than-human entanglements.

Amid mounting environmental and technological crises, human-centred design visions are increasingly inadequate (Forlano, 2017; Tironi et al., 2022; Giaccardi et al., 2024). Incorporating nonhuman perspectives, with attention to both situatedness and diffraction, enables a reconceptualization of politics as multispecies justice, ecological interconnectedness, and recognition of the agency embedded within materials and organisms that share the world. This panel invites contributions that explore, theorize, and operationalize these ideas across social, ecological, and technological spheres. We seek to expand traditional political discourse to incorporate multispecies justice (Chao & Celermajer, 2023), ecological entanglements (Aiyadurai et al., 2023), the interdependencies of humans and (possible) materialities with the environment (Avila, 2022), and the agency of nonhuman entities (Wakkary, 2021).

As distinctions between human and nonhuman actors blur in areas like artificial intelligence (Giaccardi & Redström, 2020), multispecies cohabitation (Roudavski, 2020), and regenerative material ecologies (Karana et al., 2023), this track encourages critical engagement with how these interdependencies influence power structures, coexistence, governance, and decision-making processes.

We are interested in papers that:

- challenge anthropocentric power structures by incorporating nonhuman perspectives, redefining politics within multispecies frameworks, and exploring the implications of cohabitation and interdependence;
- propose decolonial, pluriversal, and inclusive governance and decision-making approaches that accommodate multispecies configurations;
- investigate care, resistance, and subversion within more-than-human politics, particularly in addressing social and ecological injustices;
- examine the influence of artificial intelligence on more-than-human relationships and political landscapes;
- highlight design-driven methods and investigations as political acts capable of regulating and fos-



tering interdependent co-living, shaping materialities, and engaging with diverse epistemologies, ontologies, cosmologies, and relational practices.

We encourage submissions across design, HCI, philosophy, and STS, aiming to cultivate a transdisciplinary dialogue.

12 JUNE 2025 14.00 - 17.00

ROOM B3.2

ID 182 - More-than-Human Politics: Designing for Multispecies Cultures in Insect Biorefineries

Cecilia Padula, Politecnico di Torino

Keywords: Multispecies worlding, capabilities analysis, prototype democracies, multispecies cultures, systemic design

The New Climatic Regime forces political obsolescence, demanding a redefinition of development to address entrenched anthropocentric power structures. The more-than-human expands our understanding of the multiple, hybrid entanglements that make up our world. In this medianaturecultural continuum, technology plays a pivotal role in mediating human-nonhuman relations as a morally neutral tool whose use is inherently shaped by power structures. As designers increasingly recognise the political nature of their work, it becomes evident that design is not neutral but actively shapes dynamics in technology use.

Within the design for sustainability framework, systemic design emerges as the most promising way to steer socio-technical systems towards sustainable development. However, in striving for pluralism, systemic design often reinforces existing power dynamics within socio-technical systems. Tools such as Giga-maps, designed to illustrate complex systems, frequently overlook the realities of marginalised human and nonhuman entities. This highlights the need for systemic design to critically evaluate its practices and overcome its "ontological blindness."

This study addresses the urgent need to integrate nonhuman agencies into Insect Biorefinery (IB) organisations, challenging speciesist norms prioritising human (and mammals) interests. While often lauded for sustainability, current IB value logics perpetuates anthropocentric paradigms by overlooking nonhuman entities' ecological and cultural role, particularly insects.

Expanding systemic design principles toward "becoming with" nonhumans, the study explores the capabilities of Black Soldier Flies (BSFs) as active participants within IB organisations. Through collaborative autoethnography, situated human knowledge is articulated collectively by often subjugated local stakeholders. Additionally, multispecies approaches like multispecies worlding and capabilities analysis explore the lived experiences and cultural needs of BSFs within IB organisations.

The methodology combines qualitative and quantitative tools, including prototyping environmental enrichment for BSFs' artificial habitats and decision-making frameworks like the Choquet integral to evaluate competing potential value logics.

This empirical study challenges speciesist approaches to breeding technologies, reconfiguring human-nonhuman relations in IB. It extends discourses on multispecies democracies and interdependence while positioning designers as mediators and activists who can foster inclusive innovation and address power imbalances in IB organisations. Although power imbalances persist, the research promotes caring relationships that reduce nonhuman suffering and encourage collaborative, equitable interactions.

Central contributions include identifying multispecies and autobiographical approaches to challenge speciesist narratives in socio-technical systems, developing a framework for co-designing multispecies cultures, and synthesising and ranking designs for democratic IB.

Focusing on the man-technology-fly assemblage enables a process of "becoming minoritarian", as described by Deleuze and Guattari, where the rigid, hierarchical identity separating humans from nonhumans



is dismantled. This de-subjectification promotes relational ethics that extend beyond anthropomorphism, encouraging emotional exchange and collaboration. Democratic technology use creates new flows of forces, perceptions, and emotions. This challenges human dominance and opens up possibilities for multispecies collaboration in IB.

However, this effort remains vulnerable to becoming isolated and avoiding systemic violence within the productive imperative. The findings call for continued reflection and critical engagement with the political dimensions of design. Designers must actively question the ontological assumptions shaping human-non-human relations and participate in transforming power dynamics within technological systems.

12 JUNE 2025 14.00 - 17.00

ROOM B3.2

ID 204 - Counter-Designing: Prototyping in a More-Than-Human Planet

Pablo Hermansen, Pontificia Universidad Católica de Chile

Martín Tironi, Pontificia Universidad Católica de Chile

Keywords: Counter-Designing, Planet-Oriented Design, Maraña, More-than-Human Prototyping, Ch'ixi.

In this presentation, we introduce our forthcoming book *Counter-Designing: Prototyping in a More-Than-Human Planet*, which proposes a critical, Latin American-rooted approach to design that counters the anthropocentric ideals entrenched in modern-capitalist paradigms. Drawing on over a decade of collaborative research and site-based interventions, we conceptualize "counter-designing" as an active dismantling of extractivist, dualistic, and technocratic frameworks that reduce non-humans to passive resources and traditional communities to mere background contexts. Instead, we argue that design must embrace the socio-environmental *marañas* – the dense entanglements of humans, other-than-human agents, and ecological forces – characterising the realities of Latin America and, increasingly, the planet as a whole.

Taking inspiration from Silvia Rivera Cusicanqui's work on *Ch'ixinakax utxiwa* and Afro-descendant struggles such as Francia Márquez's concept of *Vivir Sabroso*, we situate design as a practice of relational world-making oriented toward collective well-being and cultural-ecological resilience. *Vivir Sabroso* (Living Joyfully and Harmoniously) underscores how joy and mutual care in everyday life serve as acts of resistance to colonial and capitalist logics – a stance we see as vital for reinvigorating design education and professional practice. Through more-than-human prototyping, we propose design interventions that foster meaningful collaborations with non-human entities – rivers, plants, microorganisms – refusing to treat them as mere inputs or inert matter. In so doing, we aim to cultivate designs that privilege coexistence, reciprocity, and the expansion of multispecies alliances.

By examining specific Latin American case studies – ranging from reforestation projects driven by community knowledge, to urban initiatives that integrate Indigenous or Afro-descendant epistemologies – we spotlight how counter-designing can serve as a transformative force against socio-ecological precarity. Critically, this book does not merely critique dominant regimes of knowledge production; it offers practical, methodological insights for designers, researchers, and activists who wish to reconfigure the politics of relating in more-than-human contexts.

Our presentation at STS Italia's "More-than-just-human politics of relating" session will articulate how counter-designing intersects with Science and Technology Studies. We show how a Latin American vantage point unsettles universalized design principles, bringing attention to the ecological and cultural specificities often obscured by mainstream design discourses. Grounded in feminist, decolonial, and posthuman traditions, our work reframes design as an ethical and political act of "making-with," rather than an instrumental act of problem-solving or product creation.

Ultimately, *Counter-Designing* invites STS scholars to engage with design as a site of contestation and care, where forging new modes of inter-species solidarity and planetary responsibility becomes both feasible and urgently necessary. We look forward to discussing how this perspective enriches ongoing debates on more-than-human politics, decolonial futures, and the reshaping of design's horizons.



12 JUNE 2025 14.00 - 17.00

ROOM B3.2

ID 234 - The Embassy of Reindeers

Laura Boffi, Spirited Design Office

Keywords: Reindeer husbandry, co-existence, remote sensing, participatory design.

The "Embassy of Reindeers" project has been inspired by a fieldwork period in Lapland, where the author spent several weeks with a few herders of the Muonion Paliskunta. It is an independent work-in-progress.

"The Embassy of Reindeers" is about getting the reindeers point of view about pasture conditions due to land use and climate change. Land use is meant from both sides: land used by the grazing reindeers and by other humans, responsible of cutting out forests and building infrastructures or industrial plants. Getting the reindeers point of view means taking pictures from reindeers when they perform 2 specific grazing behaviours: eating from the ground or digging in the snow to find food. This can be achieved combining movements data from an accelerometer with a reindeer-borne camera pointing to the soil, which get triggered by specific foraging behaviours. The pictures will be collected onto an online platform, which would stand as the online instance of the Embassy. The herders will be the one charged (and entitled) to describe the pictures as reindeer ambassadors: "the herders think as reindeers", this is something I learnt during my previous fieldwork. By showing the reindeers point of view pictures, the author wants to bring on the table the objective view of the non-humans and try to raise awareness on pasture degradation.

The creation of a fictional "Embassy" can allow to restore a territory which is real, yet split into different districts, through an online presence, where reindeers are not divided into administrative territories and herders can come together as a herd giving voice to their animals and raising husbandry issues in front of local administrators and policy makers. Therefore, the online platform of "The Embassy of Reindeers" will work as an alternative political tool for reindeer herders. "The Embassy of Reindeers" project will offer a transformation strategy and innovation process for the revitalisation of mountainous and peripheral areas by adding the point of view of the non-humans (the reindeers) into the picture and offering herders a new way to partner with their herds and amplify their voice in front of local administrators and policy makers. On the other way around, herders themselves could gain new insights on the land they use and the pasture degradation that they also may cause by looking at the pictures taken by their reindeers.

The final aim of "The Embassy of Reindeers" is to be a tool informing local policy making and herding activity, a tool which looks at reindeer herding as if "we would start all over again", citing local herder Pekka, a participant of my previous fieldwork, and through which we would carefully attend to the entanglements among the reindeers, the environment and the humans and how they might change over time.

12 JUNE 2025 14.00 - 17.00

ROOM B3.2

ID 302 - From Canals to the Cosmos: Refracting the More-Than-Human Politics of Flooding

Kathrin Eitel, Universität Zürich

Keywords: Refraction, More-than-human politics, Plants, Robots, Sattelite, urban cohabitation

What do a water hyacinth, a satellite, and subterranean tunnel robots have in common? They are all entangled in a more-than-human urban politics – particularly in the flood-prone metropolis of Ho Chi Minh City, Vietnam. While the city pushes forward its flood adaptation strategies through innovative solutions like the implementation of "sponge city" concepts, a green carpet of water hyacinths obstructs drainage by clogging canals. At the same time, digitized predictive models on Google Maps visualize an impending flood, while U.S.-manufactured robots search for so-called "death holes" – subterranean voids that could potentially cause parts of the city to collapse.

In this presentation, I explore how these entities co-constitute the city's material and political landscapes.



shape infrastructures, and influence governance structures – challenging anthropocentric urban imaginaries in the process. Examining the relationships between these heterogeneous assemblages revolving around urban flooding, I argue that a more-than-human politics of relating involves more than just engaging with visible interferences or diffractive patterns. It must also engage with patterns of refraction, which reveal the powerful politics of relations.

A diffractive ethnography studies how phenomena break and reform – like waves encountering an obstacle and continuing in altered patterns. It analyses the effects of such movements (diffraction), for instance, when dominant imaginaries of flood management collide with the material presence, spread, and ecological agency of water hyacinths, reshaping governance (Barad 2007). However, a diffractive perspective alone may be complemented by looking on how something fractures (cf. Tsing 2015) – how fault lines and lines of flight emerge, creating sites where structures dissolve, distort, or fold and reveal new, unexpected relations (Tsing 2015; Deleuze & Guattari 1987). Refractions highlight the ways power is bent and how other-than-humans shift urban politics in times of climate crisis. What temporal and spatial continuities shape these moments of fracture?

What power dynamics drive these ruptures? Satellites, for instance, may predict flood risks, yet they often exclude or reframe local knowledge of flood-prone zones, generating distortions in whose priorities are represented in climate adaptation efforts.

This presentation focuses on the ecologies of these moments of transformation, asking how they unfold and examining their refractive effects on how the city is done, how it is envisioned and planned. The goal is not merely to map the effects of these differences but also to understand the transformative moments – when something becomes new or collapses – by immersing in the temporal and spatial complexity of these processes (Deleuze 1993). A robot from the U.S. does not merely function as a technical solution; it also refracts (bends and shifts) political relations – evoking associations with imperial interventions or military surveillance when deployed in sewage systems. Similarly, the presence of water hyacinths in the city's canals is not simply an ecological phenomenon but a complex entanglement of colonial trade routes, global markets, and local conceptions of nature, value, and control.

By employing refractions as moments of transformation in a more-than-human flood-prone city, we can understand urban spaces not merely as technopolitical arenas but as dynamic sites of more-than-human relations – where infrastructures, ecological actors, and technological systems are continually refracting, breaking, and refolding within ever-changing relational configurations.

12 JUNE 2025 14.00 - 17.00

ROOM B3.2

ID 450 - A New Class of Artefact? Hybridity and Material Agency in Biorobotics

Beren Sekerci, University of Edinburgh

Keywords: biorobotics, life-on-the-border-entities, hybridity, material agency, synthetic biology, human-machine collaborations, in-betweenness

This paper looks at the concepts of hybridity and material agency in biorobotics, a field that has been unexplored in STS. The field of biorobotics incorporates principles from synthetic biology, robotics, and AI to design 'living robots,' also known as Xenobots. Imaginaries of hybridity are prominent in the field, as biorobots exist within the hybrid interface of organic living material and inorganic components while being neither fully living nor fully robotic, designed by AI and humans.

The paper explores the concept of hybridity by examining the limits of artificial and natural entities, as well as the extent to which they are increasingly overlapping in contemporary science. By drawing on biorobotics, I aim to ask how binaries such as culture and nature in the life sciences are being challenged and how new artefacts created in the future may further challenge the traditional boundaries of being.



By conducting ethnographic work to explore how scientists work with agential living materials in their laboratories, I investigate questions of to what extent the field is pushing traditional boundaries of existing knowledge and what this means for the future of human-machine and human-more-than-human collaborations.

Particularly, I showcase how biorobotics' conception of agency is constructed in opposition to previous domains such as synthetic biology. In doing so, biorobotics opens a debate about new forms of agency that are still in the making. My work draws on prior STS work done on synthetic biology (Calvert and Szymanski, 2020), cybernetics (Hayles, 2008), and cyborgs (Haraway, 1991). I show how biorobotics opens up debate arenas about new forms of agency that is still in the making, because biorobotics researchers attempt to create programmable and adaptable machines that possess their own agency. This raises the question of whether the human designer of the organism has to give away some of their agency to attain better design and scientific knowledge.

I further explore whether biorobotics can create a landscape of collaboration between the machine, the living robot, and the scientist. By giving some of their agency to the active living material they are designing with, could scientists attain a form of care for the 'new artefact' they are creating? In this presentation, I conceptualise the emergence of material agency and bio-hybridity as useful frameworks to make sense of these sociotechnical practices and discover whether the emphasis on material agency could lead to good technoscience practices. I end by asking what biological agency does to human and machine expertise and whether the knowledge practices in biorobotics could let us explore concepts about diverse multispecies perspectives.

12 JUNE 2025 14.00 - 17.00

ROOM B3.2

ID 472 - Above all that is below: The politics of the invisible

Cristina Sanuy Hereter, Universitat de Vic – Universitat Central de Catalunya

Manuela Valtchanova, Universitat de Vic – Universitat Central de Catalunya

Roger Paez, Elisava, Universitat de Vic – Universitat Central de Catalunya

Keywords: Bioacoustic sensors, Acoustic cartography, Invisible fauna, Multispecies urbanism, Tracking ethics

Sensing technologies are reshaping how cities understand and interact with their ecosystems. By uncovering hidden spaces – from sewers to rooftop gardens – these technologies offer a look into urban life that has long been missed. This project explores the ethical, engineering, and design challenges of using technology to study the often-invisible species inhabiting our cities. Drawing from a case study in Barcelona, where acoustic mapping and robotic sensing systems are integrated, this research investigates how these technologies reveal the movements and presence of hidden urban species.

The study highlights a critical issue: the invisibility of these species is often rooted in human prejudice, particularly our fear or disgust towards certain animals. Urban species like rats and insects are stigmatized, and our tendency to avoid or ignore them has led to their marginalisation in city planning. Technology offers an opportunity to challenge this exclusion and confront the biases that have shaped our urban spaces. However, making these hidden species visible raises key ethical questions. Does revealing them help their protection, or does it expose them to greater risks? Who owns the data these technologies collect, and how might it influence urban policies? Furthermore, what role should technology play in fostering coexistence between humans and non-human species in urban environments?

While the tracking and categorisation of bioacoustic signals is achieved in a non-invasive manner, the technology remains shaped by an anthropocentric framework. Despite efforts to uncover neglected urban life, the project is still rooted in human priorities. While tracking can make the invisible visible, it cannot entirely free itself from the human lens through which these species are perceived. The use of sensors to monitor these animals prompts us to reconsider how cities can be optimized for both human and wildlife needs, revealing our own biases in the process.



Technologies like the Cocktail Party effect are used in this project to categorize and track sounds from various species, creating sound cartographies that link humans and other-than-human. This approach challenges us to rethink how we design urban spaces, pushing for an urbanism that acknowledges multispecies coexistence. Robotics raises broader questions about non-human entities in urban ecosystems. Traditionally viewed as human-made tools, robots might also be seen as participants in the city, contributing to the ecological system in their own right. Should we consider robots merely as instruments, or can they be regarded as a new "species" influencing the spaces they occupy?

This study argues that technology should not be limited to gathering data or optimising cities for human needs alone. These technologies can also help prologue a conscious multispecies coexistence, enabling urban spaces that accommodate both human and non-human life, questioning how and why we make the invisible visible.

12 JUNE 2025 14.00 - 17.00

ROOM B3.2

ID 475 - Seeds++: a design exploration of regenerative soil practices for interspecies care

Annarita Bianco, Università degli Studi della Campania Luigi Vanvitelli

Keywords: soil care, interspecies care, more-than-human design, regenerative design, wearables

In recent decades, market-driven logic has increasingly shaped self-care, leading to its simplification and commodification (Fraginito & Tola, 2021, p.19). Personal well-being has been reduced to individualistic practices, the purchase of exclusive lifestyle products (The Care Collective, 2020, p.26), and technological devices for tracking biological parameters. This narrow perspective reinforces ideals of self-sufficiency, autonomy, and independence, promoting an anthropocentric view that ignores our fundamental dependence on other living and non-living entities, organic matter, and biochemical processes that connect us to planetary systems. In contrast, the intersection of ecology, feminism, and post-anthropocentrism (Adams & Gruen, 2022; Braidotti, 2017; Haraway, 2018; Mies & Shiva, 1993; Puig de la Bellacasa, 2017) points to the need to rethink capitalist models, hierarchical structures, and dualistic ontologies that have reinforced environmental and social injustices. Design, too, must evolve, embracing cooperative and symbiotic approaches, fostering interspecies care practices that support the well-being of human and non-human life forms, as well as technological assemblages. In this light, care transforms into a radical act, one that can carry political significance.

This contribution presents key design outcomes from an ongoing research project that brings together Research through Design (Redström, 2017) with autobiographical and autoethnographic approaches informed by Soma Design (Höök, 2018). The research investigates mutual care relationships between humans and the multispecies communities within soil, leading to the creation of artefacts that acknowledge the subject's embeddedness within a more-than-human milieu. Soil's essence lies in relationality – it is a complex, living system where organisms interact through regenerative cycles and biochemical exchanges. As one of the planet's most vital biotypes, soil is essential for food and material production, yet it remains a neglected, non-renewable resource. Its fragile balance is increasingly threatened by intensive agriculture, extractivist practices, and climate change, which undermine its regenerative capacity.

As part of this discussion, participants will engage with prototypes from the ongoing Seeds++ series, identifying key strengths, challenges, and future directions for the research. These prototypes aim to foster a collective and systemic approach to interspecies responsibility, bonding somatic awareness with soil care through collective practices. The designed modules, developed in various materials, serve three key functions:

- Soil Booster – restoring soil health through the decomposition of nutrient-embedded materials;
- Compost Tracker – facilitating shared and collective composting practices;
- Edible Element – emphasising the deep entanglement between body and soil.



The first type consists of 3D-printed, compostable shells, designed to host yeasts and bacterial consortia that enhance soil quality. The second includes data-sharing modules that enable local farmers practising symbiotic agriculture to exchange soil health information. This community-driven approach allows farmers to learn from one another, share best practices, and collectively contribute to a more resilient food system.

Finally, the edible modules serve as nutritional supplements containing key nutrients shared by both the human body and soil, promoting gut health and reinforcing the deep interconnection between human and environmental well-being.

12 JUNE 2025 14.00 - 17.00

ROOM B3.2

ID 509 - Towards A Politics of Disidentification in Human-AI Entanglements

Grace Turtle, Technische Universiteit Delft

Elisa Giaccardi, Politecnico di Milano

Roy Bendor, Technische Universiteit Delft

Keywords: Human-AI entanglements, disidentifications, more-than-human design

In its current state, technologies like artificial intelligence (AI) are designed to make the world more effectively computable (Finn, 2018). Yet, when AI relies on the stability computable entities, questions of identification become pressing: when AI works to recursively stabilize bodies and worlds, even as we recognize entities to be fluid (Butler, 2011).

The autotheoretical experiment in sonic modelling at Fundación Organismo, Tenjo, Colombia, titled *Sounding Territories* challenges this assumption by asking: How might processes of identification in human-AI entanglements emerge through affective relations rather than conventional computational encodings – such as labelling, classification, and categorisation – that impose fixed forms of identity? The experiment proposes that the identification of something new first requires a process of disidentification, the act of “constantly disidentifying, to constantly find oneself thriving on sites where meaning does not properly line up” (Muñoz, 1999, p. 78-79).

In *Sounding Territories*, a performer and the audience engage in deep listening while interacting with a sonic model encoded with entities like water, fire, and bees. Using gestures, the performer disturbs and disrupts familiar expressions of these sounds, transforming them in ways that challenge traditional algorithmic encodings of identification and sound categorisation in the model's latent space. The performer experiences disidentification through their embodied, affective relations with the model. As they interact, they experience a shift in identity, feeling their sense of self merge with the more-than-human sounds they create. As illustrated in Figure 1, the performer described this experience as one where the boundaries between their body and the more-than-human sounds produced through their movements blurred. These interactions, entangled within the model's latent space, resist stable or fixed identifications, allowing instead for fluid and evolving becoming.

This process of disidentification is inherently political – more precisely, a “performance of politics” (Muñoz, 1999). Positioned within postcolonial systems of oppression, AI today relies on stable data subjects and fixed identities to enable predictability (e.g., resource exploitation), control (e.g., surveillance), and, ultimately, monetisation (e.g., targeted advertising), all reinforcing existing power asymmetries (Amaro, 2022). In contrast, *Sounding Territories* disrupts this paradigm by foregrounding relational unfolding (Glissant, 1990) and the mechanisms of disidentification that enable it.

In the more-than-(just)-human politics of relating explored in this experiment, we consider disidentifications as “emergent identities-in-difference” (Muñoz, 1999, p.7) that unsettle human-centred perspectives, resist the commodification of identity, and open up possibilities for more-than-(just)-human ways of being. This, in turn, invites probabilistic design spaces for engaging with “being uncertain” (Giaccardi et al. 2024) – spaces that values indeterminacy and multiplicity over control and prediction, where futures and by extension one's sense of futurity co-emerge (Turtle & Bendor, 2024; Turtle et al., 2024).



A politics of disidentification in human-AI entanglements offers a space for experimentation with imaginative and critical perspectives on the formation of the relational subject, contributing to discussions in more-than-human design and technology, human-computer interaction (HCI), and STS more broadly.

12 JUNE 2025 14.00 - 17.00

ROOM B3.2

ID 769 - Ghostly matters: Institutional response-ability and the digital life of human remains

Valeria Borsotti, Københavns Universitet

Keywords: human remains, digitisation, HCI, CSCW, hauntology

"To address the past (and future), to speak with ghosts, is not to entertain or reconstruct some narrative of the way it was, but to respond, to be responsible, to take responsibility for that which we inherit (from the past and the future)." (Karen Barad 2010)

This contribution explores the complexities of digitising human remains, which have been discussed in bioarcheology as "complex categories" of objects – both objects of science and physical manifestations of lived lives (Nilsson Stutz 2023). My exploration draws on autoethnographic research at a medical museum in Scandinavia, as well as on interviews with experts working with human remains worldwide (primarily in anatomical and osteological collections).

Human remains, also referred to as "human material" by conservators in medical museums, blur binary juxtapositions of object/subject and human/non-human. They are what is left of the dead, but also undeniably "vibrant matter" (Bennett 2010), not least when colonialism and scientific racism are hauntologically coming through the materialities of the collections and their metadata. This creates ethical conundrums on access to records and how to communicate issues of structural violence in scientific production. The intersection of themes related to death and technology has been relatively overlooked in HCI and CSCW, though there is increasing attention to the subject. In this study I look at the interactions and interdependencies at play when designing (or adapting) digital heritage systems to archive and access human remains.

In this presentation I will discuss some preliminary results from this work-in-progress study exploring how digital catalogues of human remains are collaboratively produced through situated sociomaterial practices and shaped by multiple dimensions – policies, politics, advocacy, institutional governance, and technical systems. I show how multiple actors cultivate response-ability (Haraway 2016), sometimes by leveraging collectives and community feedback.

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ID 830 - The Horse-Human Relation in Motion: How mobile ontologies of horse-human-land relationality can move us towards Multispecies Justice

Denise Regina Percequillo Hossom, Gonzaga University

Keywords: multispecies, mobility justice, animal colonialism, classification, more-than-human

What can horses tell us about mobility justice and more-than-human mobile ontologies as a matter for multispecies justice (Sheller 2018; Chao, Bolender, Kirksey 2022)? I explore the possible answers to such a question through engagement with environmental policy and management practices for "free roaming" horse populations within the United States ("mustangs") and Australia ("brumbies"), and transnationally across the Eurasian steppe (Przewalski horse). These horses tell stories of longstanding conflicts between diverse interest holders (human and more-than-human) "in motion". A more-than-human mobile ontology is essential to addressing social, ethical, epistemic, and political injustices in horse-human-land relationality as a matter of decolonising environmental policy. Through considering Kincentric ecology (Salmón 2000) and Diné (Navajo) horsemanship (John 2019) as relational accounts of horse-human kinship, the contrasting coloniality of technobureaucratic managerial practices traces the contours of conflicts between horse cultures. A landscape of intersecting human and more-than-human lines of mobility appears, and the formation of trading zones is helpful in describing how relations are formed amongst diverse horse cultures across contexts (Galison 1997).

Whether it is equine welfare advocates arguing against governmentally administrated horse culling practices, conservation biologists tracking populations of free-roaming horses as "reintroduced" or "rewilded" species, ecologists warning of the impacts of horse populations on fragile soil ecosystems, or horses making their place in conflict known by their very movement and presence into sites of violence (Przewalski horses in the Chernobyl Exclusion Zone during the Russian-Ukrainian War), a common thread to how horses are entangled in conflict is the role of technoscientific classificatory practices. Horse classification revolves around a set of four conceptual categories: "wild", "feral", "domestic", and "tame". I collectively term these four concepts the "Wild-Domestic Distinction" - WDD, which serves as a nexus to narrative framings common to all horses examined in this case study; I term these "wild horse problems" (WHP) narratives.

WDD classification of horses operates as a "spatiotemporal segmentation of the world... a set of boxes (metaphorical or literal) into which things can be put to then do some kind of work - bureaucratic or knowledge production" (Bowker & Star 1999, 10). The WDD as a technoscientific classification system supports generally accepted narratives in scientific practice that categorize "wildness", "domestication", "ferality" and "tameness" in ways which embed particular materialities and ontologies of horses and humans. Classification of horses and horse-human relations within environmental policy and conservation biology is further driven by technobureaucratic aims of "management" perspectives, especially with respect to "land use" (Michaels 2018). This classification system requires wading into interspecies and multispecies materialities, histories, and epistemologies of injustice, violence, oppression, silencing, and the manifestations of a modern colonial world system (Maldonado-Torres 2016). Kelsey Dayle John articulates how horses show the full force of "animal colonialism" as "one interlocking tension that strikes upon conversations of heteropatriarchy, racism, environmental racism, Indigenous erasure, and religious fundamentalism – all forces that connect, intersect, and overlap in complex ways" (2019, 42). Reexamining the WDD offers fruitful pathways towards decolonising horse-human-land relations through advancing mobility justice and mobile ontologies in support of multispecies justice.



12 JUNE 2025 11.30 - 13.00

ROOM B5.1

Panel 67. Making and Undoing BS Digitalization

Convenors:

Jessica Coetzer, *Vrije Universiteit Amsterdam*

Teun Zuiderent-Jerak, *Vrije Universiteit Amsterdam*

Minna Ruckenstein, *Heslingfors Universitet*

Keywords: STS Making & (un)Doing, breathing space, digital futures

The 'new spring' of AI is leading to an upsurge in optimism regarding digitalisation in the health sphere and other sectors of welfare societies. STS scholars have long argued for the need to move beyond doom-and-gloom and hype-and-hope discourses. A common mode for doing so is through empiricising detailed practices of digitalisation and their politics, which often deflate tech-driven discourses and show more nuanced politics of digitalisation and its consequences. A second increasingly common mode is through getting involved in remaking digital practices. This mode is related to work in STS Making and Doing (Downey and Zuiderent-Jerak 2021), but also draws upon long histories of participatory design and computer-supported cooperative work.

What both these modes leave out, is the work of undoing mainstream, problematic, and at times – pardon our French – bullshit practices of digitalisation, which may be crucial for attempts to contribute to transformations of digitalisation that is ongoing in fields like health care. It has recently been argued that digitalisation is making citizens feel breathless, and there is a need to develop breathing spaces for digital futures (Ruckenstein 2023). Breathing space safeguards the ability to think critically, reflect on, and foresee complex socio-technical developments. It is a response to the need to envision digital developments unrestricted by disciplinary conventions, policy expectations and funding pressures.

This panel wishes to bring together scholars who experimentally explore practices of making and securing breathing spaces in digitalisation and/or undoing bullshit digitalisation practices. We welcome contributions that are speculative, experimental, traditional, or all of the above.

12 JUNE 2025 11.30 - 13.00

ROOM B5.1

ID 256 - Generative AI and Emerging Digital Transformations: Rethinking Digitalisation Narratives in the Digital and Creative Industries

Martin Berg, *Malmö Universitet*

Keywords: Generative AI, Emerging digital transformations, Digitalisation narratives, Digital and creative industries, Socio-technical imaginaries

This paper shares initial findings from an ethnographic pilot study exploring how advanced digital transformations, particularly through Generative AI (GenAI), are reshaping the work of tech professionals in the digital and creative industries. Adopting a socio-technical and future-focused perspective, the study critically examines how these professionals explore, challenge, and at times reinforce techno-optimistic narratives while engaging in everyday practices that both question and sustain digitalisation narratives. By acknowledging the complexities, inconsistencies, and unpredictabilities inherent in advanced digital transformation, this paper underscores the necessity of dismantling misleading visions of automated futures, emphasising the real experiences and anticipatory practices of tech workers. It scrutinises what this panel identifies as "bullshit digitalisation" – practices driven by hype rather than substantial progress – and seeks alternative frameworks for critical reflection, enabling the emergence of socio-technical visions of diverse futures. Overall, the paper aligns with a future-oriented social science agenda, highlighting the importance of anticipating and critically addressing the social and technical consequences of digital transformation, centring on human experiences and agency.



12 JUNE 2025 11.30 - 13.00

ROOM B5.1

ID 564 - Thinking through bullshit technologies

Sanntu Räisänen, Helsingin yliopisto

Zhuo Chen, Helsingin yliopisto

Tuukka Lehtiniemi, Helsingin yliopisto

Keywords: Bullshit, Digitalisation

Bullshit technologies abound but are undertheorized. In this paper, we propose to explore the work that the identification of "bullshit" can do – not only as a pejorative but as an analytic concept – for our understanding of contemporary technoculture. Harry Frankfurt (2009) theorizes bullshit as speech that is "unconnected with a concern for truth." This distinguishes bullshit from outright deception or lies and, according to Frankfurt, explains the growing tolerance of bullshit speech. With a similarly social-epistemic concern to proliferating empty speech in corporate life, Mats Alvesson's and André Spicer's concept of "functional stupidity" (2012) proposes an organisational diagnosis: a collective dearth of reflexivity and criticality that occasions complicity in practices like buzzword bingo. Indeed, according to Spicer (2020), bullshitting is a game: people in contemporary work communities are encouraged to play, and when they do it well, they can win big.

In this presentation, we draw on those mentioned above to approach bullshit technologies as a productive social practice. Specifically, we explore bullshit technology as a discursive gimmick unbound from truth, one in which would-be technologies occasion disregard for the gap between statements of current capacities and future hopes. Importantly, bullshit technologies enable certain efficacious acts. These can include professions of faith, demonstrations of innovation, and performances of projects, for example. These acts can produce narrative contexts for broad efforts, reaffirm individuals' identities as technologists, and ward off public judgments of failure. Furthermore, they allow technology projects to keep going despite the unsettled nature of technology itself and can allow various side projects or instrumental runoff to flourish. At the same time, bullshit technologies are costly: wasting resources and eroding public values yet persisting despite a lack of clear evidence for their functionality.

This presentation draws on three extended case studies of socially revolutionary technology projects that were in many ways successful despite being understood to be unattached from current socio-technical realities. One case concerns the construction of a Citizen's Digital Twin for nudge-based welfare interventions, another creating a new paradigm for personal data control and commodification called MyData, and the third, an urban digitalisation initiative, City Brain, launched by a Chinese science hero. Rather than making a judgment about the bullshit-ness of these or any other examples, we aim to show what is achieved by analysing would-be technologies through the concept of bullshit. Through these illustrative cases, we take seriously the serious nature of bullshit technology and the significant work it does as a social practice. We contend that we cannot effectively advance the good in technoscience without profoundly understanding the nature of the proliferating bullshit that is produced in its wake.

12 JUNE 2025 11.30 - 13.00

ROOM B5.1

ID 566 - Doing eHealth Right (or wrong?): The Push and Pull of inclusive health technology

Jessica Coetzer, Vrije Universiteit Amsterdam

Teun Zuiderent-jerak, Vrije Universiteit Amsterdam

Keywords: Digital healthcare, health technology, health justice, transition arenas

The transition towards increasingly digitalised healthcare systems in snowballing, with the push towards efficiency gains leaving patients and healthcare workers feeling breathless rather than empowered. Whilst the explosion of digital care options might be suitable for many, there are still a large number of individ-



uals who face exclusion from digital healthcare due to a myriad of intersectional factors that stem from an inherently exclusionary socioeconomic and political systems. If we took the time to stop, breathe and understand what is at stake, we could find alternative ways of doing that promote inclusive digital care.

At the same time, the (at times, relatively unregulated) sprint towards innovation is resulting in BS technology that is (at 'best') ineffective and (at worst) actively exclusionary of groups that could benefit the most from effective and tailored care. Digital solutions are being proposed and developed to solve a myriad of health systems issues – healthcare worker shortages, increasing long term care cases, administrative backlogs – all without stopping to consider who these solutions are for and how they are used and experienced in a complex network of human and non-human actors.

We draw on our ongoing fieldwork focusing on health technology in the Netherlands to explore these pushes and pulls in the arena of inclusive digital care. We work with partners engaged in this tug-of-war; the top-down push of technology as a healthcare solution and the bottom-up pull of those trying to manoeuvre digital care towards a more inclusive, problem-centred space. From this bidirectional approach, we create a transition arena in which we simultaneously pull towards "Doing eHealth Right" and push towards "Preventing eHealth Done Wrong" so as to make space for more inherently inclusive ways of doing digital care. Infrastructuring (verb!) inclusive technology through practice, guidelines and policy, if you will.

In this abstract submission, we propose an interactive work-in-progress-type session. We hope to use the session itself as a breathing space: to take stock of our experiences with inclusive health technology, to share our fieldwork examples and to explore ideas that could aid a more nuanced portrayal of the push-and-pull dynamics at play.

12 JUNE 2025 11.30 - 13.00

ROOM B5.1

ID 801 - Piña Colada for Breakfast

Carla Greubel, Universität Graz

Keywords: BS digitalisation, health and ageing innovations, big tech, power, STS making & doing

Responding to the call of panel 67, in my presentation I share insights from my PhD research where I analysed and intervened in the making and unmaking of what might be called an example of "bullshit practices of digitalisation". In particular I reflect on interfering sets of practices, logics and relational power dynamics that allowed "bullshit practices of digitalisation" to emerge and to (partly) be undone.

The empirical case that I draw upon is situated within a European research and implementation project on digital health and care technologies for the prevention and monitoring of chronic diseases among older people. In one of the health prevention use cases, a multinational consumer technology company was involved in piloting a recipe recommendation app with older people in the south of Italy. Confronted with a 'lack of user engagement', company partners had asked our team of social scientist on the project to help them find out why the older people did not use the recipe recommendation app and what could be done to increase user engagement. Drawing on ethnographic research methods and the STS making & doing approach, I did not simply adopt the problem definition pre-set by actors in the field but rather sought to re-frame problem definitions in order to identify moments of friction through which to engage with the field.

Piña Colada for breakfast points to one of the frictions I encountered. Beyond questions of an alignment of the recipe recommendation app with the eating habits of older people in the south of Italy, or the usefulness of breakfast recipes like Piña Colada for the aim of preventing chronic diseases and supporting healthy lifestyles, what requires attention is the surprise with which company partners reacted when I presented my fieldwork results. None of the company partners I talked to knew what kinds of recipes their app was sending out to the older people. Realising that they unwillingly had contributed to a 'disaster' (their own words), company partners expressed relief about the 'lack of user engagement' that initially they had framed as their core problem. Two weeks later the food recommendation system was pulled out of the pilot study.



In my presentation I engage with critical STS inquiries into power and big tech to discuss different possible readings of the relational power dynamics observed. I conclude with a reflection on what we can learn from this case about the conditions under which problematic digitalisation practices can flourish, why and for whom / what they are problematic in the first place and what possibilities there are for undoing bullshit practices of digitalisation.

11 JUNE 2025 17.00 - 19.00

ROOM B3.3

Panel 68. Infrastructural Perspectives on Sufficiency Practices and Policies: Exploring the Materialities and Politics of 'Doing with Less'

Convenors:

Olivier Coutard, Centre National de la Recherche Scientifique

Daniel Florentin, École Nationale des Ponts et Chaussées

Claire Le Renard, École Nationale des Ponts et Chaussées

Keywords: Infrastructures; Resources; Sufficiency; Practices; Politics

Within the broader 'material turn' in humanities and social sciences and given the increasing awareness that ours is a constrained world, issues pertaining to material resources have recently gained salience in infrastructure studies. The major role played by dominant forms of infrastructure development and operation in processes of resource metabolization – i.e., their extraction, depletion, transformation, and degradation – for social purposes of all kinds and the associated general deterioration of the environment is increasingly acknowledged (Cahen- Fourot and Magalhaes, 2023). Recent STS scholarship has examined policies and practices of 'doing with less' (i.e., ultimately, with less resource metabolization), which generally involve the discontinuation of socio-technical systems, be they small or large (Goulet and Vinck, 2022).

In spite of this awareness, and at the same time as they foreground resource (esp. energy) efficiency, current infrastructural developments and dominant visions of collective futures – 'low- carbon, smart, and resilient' – tend to perpetuate patterns of intensive resource metabolization in at least two ways. Firstly, they generally involve massive forms of infrastructural accumulation, in which new (smart, renewable energy, local...) infrastructural layers are systematically added to existing layers (Souviron, 2022). Second, they help sustain the illusion that increased resource efficiency preserves the possibility not to question broader patterns of production and consumption and established lifestyles (Shove and Trentmann, 2019).

The proposed session invites contributions that challenge this dominant perspective and consider the material and infrastructural implications of sufficiency policies and practices. Possible themes for contributions include, but are not limited to:

- conceptualisations of how to handle the material legacy of resource-insensitive infrastructural models, such as what are designated as negative commons, infrastructural ruins, or zombie technologies;
- experiences of infrastructure repurposing aimed at radical dematerialization, resource and ecosystem (re)generation, or/involving the redirection away from resource: intensive practices (whether daily-life or organisational);
- knowledge infrastructures equipping or sustaining policies, practices and experiments aimed at a radically lower level of consumption of energy and material resources;
- resource-sensitive practices of care for and maintenance of infrastructure (including emerging frugal digital perspectives) and their organisational, material and political implications.

References:

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Souviron, J. (2022). *Glazing Beyond Energy Efficiency: An Environmental Analysis of the Socio- Technical Trajectory of Architectural Glass* (Doctoral dissertation, Université Libre de Bruxelles, Belgium).



11 JUNE 2025 17.00 - 19.00

ROOM B3.3

ID 316 - Institutionalized infrastructure disruption: the case of composting in Mexico City

Andrea Bortolotti, Politecnico di Milano

Louise Guibrunet, Universidad Nacional Autónoma de México

Keywords: infrastructures, waste management, composting, Mexico City

On 40 hectares of federally owned land immediately outside Mexico City's borders stands what is one of the largest municipal solid organic waste composting sites in the world. The site is located in the area once occupied by the Bordo Poniente mega-landfill, in operation until 2011. Prior to its closure, the diversion of organic waste from landfills had become a priority in Mexico City's waste programs and policies. The goal was to promote source separation of organic waste and the reduction of waste going to landfills. As an alternative to landfilling, the city government has turned to industrial composting, a relatively low-tech, low-cost technique implemented in other cities. However, the infrastructure implemented to metabolize the city's organic fraction soon ran up against the difficulty of managing massive volumes of (poorly) source-separated material and, at the same time, recirculating the product of its processing, compost. Combining data on material flows with information on organic waste management policies and techniques in Mexico City, the paper analyses the critical operation of an urban metabolic infrastructure and its impact on resource transformation. The results highlight how the rhetoric of composting as a controlled and efficient process to produce organic soil amendment from organic waste conceals the problem of contamination at the source with inorganics and the risks of their migration into urban green and agricultural areas. Ultimately, the notion of institutionalized infrastructure disruption is proposed to describe the reproduction of a poorly functioning sociotechnical system that is maintained to avoid much worse collapses.

11 JUNE 2025 17.00 - 19.00

ROOM B3.3

ID 584 - Doing with less while doing more? An infrastructural perspective on second-home living

Hannele Toivonen, Lappeenranta-Lahden teknillinen yliopisto

Jenny Rinkinen, Lappeenranta-Lahden teknillinen yliopisto

Sanna Tegel, Lappeenranta-Lahden teknillinen yliopisto

Keywords: Multi-local living, sufficient practices, metabolisation processes, spatiotemporality

Social practices are spread across different places, shaped by diverse infrastructures of material provision and institutional rhythms. Modern life is characterized and enabled by infrastructures with high metabolic flows, defined by the spatial distances between resource extraction, transformation, waste disposal, and their negative impacts on ecosystems and biochemical cycles (Coutard & Shove, 2024).

Multi-local living arrangements have become increasingly common, with many people inhabiting second homes that are less connected to large-scale infrastructures with high metabolic flows. In these arrangements, resource provisioning – such as energy, water, and food – can depend less on centralized systems. In Finland, and elsewhere in the Nordic countries, a prominent example of this type of multi-local living is the tradition of visiting a summer cottage. Typically situated in rural areas, these cottages are often less equipped than primary homes. Activities at the cottage commonly include berry picking, fishing, repairs, chopping and collecting firewood, swimming, and rowing – practices that exemplify "doing with less". These activities can be characterized by low metabolic flows or, alternatively, as "sufficient practices". While visiting a modest cottage may provide a retreat from daily urban life and an opportunity to engage in sufficient practices, it simultaneously contributes to higher resource consumption, raising questions about the sustainability of such practices. Cottages are more often equipped with electricity and home appliances, and multi-local living tends to consume more resources than staying in a single location.



This paper examines the dynamics between primary and secondary home living, and the arrangements and interrelations of practices with high and low metabolic flow. Using a "zooming-in and zooming-out" approach, the paper analyses material settings and temporalities of practices in different spatial settings. By "zooming-out" the paper identifies sets of practices and their resource use in different spatial settings, enabling an analysis of the similarities and differences between the different ways of living. "Zooming-in" to the temporal duration and sequence of practices provides a more detailed analysis of the organisation of life in different settings. The study contributes to the research on infrastructures and sufficiency by analysing the arrangements enabling sufficient practices and the processes of engagement and disengagement in these practices. It also contributes to practice-theoretical research on secondary spaces. The study aims to offer insight into the interrelations between space, time, resource use, and practice.

Additionally, it seeks to provide a deeper understanding of the conditions that foster sufficient practices and how these are linked to, or sometimes in tension with, other ways of living.

11 JUNE 2025 17.00 - 19.00

ROOM B3.3

ID 597 - Living with less: the politics and poetics of technical sobriety

Morgan Meyer, Mines Paris – PSL

Keywords: bricolage, technology, low-tech, sobriety

Wood, raw earth, textile, recycled objects, home-made tools: different kinds of materialities are prominent in contemporary discussions about frugal and ecological lifestyles. My paper looks at these materialities and the practices and politics they entail.

The specific gestures that make up these practices are manifold, including sawing, welding, grinding, painting, screwing, fermenting, gluing, and so on and so forth. As such, this bricolage is not something new: do-it-yourself has become a social phenomenon in the 1950s and 1960s, with dedicated shops, tools, magazines, and programs. By the end of the 1990s and early 2000s, there has been a second wave of institutionalisation of do-it-yourself, with the emergence of new spaces - FabLabs, makerspaces, etc. - and new tools. What we observe today, compared to these historical precedents, is a rather strong entanglement between bricolage and ecological concerns. Actors involved in low-tech projects - using raw earth for construction, living in low-tech wooden habitats, handling self-constructed tools on a daily basis - narrate their relationship with technology as a means to care about nature and the environment.

These low-tech projects require knowledge-intensive networks and infrastructures. Considerable efforts are put into the making and sharing of wikis, tutorials, and other kinds of documentation and repositories, as well as the organisation of traineeships, workshops and courses. The idea is not just to do bricolage at home, on an individual basis, but to build collective spaces to share knowledge. These knowledge infrastructures have a variety of political aims: to demonstrate that bricolage is ethical and feasible, but also that it is fun and desirable. My argument, in short, is that experimentation and construction go hand in hand with demonstration and narration. Scholars need to capture both the politics and poetics of technical sobriety.

11 JUNE 2025 17.00 - 19.00

ROOM B3.3

ID 606 - SLIGHTLY ELECTRIC

Fabrizio D'angelo, Università Roma Tre

Keywords: urban planning, energy efficiency, energy sufficiency, energy consumption

Urban environments consume vast amounts of the world's primary energy, not only for large-scale processes, but also to support less evident and fragmented domestic activities. In fact, residential sector - at least in Europe - accounts for a quarter of total final consumption, with more than half used for indoor



climate control. To address this disproportionate consumption, EU policies and Western design cultures support the "efficiency" paradigm, interpreted as the technological modernisation of housing systems (e.g., high-efficiency HVAC, thermal insulation, LED lighting, energy monitoring systems, etc.). Conceptually, efficiency refers to the property of a process to use energy "better" by improving some conditions, but this does not necessarily imply a reduction in consumption. In this interpretation, energy is considered just a resource supplied in response to a non-negotiable demand and, consequently, treated as a standardised commodity quantified in agreed units. If energy consumption is a standard outcome, then the space in which it occurs is completely neutral and treated as a support to "place a machine". This neutrality consequently affects architectural and planning practices, unable to design energy solutions within specific socio-spatial dynamics and characteristics. For all these reasons, it is increasingly evident that efficiency policies are not universally suitable for all contexts and all people. For instance, there are limited applications in existing buildings, often subject to stringent regulations, fragmented into multiple ownerships, and equipped with technological configurations hard-to-retrofit. Furthermore, supporting financial instruments have primarily benefited the upper-middle class such as homeowners and users with stable incomes and financial capacity, excluding a large social component.

At this point, it is possible to assume that efficiency alone is not enough and may even be revealed as an inequality driver. New visions are needed, and paradoxically, they could come from those contexts that "resist" these policies, where constraints and inertia force thoughtful solutions within limited means, based on the smart management of energy devices and particularly attentive to prioritising and thus understanding energy needs. This approach speaks more about social practices and local contexts than technologies and financial instruments. It overturns the passive role of the users in favour of a more active role as inhabitants who understand and manage their energy services. All this aligns with the concept of "energy sufficiency", which focuses not on improving energy consumption performance but rather on mitigating the conditions that create the demand.

Based on this assumption, the proposed contribution presents the initial findings of an ongoing research project titled "Electro-Domestic Landscape" based on the neighbourhood of Ostiense in Rome. Using mixed methodologies, including cartographic representation and interviews, and employing various tools such as drawings and maquettes, the research explores the influence on energy practices of domestic and urban spaces and local climatic conditions, particularly concerning comfort management. Many workshops conducted with inhabitants in their homes, as well as experiments on energy mitigation devices in public spaces, are providing qualitative insights, constantly balanced between transcalar perspectives and considering contextual aspects that may seem apparently unrelated to energy.

11 JUNE 2025 17.00 - 19.00

ROOM B3.3

ID 754 - Materiality of resistance to doing with less in the energy transition

Tom Cronin, Danmarks Tekniske Universitet

Julia Kirch Kirkegaard, Danmarks Tekniske Universitet

Keywords: Energy, sufficiency, infrastructure, resource, Power-to-X.

Most countries are in the middle of, or embarking on, a process of transforming their energy infrastructure, the main motivation being the need for decarbonisation in order to limit the threat of climate change. In the process of this transition, there are typically three overall strategies that are prominent: substitute carbon fuels with energy from other (preferably renewable) sources; use energy more efficiently both in processes and end uses; and limiting the consumption of energy, sometimes referred to as sufficiency. Our interest is in the socio-material barriers that sufficiency meets in practice when infrastructures undergo (or are predicted to undergo) radical transformation. In this, we use the case of Power-to-X technology (PtX) in Denmark, on which has been pinned high hopes of decarbonising energy-consuming sectors. PtX uses renewable energy to produce green hydrogen, which is then further converted to e-fuels, fertilisers and plastics, amongst other products, to further tackle hard-to-abate carbon emissions. Powerful imagi-

naries have formed in recent years around PtX from politicians and industry, as e.g. evidenced in energy scenarios depicting the expected energy future, and predicting a rapid increase in the use of PtX and the required exponential rise in energy production from renewables. Critical voices, however, argue that PtX may just perpetuate intensive resource metabolisation, continuing business as usual, rather than making way for energy sufficiency and pathways to 'doing with less'. Based on document studies and interviews with officials in the Danish Energy Agency, we follow energy scenarios related to PtX and the narratives surrounding them as they participate in creating a dominant vision of a collective PtX future founded in a valuation of energy efficiency: PtX is namely predicted to increase energy efficiency by optimising wind power production so more energy can be produced from a finite wind resource in order to 'feed' into PtX production, and is predicted to be able to overcome the issue of otherwise 'wasted' excess wind power that cannot be transmitted to the power grid to be used for PtX production instead. Further, we show how PtX technology is attributed with value as it can seemingly help to repurpose existing infrastructures such as natural gas pipelines and build upon existing transmission lines by justifying the addition of costly high-voltage direct current (HVDC) networks that can efficiently transport renewable energy across long distances. While argued to provide a silver bullet for solving cross-sector decarbonisation, energy efficiency hereby appears to trump concerns for energy sufficiency. Rather than being framed as a technology for energy sufficiency, PtX promotes continued growth and consumption. Based on our findings that PtX produces infrastructural accumulation and adding to existing layers, while concerns for sufficiency are marginalized, we discuss how PtX helps to avoid asking questions of how to 'do with less'. Our paper thus contributes to the literature on sufficiency as we detect a number of the socio-material resistances to infrastructural change for embarking on the path to sufficiency, displaying some of the materialities and politics of 'doing with less'.



Panel 71. Mapping Public Space through Participatory Data Narratives and Cartographies

Convenors:

Sonia Bergamo, Università degli Studi di Milano-Bicocca

Enrico Petrilli, Università di Torino

Francesca Valsecchi, Tongji University

María de los Ángeles Briones Rojas, Politecnico di Milano

Keywords: Participatory Cartography; Public Space Analysis; Human-Nonhuman Entanglements; Marginalized Practices; Stigmatized Actors

This panel explores participatory cartographies as critical tools for implementing a scientifically informed approach to data, particularly within the Science and Technology Studies (STS) framework for describing and analysing public space. These areas are analysed not only for their function as physical environments for social interactions but also as symbolic representations of the commons.

Participatory cartography approach emphasizes the involvement of local communities in the creation and use of maps, including the data collection and the construction of mapping narratives. Such an approach provides a framework for STS to build upon the instrument of ST while incorporating the social sciences' critical perspectives, fostering an inclusive, equitable, and context-sensitive understanding of spatial data. Participatory cartography challenges traditional divides between researchers and subjects by empowering communities and recognizing their unique knowledge and experiences. It advances representations that extend beyond mere geographical metrics, leveraging the combined strengths of quantitative and qualitative data for comprehensive, systemic insights. In doing so, it enhances the relevance and accuracy of spatial data, supporting a richer portrayal of public spaces.

Participatory cartography significantly supports STS data management. It integrates local knowledge and community engagement throughout data collection and analysis. This approach champions open access to data, data empowerment, and community ownership, positioning data as a tool for informed public policymaking.

The goal of the panel is to explore and document the complex entanglements within public spaces, examining both human and non-human agencies in the collective knowledge domain. Special emphasis will be given to marginalized practices and "stigmatized actors" (such as unhoused individuals, youth, non-human species, and non-normative social practices) often sidelined in policy discourse. Employing a diffractive methodology, we seek contributions that incorporate both human and non-human actors - including psychoactive substances, informal urban infrastructures, agents of gray economies, and ecological entities - offering nuanced perspectives on the environments they shape. Presentations are encouraged to promote epistemic justice by reimagining public spaces as inclusive, adaptive, and creative environments that address diverse needs across human and non-human domains.



11 JUNE 2025 14.30 - 16.30

SESSION 1

ROOM B2.2.12

ID 189 - Mappare la Giustizia: Cartografia Digitale Partecipativa e Ri-immaginazione Epistemica delle Storie della Hudson Valley

Sophia Acquisto, Rensselaer Polytechnic Institute

Keywords: historical education, geospatial data, digital cartography, participatory mapping, participatory methods

This presentation explores My Hudson History, a participatory digital mapping initiative designed to highlight underrepresented historical narratives in New York State's Hudson Valley. By engaging local communities and focusing on categories such as Native American history, African American history, and women's history, the project frames participatory cartography as a critical tool for promoting epistemic justice.

Rooted in an interdisciplinary framework of Science and Technology Studies (STS), My Hudson History integrates theoretical insights from works such as *Enforcing Normalcy* by Lennard Davis, *Suspending Damage* by Eve Tuck, and *Mohawk Interruptus* by Audra Simpson to challenge dominant historiographies and centre marginalised voices. The project critically reimagines public spaces as dynamic intersections between human and non-human agents, embedding ecological, cultural, and political dimensions within its cartographic narratives.

The presentation will outline the participatory methods adopted, including community workshops and crowdsourced data collection, which democratize the production of spatial knowledge and challenge traditional boundaries between researchers and subjects. By integrating qualitative narratives with geospatial data, My Hudson History provides a context-sensitive framework that prioritizes inclusivity, data empowerment, and community ownership.

Through this lens, the project positions public spaces not only as physical environments for interaction, but also as symbolic representations of contested histories and shared commons. In doing so, it responds to the panel's call to document the complex entanglements within public spaces, with particular attention to marginalised actors and practices often overlooked in political discourse. This presentation argues that participatory digital cartography is not merely a method for mapping spaces, but a transformative tool for reconfiguring the sociotechnical infrastructures of historical knowledge, fostering adaptive, inclusive, and creative environments in the process.

11 JUNE 2025 14.30 - 16.30

SESSION 1

ROOM B2.2.12

ID 223 - Mapping of more than human temporalities in the urban realm through participatory art-based methods

Hadas Zohar, Aalborg Universitet

Keywords: more than human, participatory mapping, art-based methods, temporality

To design inclusive public spaces that accommodate diverse needs, we must consider the broad range of humans and more-than-human actors that inhabit these environments. A significant dimension of this diversity is temporality (Rose, 2012). Understanding what time means for different actors in various contexts is essential to capture their subjectivity, understand their motivations, and avoid generalisation. Temporalities encompass aspects such as ecological time, the generations of living things, synchronicities, intervals, patterns, rhythms and more (ibid). When we regard the complexity of more than human temporalities, we foster a nuanced and sensitive understanding of ecological entities and their contexts (Mareggi, 2013; Telleria, 2024).

However, comprehending this multiplicity is challenging. As temporality is often invisible (Couzens Hoy, 2009), time frequently remains intuitive without conscious thought (Dawson, 2014). Participatory mapping offers a means to gather and represent temporal data from various sources and make these hidden temporalities visible. Despite this potential, most maps convey a single temporality (Ferdinand, 2019),



leaving the complexity of time largely unexamined. In addition, while temporality is implicit in all mapping practices, it is seldom treated as a primary focus. Addressing this gap requires methods that foreground and explore the layered temporalities shaping urban life.

To bridge this gap, I explored how art-based methods (Letsiou, 2017), such as drawing and artefact-making, can facilitate participatory mapping of more-than-human temporalities in public spaces. My approach departs from the definition of maps as "a diagram or other visual representation that shows the relative position of the parts of something" (Merriam-Webster dictionary, 2024) and conceptualises mapping as a situated, relational, momentary, and process-oriented practice (Kitchin & Dodge, 2007; Zohar et al., 2024).

The study draws on six participatory design workshops conducted in Denmark and Sweden between 2023 and 2025, involving an anticipated 80 participants. During the workshops, participants collected qualitative data by observing and interacting with more-than-human actors using sketches, recordings, note-taking, photos, and material-gathering methods. This data was shared and processed with the other participants through a participatory mapping exercise, depicting more-than-human temporalities in the studied areas.

The findings highlight how art-based methods in participatory mapping can render temporality visible and accessible, fostering dialogue and negotiation among stakeholders in collaborative settings. Two primary approaches to mapping emerged from the study. The first, mapping as representation, focuses on "a questions of correspondence between descriptions and reality" (Barad, 2007, p. 133). In this approach, temporal understanding of the data is constructed through symbolism, metaphors, and meaning-making. The second, mapping as performative practice, emphasises active engagement with temporality as a dynamic, ongoing process.

11 JUNE 2025 14.30 - 16.30

SESSION 1

ROOM B2.2.12

ID 389 - Mycelial Meshworks: Towards a More-Than-(Just)-Human Approach to Mapping

Roger Paez, Elisava, Universitat de Vic – Universitat Central de Catalunya

Manuela Valtchanova, Universitat de Vic – Universitat Central de Catalunya

Keywords: collaborative mapping, more-than-(just)-human, mycelium, naturecultures, critical design

As both researchers and practitioners, we explore the fertile crossovers between art, design, architecture and the city through maps and mapping. More than mere systems of representation, maps are powerful tools to construe new understandings of the world and inform decisions to transform it. This is what we call operative mapping. This concept draws on the understanding that maps and mapping produce reality, rather than merely reproducing it. When maps' transformative potential is brought into play by radical forms of architecture and other spatial disciplines, maps and design cross over in a complex, creative, and productive relationship.

Our proposal for the 10th STS Italia Conference will address this fertile terrain and suggest ways to identify different modes of mapping agency in design. Specifically, we will present and discuss in depth a mapping project on the fringes of art, urban studies, and design, developing both a methodological angle (maps as design tools) and a thematic one (more-than-(just)-human mapping).

'Mycelial Meshworks' is a recent work that addresses a more-than-(just)-human approach to mapping through a project co-created between humans, computer scripts, and fungal mould framed by the notion of naturecultures (as entangled assemblages relating humans, other animals, and technology). As a starting point, the project takes a series of collaborative public space maps generated by the authors for Civic Placemaking, an applied research project that explores the relation between design, public space, and social cohesion. We then curate a 'mapping the maps' series to explore how three different agents (computer algorithm, unbiased human, OTH life forms) react to the same base maps, connecting them graphically through an automated, reactive mycelial meshwork. By exploring the growth of three distinct meshworks based on the unbiased reactions to the graphic components of the initial maps on the part of



three very different agents (script, hand, mould), the aim is to expand mapping practices through a mycelial approach, enacting mechanisms of accidentality, plurality and visual (dis)order. The resulting 'mycelial mapping' explores accidents as opportunities, in which iterative (computer, human, fungal) protocols and chance-based graphic relationships potentially open new avenues for critical design action. What type of narratives will these new maps generate? What type of actions will they allow us to conceive? What type of more-than-(just)-human 'public spaces' will they prompt?

There is a quite literal resonance between mapping and mycelia: both are blind systems that let us see. Both mapping operations and fungal hyphae grow based on simple, iterative logics that result in complex meshworks. These meshworks reveal existing characteristics, potentials, and opportunities, while simultaneously generating a consistent environment that becomes the foundation for manifold transformative operations. In a nutshell, both maps and mycelia are digestive systems that transform the world and, in transforming it, open new paths for further transformations.

The overall intention is to explore a more-than-(just)-human approach to mapping to actively harness maps' worldmaking potential, using their symbolic and operative apparatuses not only to understand but to proliferate various (and fairer) versions of the world.

11 JUNE 2025 14.30 - 16.30

SESSION 1

ROOM B2.2.12

ID 460 - Co-designing participatory data visualizations to evaluate OpenStreetMap's equity: The good, the bad and the neutral

Carlos Cámara-Menoyo, University of Warwick

Timothy Monteath, University of Warwick

Selene Yang, Geochicas

Silvia Rivera Alfaro, Geochicas

Alejandra Canclini, Geochicas

Nicole Hengesbach, University of Warwick

Keywords: data visualizations, openstreetmap, equity, feminism, participatory research, co-design

This talk will present the implementation of a participatory codesign process to surface how neutrality is operationalised in OpenStreetMap (OSM) as well as some preliminary results about how it is succeeding or failing to foster equity and inclusion. OSM is the largest and more successful collaborative map of the world. Like Wikipedia, it is based on principles of participation, openness, and neutrality to "map the world as it exists". To that end, more than 10 million volunteers from different geographies and backgrounds contribute with their local knowledge to add new map features or improve existing ones. Its data, covering the entire globe, is so exhaustive and precise that it complements official data sources and populates thousands of tools and popular services. Moreover, the UN-backed Digital Public Good Alliance recognised in February 2024 OSM as a global Digital Public Good.

Enquiring about the world-views embedded in such a crucial project and their mechanisms to avoid inequities against vulnerable communities is critical to understand the values that it produces and reproduces. This is especially relevant in the case of OSM for two reasons. First, because maps shape reality as much as they are shaped by it, for example by influencing the perception of the world, exerting political power and control or affecting mobility, accessibility and consumption patterns, among others. Second, because OSM's community is estimated to be highly biased towards specific and hegemonic demographics, where white men from Europe and the US are overrepresented.

Our interdisciplinary research draws from critical geography and feminism to investigate how neutrality can be applied to either support or hinder equity. To achieve this, we are teaming up with Geochicas, a community-led organisation from Latin America whose mission is to close the gender gap in the OSM community. Together, we are implementing a transformative participatory process aimed at co-designing data visualizations.



For us, data visualizations are not just an output to communicate findings, but a research method used to mediate and provoke ideas, discussions, and reactions that arise from thinking with and about data and its representation, while producing and exploring the data and designing a visualization. Conversely, we understand participation and co-design as a way to consider the particularities of data, tasks, users, context of use and world-views of the participants, which is a condition for creating visualizations which are actually capable of being transformative.

The resulting visualizations will be different insofar they will be based on lived experiences and will be informed by feminist principles. As a result, they will be better suited to assess how minoritised demographics – such as gender, ethnicity, and sexual orientation – are involved, recognised, or excluded in data production and decision-making within OSM, while also empowering our participants.

We expect our findings to be returned to OSM and inform potential transformation in OSM's governance, database, and representation that are guided by equity principles. More broadly, we expect the findings to be adapted to other cases of digital goods and initiate similar transformations.

11 JUNE 2025 14.30 - 16.30

SESSION 1

ROOM B2.2.12

ID 530 - FLUMEN, mapping cities and landscapes from the river's perspective

Francesca Valsecchi, 同济大学 (Tongji University)

Andrea Conte, Futurecologies

Lu Wentao, 同济大学 (Tongji University)

Saverio Silli, 同济大学 (Tongji University)

Keywords: climate justice, bioregion, river wellbeing, citizen science

Designing with a more-than-human approach is becoming a meaningful practice in every field of research, from societal, environmental and scientific perspectives. Nevertheless, regardless of the importance of considering the non-human in all aspects being theoretically consolidated in trans-disciplinary practice, in reality, we are still far from seeing this approach widely embodied in applications and solutions. One major challenge is to apply and practice many different lenses to consider the non-human. The trans-disciplinary practices are producing solid proof-of-concept to demonstrate how experimental research can support the implementation of multiple points of view.

In this paper, we discuss the project "FLUMEN – Climate Actions" as a multidisciplinary project between art, science and environmental and social activism, about the rivers and riparian green spaces. The project aims to develop more-than-human consideration of datascape and data visualisation as instruments of environmental awareness.

FLUMEN project had different stages of implementation, and a structured research methodology, which included data collection, analysis, visualisation, and public advocacy and span through different countries and water bodies: the Yangtze River in China, the Tiber and Aniene Rivers in Italy and the Pinheiros River in Brazil. The methodology includes participatory data sampling through sensors, as well as large-scale data mining of environmental opendata. Citizens conduct the sampling process, by sampling macrophytes plants as bioindicators for the river condition and water pollution. The artistic and scientific output of the research raises the environmental awareness of the public. In the paper we describe three case studies across the countries, explaining different methodologies and presenting the art-based outcomes as conversational tools for the public to be engaged in local bio-regional conversation and ecological advocacy.

In the case of Rome, we collected scientific data on the quality of river waters through a series of activities aimed at an audience of all age groups, with support from our scientific partners to conduct lab analyses and to learn the basic techniques for water quality analysis and monitoring. In Shanghai, open-access datasets have been utilised to understand the temporal transition and evolution of river wellbeing. The art-based outcomes (sculptures, 3D fabrication vis, public performances, open data sets, etc.) are forms of alternative mapping which show perspectives - voices, if we use a deep ecology approach - able to kickstart



a more-than-human conversation on the urban ecology through an interpretation framework of bioregion understanding. The artistic outcomes enhance the value of open conversations about ecological subjects and contribute to the definition of a more-than-human mapping narrative through intuitive representations of the socio-ecological systems behind the river waterscapes.

Rivers have always been fundamental to civilizations and to the life of all living beings, how has the relationship between people and rivers changed over time? What if we try to tell a story from the river's point of view? The science-informed artworks are the starting point for an open conversation about possible ecological scenarios and intersectoral best practices for an Ecological Transition and Climate Justice.

11 JUNE 2025 14.30 - 16.30

SESSION 1

ROOM B2.2.12

ID 599 - Facilitating Urban Data Visualization Dialogues with the UDV Card Deck

Damla Çay, Moholy-Nagy Művészeti Egyetem

Till Nagel, Technische Hochschule Mannheim

Sebastian Meier, Fachhochschule Potsdam

Keywords: Urban Data Visualization, Participatory Design, Critical Reflection, Collaborative Workshops, Card-Based Tools

Urban data visualizations are powerful tools for interpreting and communicating the complexities of cities. However, designing such visualizations in ways that inclusively capture diverse urban perspectives remains a challenge. In response, we introduce the Urban Data Visualization (UDV) Card Deck, a collaborative design framework intended to facilitate reflective conversations and co-creation among urban stakeholders. The card deck operationalizes the theoretical dimensions of urban visualization design into a tangible tool that supports both critical reflection and ideation in workshop settings. By translating abstract design principles into accessible cards, the UDV framework bridges the gap between academic discourse and practical application, enabling participants to discuss topics such as data quality, contextual relevance, inclusivity, and citizen trust in a structured yet engaging manner.

Developed iteratively through case studies, the UDV Card Deck comprises three distinct types of cards: consideration cards, dimension cards, and dimension axis cards. Each consideration card prompts discussion on key topics, from the ethical implications of data collection to the clarity of visual narratives, while dimension cards provide a high-level overview of critical design axes, such as task complexity and information literacy. Dimension axis cards visually represent each dimension, enabling the calibration of visualizations along a continuum. For example, the audience dimension can range from novice to expert. This allows stakeholders to examine an urban visualization from multiple angles and collaboratively deliberate on potential improvements.

We evaluated the UDV Card Deck across four case studies where we used the deck for ideation and reflection activities. In the ideation activities, stakeholders collaboratively designed urban data visualizations addressing real-world challenges, employing the UDV cards to navigate competing needs and constraints. In reflection activities, participants used the deck to critically evaluate existing urban visualizations, identifying strengths and weaknesses. In these sessions, participants included researchers, practitioners, domain experts, and students. Findings indicate that the card deck fosters rich and focused discussions. While initial iterations of the card deck were sometimes perceived as overwhelming, subsequent refinements, such as reducing textual density and clarifying card functions, helped streamline the user experience. Furthermore, survey responses from later case studies confirmed that the cards positively influenced idea generation, group consensus, and the overall critical appraisal of urban visualization strategies.

The UDV Card Deck thus offers a flexible, scalable framework to foster participation in urban data visualization design. Its adaptability ensures that it can be used not only as a co-design tool in workshops but also as an educational resource for understanding the critical considerations inherent to urban visualization. By making explicit the design choices and their underlying rationales, the card deck empowers users to



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create more transparent, inclusive, and context-aware visualizations. In doing so, our work contributes to the broader discourse on critical data visualization and highlights the potential of collaborative, card-based methodologies for bridging the gap between theory and practice in urban visualization design.

ID 605 - The Role of Researchers and Communities in Participatory Data Narratives and Cartographies

Sonia Bergamo, Università degli Studi di Milano - Bicocca

Keywords: Participatory research, Community-based cartography, Knowledge co-creation, Ethical data narratives

Participatory research methods, especially regarding cartographies and data narratives, demand a thorough examination of researchers' and communities' roles. This proposal explores the complex interactions among power, knowledge creation, and participatory involvement in mapping public areas. The key questions driving this investigation include: What is the researcher's role in these studies? How do communities participate in the process? What level of power-sharing is necessary to achieve ethical and meaningful outcomes research?

In participatory mapping projects, researchers act not as detached observers, but as engaged facilitators who develop methodological frameworks, uphold ethical standards, and mediate among diverse knowledge systems. In contrast to conventional research models that centralize expertise, participatory research distributes knowledge creation, incorporating personal experiences and localised epistemologies. This transition questions the researcher's authority and requires a new understanding of expertise as something co-created rather than imposed from a central authority.

Communities and research subjects actively co-create knowledge rather than merely serving as passive informants. Their insights from experience, collective memory, and spatial practices are crucial for participatory cartography. Genuine participation goes beyond inclusion; it necessitates equitable agency in formulating research questions, analysing data, and applying results. Without this agency, participatory methods can turn extractive instead of empowering.

Community-based participatory research can differ significantly between projects, from genuinely involving affected communities in study design and data gathering to creating experiences akin to underpaid temporary work. This contribution underscores the substantial value residents of spatially stigmatised neighbourhoods associate with community-based participatory methods. However, it also reveals the risk that CBPR initiatives might reinforce hierarchies and perpetuate stigma, mainly when CBPR principles are only partially implemented.

Power-sharing in participatory research should be both a core principle and a symbolic gesture. This involves nurturing reciprocal relationships where decision-making authority is collaboratively shared, and research outcomes benefit the communities involved. Ethical participatory research must address structural inequalities, ensuring that the advantages of knowledge production extend beyond academia to impact local policies and advocacy and empower community initiatives.

To sum up, this proposal highlights the need to shift the researcher's role from an authoritarian expert to a cooperative partner. It promotes a model of shared power, allowing communities to significantly shape research paths and results. By integrating participatory ethics into data narratives and maps, we can encourage more inclusive and socially equitable knowledge practices that align with both academia and the communities involved.



11 JUNE 2025 17.00 - 19.00

SESSION 2

ROOM B2.2.12

ID 652 - Community mapping with school kids in the Cinque Terre UNESCO site: key findings from a participatory project on cultural heritage, tourism and sustainability.

Riccardo Ramello, Università degli Studi di Milano – Bicocca

Erica Meneghin, Fondazione Santagata

Keywords: Community Mapping, UNESCO, Community Engagement, Environmental Sustainability

Community mapping is an essential tool for democratizing spatial knowledge, empowering local voices, and fostering inclusive decision-making in public space governance (Chapin et al., 2005; Perkins, 2007; Brown & Kyttä, 2014). UNESCO and international agencies also support the importance of community engagement processes, with a focus on empowering young communities (Lowenthal 1985; Ashworth 1994; Avrami et al., 2000; Wijesuriya et al., 2016, UNESCO, 2020).

This paper presents a community mapping project conducted in the UNESCO site Portovenere, Cinque Terre and Islands, led by Fondazione Santagata for the Economics of Culture. The project involved local young people in a collaborative process to document how they perceive, experience, and interact with the cultural and natural values of their environment, shedding light on the challenges and opportunities of public space in a territory shaped by both heritage conservation and safeguarding and tourism pressures.

Through community mapping sessions 230 students aged 10-13 years old, reflected on issues of accessibility, environmental sustainability, social interactions and cultural heritage (Amsden & VanWynsberghe, 2005). The mapping process revealed tensions between local citizens' needs and overtourism, illustrating how mass tourism affects daily life, access to public spaces, and the ecological balance of the region (Butler & Dodds, 2022). By incorporating young people's voices, the project highlighted issues such as the loss of communal spaces, the fragility of the landscape due to unsustainable foot traffic, and the need for more inclusive and youth-friendly public areas.

This contribution aligns with the panel's focus on participatory data narratives by showcasing how community-driven cartography can contribute to more inclusive policy making processes. It argues for spatial justice and sustainability-oriented decision-making, demonstrating how participatory methodologies can empower local voices in shaping the future of their landscapes and communities.

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11 JUNE 2025 17.00 - 19.00

SESSION 2

ROOM B2.2.12

ID 682 - Mapping public space through feminist participatory cartography: data narratives, intersectional indicators, and urban justice

Elena Madiati, Politecnico di Milano

Benedetta Brun, Politecnico di Milano

Keywords: Participatory cartography, Intersectionality, Gendered Urbanism, Spatial justice, Data-driven policy making

Since the 1960s, scholars like Jane Jacobs, Paul Davidoff, and Giancarlo De Carlo have critiqued the prevailing model of urban planning, questioning its modernist and positivist foundations while emphasizing the political nature of planning decisions and their profound impact on social dynamics (Pacchi, 2018). Feminist movements deepened the critique of urban space by highlighting its role in reinforcing gendered inequalities, with feminist urbanists advocating for autonomous spaces and dismantling traditional societal roles (Hayden, 1980; Wekerle, 1985). This discourse led to the recognition that urban environments reflect and actively shape social hierarchies (Soja, 2010; Sandercock, 1998; Missana, 2022). Similarly, recent research shows how gender, race, and power dynamics shape the production, interpretation, and use of data for knowledge-building (Criado Pérez, 2019; D'Ignazio & Klein, 2020; Kern, 2020; Leonelli, 2019).

Building on these theoretical foundations, we have made a significant methodological advancement by developing a participatory mapping method that applies feminist principles to urban space analysis. We are preparing a workshop scheduled for Summer 2025 at Politecnico di Milano (ITA), drawing inspiration from Mapea! Taller de Cartografías Colectivas con Perspectiva de Género (Facultad de Arquitectura Diseño y Urbanismo, 2022), a participatory mapping program developed in Uruguay. Focused on Milan neighborhoods, this method integrates feminist cartography, participatory planning, and intersectionality to examine how urban spaces contribute to social inequality.

Our approach combines quantitative data analysis with qualitative sensory fieldwork, allowing participants to develop indicators of exclusion and injustice, especially from a gendered perspective. These indicators inform a collaborative mapping process that results in a shared cartography. The method's unique contribution lies in its ability to synthesize numerical and experiential data, offering a richer and more nuanced representation of urban space than traditional mapping techniques.

A key feature of this participatory approach is the co-creation of knowledge, which empowers participants to contribute their local knowledge. This aligns with principles of epistemic justice, positioning data as a tool for more inclusive and equitable urban policymaking. Shared cartography analyses public space and provides a theoretical framework for understanding the relation between space, power, and gender.

Applying this method in Milan presents both challenges and opportunities. The city's urban landscape – marked by economic disparities, migration, and gendered social dynamics – offers a rich context for exploring how spatial configurations contribute to exclusion and inequality. Milan's diverse neighborhoods, with their distinct social, cultural, and economic realities, provide an ideal setting for testing and refining participatory mapping as a tool for social change. The method also offers insights into how spatial configurations can be reimaged to foster more equitable public spaces.

Our methodological advancement contributes to the growing field of feminist urbanism and participatory cartography. This approach underscores the importance of gendered analysis in spatial studies and highlights how participatory methods can contribute to more inclusive, socially just urban futures.



ID 724 - Participatory mapping and civic engagement in a Roman neighbourhood

Maria Grazia Galantino, Università di Roma La Sapienza

Francesca Messineo, Università di Roma La Sapienza

Keywords: participatory mapping, civic engagement, Quarticciolo, vulnerable neighbourhoods, public space

This paper presents the findings of a research project part of a third mission initiative titled "NextCityLAB - Participatory Workshop on Civic Engagement for an Inclusive and Sustainable City".

The project adopts a participatory research framework, emphasizing reciprocity between researchers and participants, flexibility in the research process, empowerment and emancipation. It prioritizes dialogue between scientific and civic knowledge while fostering intergenerational and intergroup learning to drive social change. Particularly attentive to marginalised and fragile social contexts, participatory research seeks to address socio-economic vulnerabilities, but also the lack of voice and representation.

NextCityLAB has been implemented in Quarticciolo, a neighbourhood in Rome marked by visible socio-economic and socio-material vulnerabilities, drug-related criminality, and strong stigmatisation (Galantino and Messineo, 2024). Quarticciolo has recently been included in the so-called "decreto Caivano bis", a legislative act that has been met with criticisms due to its top-down and emergency-focused approach to deprived areas.

In this context, participatory mapping has proven to be a powerful approach for integrating the physical, relational, symbolic, and political dimensions of the neighbourhood, helping to articulate diverse actors' experiences, needs, and claims about public space as a common and collective good.

Two mapping workshops have been developed within the frame of the project. The first workshop, designed for post-graduates' sociology students, involved participatory observations and interviews with key local actors to map the neighbourhood's civic fabric, the resources available to civic actors and the shortcomings they face. The findings revealed inadequate public and private services, environmental degradation, abandonment of the neighbourhood public space, feelings of insecurity, perceptions of institutional neglect, and limited opportunities for youth. At the same time, they helped to map the community assets helping to visualize informal civic organisations, committed educational and religious institutions, and grassroots regeneration initiatives.

The mapping exercise served also to outreach to other organisations, groups and active residents which then participated in further activities (termed Living-labs) aimed at sharing experiences and knowledge about the community and imagining possible solutions. The second workshop, aimed at engaging students from the local school, P.R. Pirotta, was one of the projects that emerged from these dialogical spaces. Primary school pupils were thus invited to discuss, amend and enrich the map with visual tools to capture their experiences, emotions, and perceptions of Quarticciolo's public spaces. This process provided unique insights into the neighbourhood's challenges and opportunities and helped shed light on the mechanisms by which stigma is internalised, reproduced, and challenged at the grassroots level. Additionally, their input revealed deep feelings of positive attachment to the neighbourhood and highlighted the potential for transformative change as envisaged by local youth.

This initiative highlights how participatory research can catalyse practical and empowering interventions, effectively combining citizen and experiential perspectives with academic rigour. In this context, participatory mapping facilitates the elicitation and redefinition of symbolic territorial meanings, the co-design of solutions, and the empowerment of the community over top-down regeneration initiatives.



11 JUNE 2025 17.00 - 19.00

SESSION 2

ROOM B2.2.12

ID 848 - Co-forming space: cartographic data productions of urban spaces from the margins

Clancy Wilmott, University of California, Berkeley

Keywords: data, cartography, cities, resistance, participatory

This paper discusses two participatory mapping projects undertaken by studio.geo? (studiogeo.berkeley.edu) in the San Francisco Bay Area: the first, a collective and participatory mapping and data project with the Wood St Commons, an "unconventionally housed" collective of people living under the i880 in West Oakland from 2021-2024; and a collaborative cartographic production (first print, then now, digital) with the Sogorea Te Land Trust, an urban Indigenous women-led land trust focused on rematriating the Bay Area.

Drawing on theory from critical cartography, Indigenous geographies and urban studies, both projects offer not only mapping-as-a-practice (c.f. Perkins, 2009), but also seek to deliberately and actively intervene in the politics of cartography and GIS as colonial scientific practices, embedded in singular worldviews, universalizable ontologies, and calculable axioms (Woodward, 1992). The first with the Wood St Commons details the collaborative and embodied production of GIS database and a proposed site plan, which defies the classificatory regime of urban cartography in a city wracked by tech capital. Developed concurrently through industrialised lithographic printing and the solidification of city policy and planning, the statistical cartographic forms of nineteenth century colonial settlements - from cadastral to panoramic views - have not merely been an accessory to but rather a driver of the production of urban spaces, places and communities. This plan, instead, strives to project uncertainty and liminality into urban planning systems from not-yet-certain marginal spaces, in a city of people for whom property logics and formal infrastructure do not manifest. It is now the only enduring plan of a site which was once the largest unhoused people's encampment in the US and has been deposited into the Library of Congress. The second, *Before You Are Here* with Sogorea Te is a computational, data-centred and visual experiment in projection and orientation, striking at the universality of western cartographic practice which seeks to territorialize, segment, surveil (surveiller) and contain. Yet, over the course of the last three years, this collaboration has challenged a view from nowhere, to produce a multifaceted view from everywhere, as well as everytime, as it triangulates multiple data points between society, environment and history in a knowledge landscape where local Indigenous histories have been erased, siloed or obscured. The map collapses time into space through experimental graphic techniques, and dissolves the absolute and Cartesian into the relational, in line with Indigenous ontologies (Pualani Louis, 2016). This map, launched with Indigenous leaders from around the Bay Area, is on show at the Oakland Museum of California, in the *You Are Here* exhibition in the Gallery of Natural Sciences.

As such, both projects strike at the heart of tensions between cartographic interpretations of spatiality - from the geometric to the classificatory - and lived experiences of marginality, embodied knowledge and modes of resistance, and explore the ways in which these tensions can be productively employed as representational contests against domination and supremacy.



ID 387 - Participatory Cartographies for Health Territorialization: Mapping Care Infrastructures in Bologna's Navile District

Maddalena Crotti, *Università di Bologna*

Keywords: Care infrastrutture, Health territorialization, Mapping, Partecipation

This paper explores participatory cartography as a methodological and analytical tool for investigating the territorialization of health within the Science and Technology Studies (STS) framework. It focuses on the Navile district in Bologna, examining how mapping practices can support an inclusive and community-centred approach to care infrastructures. The research addresses key challenges in the governance of public health, including structural fragmentation, unequal access to resources, and the limited participation of citizens in decision-making processes.

Health territorialization is conceptualised as a dynamic process of spatial negotiation and co-construction, where care infrastructures are not only physical entities (e.g., hospitals, community health centres, etc.) but also relational networks that connect individuals, services, and policies (Borghi, 2024). Infrastructures are understood not only as material things but also as the relations between things (Borghi, 2024; 2021; Larkin, 2013), as tools that serve specific purposes, but also as devices that actively shape social life (Borghi, 2024). They form systems that contribute to creating the social, cultural, and political terrain upon which other actors – both human and non-human – operate (Graham & McFarlane, 2014).

Similarly, health is conceived as a polysemic, multifaceted, and flexible construct (Vallerani, 2021) that encompasses physical, mental, and social dimensions. By adopting participatory mapping as both a descriptive and transformative tool, this study highlights the potential of cartographic methods in capturing local knowledge, rendering invisible health resources visible, and fostering democratic engagement in public health (Rojas Martínez, 2016).

The paper draws from the case of the Casa della Comunità del Navile, a health facility undergoing a transition towards an integrated and participatory model of community care. The participatory mapping process involves local actors – including residents, health professionals, and associations – in co-producing knowledge on health infrastructures. This approach challenges traditional top-down health governance, advocating for a situated and relational understanding of well-being (Turco, 1988).

In dialogue with the call for papers, this research contributes to discussions on the role of participatory cartographies in reshaping public spaces through epistemic justice. It explores how mapping can address the needs of marginalised communities, including migrants, elderly populations, and individuals in precarious socio-economic conditions. Moreover, it examines the role of informal networks and non-human agencies – such as urban infrastructures and ecological factors – in shaping health dynamics (De Nicola, 2024).

By integrating participatory cartography with the STS perspective, this study advances a critical approach to spatial data, positioning it as a tool for empowerment rather than mere representation. Ultimately, it argues for the necessity of reconfiguring health governance through collaborative knowledge production, strengthening community agency, and fostering inclusive public health policies (Stefanini & Bodini, 2014).



11 JUNE 2025 14.30 - 16.30

ROOM B3.3

Panel 72. Ethics of Imagination in the Age of Technology

Convenor:

Somreeta Paul, University of California Santa Cruz

Keywords: imagination morality technology culture experience

Einstein once said that imagination is more important than knowledge; the latter is limited, whereas the former is boundless; it encircles the world. Imagination ferries us beyond the present into newer terrains of inventions, art, poetry, literature, technology, etc. But what does it mean to 'imagine' in the age of technology, considering we are no longer bound within the present and actual? What are the ethical implications associated with imagination in this world? How do we morally evaluate the imaginations we engage in? Historically, imagination has enjoyed an amoral status. Yet, recently, there has been a rising interest in the ethics of imagination, where, for example, it is largely accepted among varied cultures that fantasizing about torturing children is morally wrong. By virtue of technology, this debate has justifiably become more complicated. For example, ethical concerns in cyberspace, when a woman was sexually abused in a virtual reality game two years ago, or deepfakes, when a woman discovered her face had been digitally edited onto images of women in sexually explicit situations in 2023. Technology provides a platform to represent our imagination with no physical actions involved, hence lowering the stakes of moral evaluation. Hence, the question remains: How do we deal with this moral problem that has yet to be recognized as a problem? Above all, does technology benefit our flow of imagination or somehow restrict or malign it, and in what ways? What are our moral obligations to maneuver this new unknown territory before things get too out of hand?

11 JUNE 2025 14.30 - 16.30

ROOM B3.3

ID 504 - Socio-technical fictions in the AI future: an analysis of World as a cyberlibertarian transition infrastructure

Andreu Belsunces Gonçalves, Universitat Oberta de Catalunya

Keywords: socio-technical fictions, World, cyberlibertarianism, transition, imagination, AI

This presentation examines how World (formerly Worldcoin) mobilises socio-technical fictions to legitimise its bid for infrastructural dominance in an AI-driven future. We argue that World employs crypto-financial imaginaries and TESCREAList ideologies, constructing a speculative future that hinges on both utopian AGI promises and existential AI risks. These fictions do not merely describe potential futures; they actively shape technological and political possibilities, raising ethical concerns about how imagination is leveraged to prefigure governance, economy, and individual agency.

By analysing how World's narratives link political ideologies, discursive strategies, material infrastructures, and lived experiences, we interrogate the ethical dimensions of future-making: Who gets to imagine the future? How do these imaginaries foreclose alternative possibilities? What responsibilities arise when emerging visions function as performative instruments of power?

Methodologically, this research employs hermeneutic, discourse, and technopolitical analysis of public appearances, documents, and campaigns (2023–2024), including contributions from founders Sam Altman and Alex Blania, the Intelligence Age pamphlet, World's white paper, and related marketing strategies. Our findings highlight how socio-technical fictions operate as mediated and performative imaginations, translating speculative futures into material and institutional realities.

This study contributes to STS scholarship by foregrounding the ethics of imagination in socio-technical transitions, showing how worldbuilding practices not only articulate possible futures but also justify infrastructural interventions and consolidate power. By critically engaging with how futures are imagined, framed, and enacted, we shed light on the stakes of speculative governance in shaping AI-driven societies.



11 JUNE 2025 14.30 - 16.30

ROOM B3.3

ID 541 - Imagination as a new tool for epistemology in ethics of technology

Marco Pozzi, Politecnico di Torino

Keywords: computer science, knowledge, imagination, storytelling, memory

In the introductory Prospectus to the Encyclopédie, a "Système figuratif des connaissances humaines" is proposed to classify knowledge. The original subdivision is between Mémoire, Raison, Imagination, from which the three fundamental objects of human knowledge come out: history, from memory; philosophy and pure sciences, the fruit of reason; the fine arts, which arise from imagination.

Imagination" – one of the forty-three entries in the Encyclopédie written by Voltaire – "is the power that every sentient being experiences in himself to represent sensible things in his mind". In this sense, imagination becomes part of the cognitive process, because it allows us to build causality between elements and increase knowledge. What is built with imagination is a laboratory in which to experiment with possibilities, evaluate hypotheses, and reach new frontiers.

This free play of concepts also applies in the context of computer science, which especially in its post-war phase has also explored various expressive languages, from the image of Vannevar Bush's Memex to new words such as cybernetics by Norbert Wiener, to discover new connections between man and machine. Science fiction in literature, cinema, and comics also produces new suggestions and builds future scenarios.

As in the post-war period, even today imagination has an important role in identifying the fundamental variables with which to represent and study the ethical conflicts of the latest developments in computer science, included under the name of "Artificial Intelligence". Understanding current phenomena is also a fundamental condition for managing them, and in this process imagination also has its role, even if it is often relegated to the background compared to technical skills.

As a concrete testimony to the extreme fertility of the solicitations to bring together the humanities and engineering, there are the nine books published since 2018 (Mimesis Editore), collecting the writings of over two hundred PhD students from the Politecnico di Torino starting from the courses of "Epistemology of the machine" and "Anthropology of technology" held by Prof. Vittorio Marchis: over a thousand pages of meta-scientific writings, in which each PhD student reworks the topics studied in the doctorate by pushing themselves to the edge of the discipline, contaminating themselves with other disciplines. From their own interests and imagination, PhD students can express themselves through the most diverse stylistic forms, ranging from the essay to the story, from the storyboard to the comic, from the board game to poetry.

It is an encyclopedia born over time within the Doctoral School of the Politecnico that can certainly provide a method for understanding the latest ethical developments in technology, where imagination becomes a new tool for epistemology.

11 JUNE 2025 14.30 - 16.30

ROOM B3.3

ID 649 - Lifting off, but on what grounds? The role of conceptual engineering in the legal and ethical governance of flying cars

Samuela Marchiori, Technische Universiteit Delft

Matei Stoica, Technische Universiteit Delft

David Zurita Sánchez, Technische Universiteit Delft

Brian De Vrind, Technische Universiteit Delft

Keywords: philosophy of technology, ethics of technology, conceptual engineering, technology governance

Flying cars combine features of road vehicles and aircraft and blur the conceptual boundaries between road and air transportation (Swaminathan et al, 2022). Inasmuch as they disrupt established conceptual categories, it is plausible to expect that flying cars will put pressure on existing governance frameworks



(Mofolasayo, 2020). For example, flying cars risk blurring jurisdictional boundaries, complicating liability regimes, and introducing novel risks and dilemmas that existing governance structures are ill-equipped to address, thus exposing critical governance gaps. More broadly, such challenges may manifest as the absence of specific governance frameworks or uncertainty regarding the applicability or effectiveness of existing frameworks.

In this paper, we argue that adequate technology governance requires robust conceptual grounding. To this end, we build on and bring together research at the intersection of GELSI (governance, ethical, legal, and social implications) approaches to technology governance (Forsberg, 2015; Ghioni et al, 2013), technology law (Crootof & Ard, 2021), as well as conceptual engineering in the philosophy of socially disruptive technologies (Löhr, 2022, 2023; Hopster & Löhr, 2023; Hopster et al, 2023; Marchiori & Scharp, 2024).

Specifically, we argue that conceptual engineering – i.e., normative conceptual work aimed at the refinement of conceptual categories – is foundational to addressing the governance challenges raised by flying cars. Indeed, governance outcomes are shaped by conceptual choices. In the paper, we illustrate how conceptual engineering can illuminate the ways in which different conceptualisations of flying cars can lead to vastly different governance frameworks, by taking different perspectives to the description of this technology and emphasising different features of this technology. For example, depending on how they are conceptualised – e.g., whether as modified automobiles, lightweight aircraft, or autonomous aerial systems – regulators may reach vastly different conclusions regarding the legal regimes that apply.

Furthermore, we propose that such insights can and should be generalised beyond the specific case of flying cars. Indeed, we argue that the governance of flying cars exemplifies a broader pattern in technology governance: when new socio-technical artefacts disrupt established conceptual categories, the governance of such technologies cannot safely bypass the deliberate and systematic assessment and refinement of such conceptual categories. Ultimately, this paper argues that conceptual engineering is not an auxiliary concern, but a foundational element of robust technology governance, and should provide the necessary groundwork for technology governance frameworks that are both legally sound and ethically robust.

11 JUNE 2025 14.30 - 16.30

ROOM B3.3

ID 657 - Philosophical Imagination and the Harms of AI Deepfake Pornography

Natalie Nenadic, University of Kentucky

Keywords: imagination, feminism, deepfake-pornography, Heidegger, Arendt

Einstein's recognition that the imagination is more important than knowledge conveys a fundamental understanding of philosophy. For it is philosophical imagination that ferries us into newer terrains beyond inherited knowledge. That is, it delivers some fundamentally new framework on an area, whatever the area, from science to art, precipitating that rare paradigm shift, as Einstein did in physics.

Canonical philosophers of technology contributed such philosophical-imaginative insights or new conceptual frameworks about modern technology. Heidegger identified its distinctive and inherent capacity to suppress our imagination in this philosophical sense. As such, Arendt showed, it also suppresses our sense of ethical responsibility.

Heidegger distinguishes modern technology from premodern technology and tools in its ubiquitous, imperceptible, and unprecedented capacity to alienate human beings from life, in other words, delivering us to a human condition in which we are "no longer bound by the present and actual." This alienation is the source of modern technology's uniquely powerful suppression of philosophical imagination. For modern technology has an extraordinary power to impose upon life a singular way of seeing it that blots out other ways of seeing and interacting with life. Maintaining this connection with life is, Heidegger recognizes, that source that triggers our philosophical imagination, which may shake us from and give perspective on this singular understanding in which we become enveloped and trapped and may prompt us to consider other ways; this consideration may pertain to how we choose to live our life or may take the shape of contribut-



ing to a paradigm shift in an area of inquiry that is a philosophical moment within it (Heidegger, 2008, 1962, 1927). In its unprecedented capacity to severely arrest our imagination in this philosophical sense, modern technology poses a distinctive threat to our freedom (Heidegger, 1977, 1954).

I explicate Heidegger's identification of modern technology's unique power to interfere with our philosophical imagination by alienating us from life. I then present Arendt's elaboration of the ethical implications of this condition as one that interferes with moral consideration of the harms that issue from such a singular, technologically-mediated way of framing and treating human beings, what she refers to as "thoughtlessness" (Arendt, 2005, 1963). I bring their insights to the ethical challenge posed by the surge of AI deepfake pornography whose targets are 99% female (Kristof, 2024; Kraft, 2024) and join these insights with feminism's philosophically imaginative paradigm shift concerning mainstream technologically-mediated pornography that overwhelmingly frames and treats females as targets of all manner of sexualised denigration (Mackinnon & Dworkin, 1998). Bringing these powerful, on-point philosophical resources to reflection on AI deepfake pornography helps us connect with and philosophically consider its lived harms. These harms significantly overlap with those of mainstream pornography that thus uses actual females in its production. This encounter fosters the philosophical imagination to contribute original understanding of deepfakes' harms besides those they share with mainstream pornography: its targets experiencing breakdown of a sense of self, trauma, terror, and suicidal ideation and attempts; and its consumers seeing females as less-than-human and affecting such actual treatment of them.

11 JUNE 2025 14.30 - 16.30

ROOM B3.3

ID 780 - Sustainable technologies, sustainable futures? Biomimicry, solarpunk, and the elite capture of imagination

Alessio Gerola, Wageningen University & Research

Zoë Robaey, Wageningen University & Research

Keywords: imagination, technology, elite capture, solarpunk, biomimicry

As Ruha Benjamin says in *Imagination: A Manifesto* "whether we turn to children playing in the sand or tech billionaires offering us solutions while they build underground bunkers to survive the climate emergency, it matters whose imaginations get to materialize as our shared future" (Benjamin 2024, 119). Responding to Benjamin's call for fostering a more just and open approach to imagination, this paper examines the ethical implications of sustainable technological future imaginaries by focusing on the risk of elite capture of imagination as a threat to more inclusive imaginative practices (Taiwo 2022). Technology design approaches aimed at ecological sustainability, such as biomimicry (design inspired by nature), owe their popularity in part to the ambiguous multiplicity of sustainable future imaginaries they suggest, from ecomodernism to degrowth approaches (Gerola et al. 2023). Science fiction has offered a venue to explore and reflect on possible futures in ways that engage our imagination and stimulate technological innovation. The ambiguity of the technologies that populate different sustainable future imaginaries has generated, in turn, the possibility of misinterpretation and appropriation of these imaginaries.

We take solarpunk as an illustrative case in point. Solarpunk is a contemporary art and activism movement that envisions hopeful futures of ecological living powered by renewable energies and sustainable technologies. We show that, as a subversive imaginary, solarpunk may be affected by processes of elite capture that could stifle its radical potential, particularly in relation to its visual identity, by analysing two emblematic cases of solarpunk-inspired commercials produced by technology companies. We argue that imagination can be understood as a collective capability that supports forms of resistance and resilience. This framing enables us to examine the consequence of the existence of power asymmetries, which may distort the potential of imagination to be a source of transformative change.

Our contribution shows that even well-intentioned or apparently innocuous uses of forms of imagination and imaginaries can have reactionary political consequences that normalize and neutralize narratives in support of radical change. Analysing the risk of capture of sustainable future imaginaries such as solar-



punk is relevant for the study of the multiple narratives, visual, literary, and academic, that are at play in public debates on the sustainability transition and climate change mitigation and adaptation, and their political consequences. We conclude by reflecting on the role that 'good' technoscientific practices can play in fostering more inclusive sustainable futures. What kinds of knowledge and design practices in biomimicry and sustainable design can support the imagination of diverse ecological futures? How can solarpunk and other imaginaries help re-envision more socially and ecologically just technoscientific practices in biomimicry?

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Panel 75. Regulation, innovation and materiality in technological transition: a socio-technical comparative perspective

Convenors:

Alessandro Sciuolo, Università di Torino

Claudio Marciano, Università degli Studi di Genova

Keywords: institutions, materiality, regulation, socio-technical system, technology

In the policy arena, the concept of transition is normatively adopted to refer to a prefigured trajectory of systems change based on the co-evolution of material and immaterial infrastructure. For example, energy transition is used to describe the gradual replacement of fossil sources with renewable sources, and the contemporary replacement of centralized governance models based on the monopolistic ownership of the grid towards a more horizontal and decentralized system. In this perspective, the concept of transition takes on a prescriptive meaning that homologates, or at least selects in terms of appropriateness, the expectations about the future held by various actors in a sort of coordinated vision of social change.

The socio-technical approach to transition cannot but be critical, aiming to "open the black box" of technological and scientific innovations by unveiling their political content. From a sociotechnical perspective, transition is understood as a field of struggle between divergent interests and visions of social change, where the emergence of competing technological solutions stems from the relational dynamic among actors in the system. The design, production and availability of the artifacts themselves is strongly intertwined with the role of non-technological and nonscientific factors, such as market regulation and public policies on research and development in industry, as well as to exogenous components such as climate change and geopolitical relations. The role of these factors clearly emerge when comparing transition processes occurring in socio-technical systems framed into wider social, cultural and institutional contexts at multiple scales: from the micro level of different territories characterized by situated socio-economic processes and networks of local actors bearing their own cognitive frameworks, to the macro level of transition processes taking place in countries with partially or even completely different political, cultural and economic regimes.

On these premises, the goal of the session is to collect empirical studies and theoretical reflections on the role of regulation, i.e. institutional devices and socio-cultural frameworks that determine cognitive, normative and regulative rules in societal systems, in shaping the pathways and determine the results of technological innovations. The ambition of the sessions is to fill the gap between theoretical elaboration and empirical evidences in socio-technical system research, a "scandal" that Goldthorpe noted about sociological studies as a whole. The session welcomes contributions which covers one or more of the following topics from either a theoretical or empirical perspective:

- interplaying of material and institutional factors in shaping technological transition processes;
- pathways and results of technological transition processes occurring in different socioinstitutional settings;
- co-construction of technological and scientific knowledge: proposals and experiences;
- political and cultural embeddedness in technological innovation;
- the actors of technological innovation: network, power and resources.



ID 713 - Falsehoods-as-facts and the role of regulation and governance in development of AI: lessons from professional services industry.

Wojtek Buczynski, University of Cambridge

Keywords: AI, innovation, regulation, laws, financial services, governance

AI is a winner-takes-all game. Regulation impedes innovation. AI will solve global warming. Generative AI will add X trillions of dollars to the global GDP. Etc., etc.

All of the above statements function in the public sphere – be it media, business or politics – as facts, repeatedly stated by subject matter experts. In fact, *none* of these statements is a fact – they are opinions, views or beliefs; but none of them is a scientifically verified fact. Repeated often enough, opinions begin to function as facts, misrepresenting personal and political convictions as expertise and / or science. Furthermore, when wielded by some of the world's wealthiest and most powerful AI entrepreneurs or heads of state they have the power to become self-fulfilling. Against this backdrop regulation, governance and ethical guidelines appear as the only feasible means of shaping the development of AI in ways that benefit the public, uphold and affirm fundamental rights, promote equality, serve sustainable development goals etc.

The additional – and sometimes discounted – factor to consider is that for most actors (other than AI companies themselves) AI is a means, not an end. The challenge is that unlike many other technological shifts – such as going carbon-neutral or migrating the IT infrastructure onto the cloud – there is no such thing as a clearly-defined end-goal for AI. This transition is anything but prefigured; AI is a perpetually moving target.

By building on our recent (Buczynski et al, 2022) and upcoming research (Buczynski et al, 2024) on laws and regulations I will present findings and reflections on what factors and actors shape and inform the adoption of AI in financial services and consulting industries, estimated to account for approx. 25% of the global economy.

Having personally worked in and researched both industries I had the unique opportunity to observe – in person or through industry interviews – the contrast in attitudes towards outcomes, impacts and accountability for AI between a highly-regulated industry (financial services) and an unregulated one (consulting). This contrast is also evident when analysing incentives and disincentives for implementing AI; the assumption of "first mover's advantage" does not hold universally in all industries.

While these entities represent primarily their shareholders' interests – which are not always aligned with the interests of the regulators, or even best interests of their clients – the interplay between the industry and the regulators is not always as adversarial as one could expect. By contrast, end-users and the impact of AI transition on their experience with these organisations sometimes seem like an afterthought, with a strong implicit assumption that all innovation is good innovation.

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11 JUNE 2025 14.30 - 16.30

SESSION 1

ROOM B2.2.9

ID 846 - How do political and private actors reconfigure the heat network system? Insights from the French urban projects on energy transition in urban environments.

Alena Coblence, Université Paris Nanterre

Hélène Nessi, Université Paris Nanterre

Keywords: sociotechnical systems, energy transition, urban planning, renewable heat production, heat networks

Heat networks (also known as district heating) are systems that distribute heat and sanitary hot water from a central source to consumers, via a network of underground pipes carrying hot water. Building on the concepts of system-builders and structural couplings, we investigate the systemic reconfiguration of the heat networks in France. Started in the early 2010s, the French government decided to intensify the renewable heat production in order to reach the national commitments to the EU in terms of renewable energy production and consumption for 2020. This decision to produce massively renewable heat forced heat network system related actors to reconfigure these networks via integration of renewable energy vectors, e.g. biomass, geothermal heat or fatal heat recuperation. While in 2010s the development of new heat network infrastructure is mostly limited to urban projects running for the label 'Eco quarters', nowadays, the coupling of heat networks with urban project planning is recognised as an optimal solution to integrate production and consumption of renewable energy in various urban projects. However, the latest objectives formulated by French government in 2020 in the National low-carbon strategy (SNBC) concerning the renewable energy production, indicate national preference to encourage production of renewable electricity rather than of renewable heat. For the construction sectors, this preference concretises with recent environmental regulation (RE2020) which impacts the decisional choices of actors related to urban planning.

By analysing the conception process of urban development projects in the interaction with conception and regulations impacting new projects of heat networks, we reveal the competition between sociotechnical systems of heat and electricity. We argue that the apparent national "technological" energy transition is a normative embodiment of political preferences. These purpose based political decisions are made to legitimate the political engagements, and are thus based on the feasibility criterion. We 1) show the structural couplings that allows for the heat network system reconfiguration, 2) uncover the powerplay and arguments of different actors in reconfiguration-contestation dynamics, and 3) shed some light on the impacts of the reconfiguration and new stabilisation of heat networks for local authorities and final users. Our results support the idea that continuity of the socio-technical system asks for constant mobilisation of resources by those that are advantaged by the present system. Second, the reconfiguration-contestation dynamics shows that while on the national scale the regulation is stabilising the position of heat networks, certain actors, such as developers, are keener to disrupt the reconfiguration process of heat networks by dismantling some established structural couplings with urban planning.

11 JUNE 2025 14.30 - 16.30

SESSION 1

ROOM B2.2.9

ID 612 - The co-creation method in the deployment of new energy technologies

Agatino Nicita, Istituto di tecnologie avanzate per l'energia Nicola Giordano

Raffaele Albanese, Istituto di tecnologie avanzate per l'energia Nicola Giordano

Keywords: co-creation, new energy technologies, social acceptance, stakeholders involvement, energy transition

Climate change and its socio-environmental consequences imply the need to develop and make applicable sustainable but at the same time accessible technologies. This implies the ability to address diverse chal-



lenges, across disciplinary boundaries and great distances (both geographical and socio-cultural), through collaboration between different actors with different backgrounds.

Academics and policy makers advocate the active involvement of potential stakeholders in their various roles as users, producers, consumers or owners in order to mitigate these challenges, especially the social ones. The literature and scientific debate on models and practices of citizen participation in energy-related decision-making processes is very broad, covering a wide range of approaches and different levels of analysis in terms of considering different aspects of participation and/or the population groups involved [1]. In the context of co-creation, stakeholders are engaged as empowered actors in the energy transition through co-designing policies and legislation, co-producing solutions and innovations, co-implementing projects and ultimately co-benefiting from the green transition process. The EU's new strategy to make clean energy a reality for all Europeans embodies this approach. In addition, this method could increase the social acceptance of new technologies [2], highlighting the central role of citizens and local communities in facilitating or hindering the development of new energy technologies.

In the Horizon Europe project "Hybrid services from advanced thermal energy storage systems (HYS-TORE)", we adopt a co-creation methodology to involve people who interact with the demonstration sites where the pilot energy storage systems will be implemented. The project's inclusive nature is underscored by the involvement of individuals from diverse backgrounds, including technical and non-technical experts, as well as various roles such as decision makers, professionals, workers, residents, business people, representatives of social enterprises and cooperatives, and housing associations. Collectively, these stakeholders contribute to the process of defining the characteristics of the novel technology and identifying the potential motivations that could influence its acceptance and utilisation by the public.

In this contribution, the method and procedures employed in the co-creation activities for the development of a new technology will be presented. Furthermore, the salient aspects that have already come to light will be emphasised. Specifically, three of the scheduled meetings have already been conducted, revealing several challenges and barriers to the deployment of the new technologies, including high costs, the need to reduce size and dimensions, and the complexity and difficulty of utilisation.

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11 JUNE 2025 14.30 - 16.30

SESSION 1

ROOM B2.2.9

ID 719 - When workers take over: can reappropriation be a new circular economy tenet?

Andrea Taffuri, Università di Torino

Luca Biserna, Università di Torino

Francesco Bartolomei, Università di Torino

Keywords: Circular Economy, Reappropriation, Workers buyout, socio-ecological transition, innovation

In the ecological transition agenda, the circular economy is often seen as a tool for enhancing sustainability and efficiency in production processes. However, in light of recurring economic issues such as employment crises, delocalization, deindustrialization, and the increasing financialization of production processes, it seems worth integrating the paradigm of circularity in a wider socio-ecological frame. The challenges mentioned above deeply impact job security, stability of incomes, life courses and social cohesion. In response, practices such as the reappropriation of factories by workers, as in the case of workers buyouts (WBOs) or factory recoveries, represent a strategic response to these critical social issues, while also



showing the ability to integrate virtuous circular practices in the re-appropriated production system.

Reappropriation can be defined as a form of collective action that seeks to reclaim and restore key aspects of a community's material and organisational (re)production processes through cooperative practices. In the industrial sector, reappropriation instances can be represented by the recovery of spaces, productive systems and decision-making processes by workers, which collectively determine how to manage the factory activities.

Through a comprehensive review of the literature and semi-structured interviews with two WBOs and one factory in the process of cooperative recovery, this article highlights successful examples of factory reappropriation in the Italian context and aims to deepen their understanding in terms of organisational transformation, socio-technical innovation and just transition potential. The concept of re-appropriation offers a sociological framework that can transform circularity from a mere technical concept confined to industrial processes into a tool for real socio-economic and ecological progress. This research aims to provide new opportunities to politicize the narrative of the circular economy, shedding light on how cooperative recovery, combining socio-economic sustainability and technical-ecological advancements within industrial processes, can represent a leverage point for ecological transition.



11 JUNE 2025 17.00 - 19.00

SESSION 2

ROOM B2.2.9

ID 290 - Socio-Territorial Dynamics of Circular Transition in the Wood Sector: Insights from the MICS Project in Alta Irpinia Area

Ilaria Marotta, Università di Napoli Federico II

Fabio Corbisiero, Università di Napoli Federico II

Anna Maria Zaccaria, Università di Napoli, Federico II

Keywords: Socio-Territorial Dynamics, Technological Transitions, Wood Sector, Inner Areas

This study investigates the socio-territorial dynamics of technological transitions within the Italian wood sector, focusing on the Alta Irpinia area (Campania Region) through insights from the MICS – Made in Italy and Circular project (financed within the Next Generation Eu). MICS seeks to implement circular supply chains in small and medium-sized enterprises (SMEs) operating in resource-constrained settings.

The Alta Irpinia area, part of Italy's National Strategy for Inner Areas (SNAI), represents a compelling case study due to its reliance on artisanal practices and limited technological access. The alignment of material resources, institutional frameworks, and socio-cultural contexts is essential for fostering sustainable innovation.

Adopting a socio-technical perspective, we argue that technological change is not a linear diffusion process, but a complex interplay of social factors. Furthermore, while technological transitions are often portrayed as pre-determined pathways driven by advancements, such views overlook the power dynamics and negotiations among actors (Geels, 2011; De Haan & Haxeltine, 2018).

The socio-territorial approach then reveals how local communities, traditions, and institutions interact with macro-level technological trends, shaping territorial-specific outcomes (Pike et al., 2016). In the wood sector, this involves integrating traditional knowledge and practices into innovation systems.

Empirical findings from the MICS project highlight three key dynamics: territorial proximity and embeddedness foster collaboration and localised innovation networks, enabling SMEs to share knowledge and resources effectively (Boschma, 2005); institutional support, including collective goods, cooperative networks, and targeted policies, helps SMEs overcome technological adoption barriers and transition toward sustainability (Edquist, 2011); socio-cultural factors, such as values and norms tied to traditional craftsmanship, significantly shape the adoption of circular economy principles (Crescenzi et al., 2016).

In conclusion, this research contributes to socio-technical transition studies by demonstrating the value of a socio-territorial perspective in understanding and promoting technological – and sustainable – innovation, particularly in peripheral and rural areas. Tailored policies that bridge local needs and broader innovation ecosystems are critical for achieving sustainable transformations.

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ID 876 - Co-constructing “Public” Spaces: Technological Transitions, Regulation, and Digital Platforms in Rural Revitalization.

Giulia Montanaro, Politecnico di Torino

Keywords: Socio-technical dynamics, Rural development, WeChat, Construction Industry

This contribution examines the socio-technical dynamics of technological transitions within China's rural revitalization programs, focusing on the Zhaoshan project as a case study. It explores how construction practices are shaped by the interaction between material innovations, institutional regulation, and local contingencies. The project illustrates the evolving socio-technical frameworks in rural areas, where public policy, local conditions, and economic reforms converge to influence architectural practices and material choices.

The Zhaoshan case highlights the emergence of new forms of public space, where physical spaces are both a product of public policies and the lived experiences of local communities. These spaces transcend traditional notions of public infrastructure and serve as hubs for cultural exchange, social engagement, and economic activity. They reflect a shift toward decentralised, participatory development, driven by local initiatives and governance models, where communities have greater agency in shaping their environment.

Technological transition, in this context, is understood as a socio-technical process where both material and immaterial infrastructures evolve together. In the construction industry, this shift is visible in the movement from traditional building methods to industrialised techniques. However, this transition is not solely technical – it also involves ideological changes, where both new technologies and existing practices are reinterpreted to fit the local context. The Zhaoshan project demonstrates how material choices and construction methods are influenced by broader socio-political factors, including the local community's values and the regulatory frameworks in place.

A central aspect of this transition is the use of digital tools, particularly WeChat, which facilitates communication among the diverse stakeholders involved in the rural revitalization process. WeChat plays an essential role in coordinating between government bodies, local residents, architects, and other actors, enabling the flow of information and fostering real-time decision-making. Beyond its function as a communication tool, WeChat mediates the materiality of construction processes, influencing decisions about the reuse of materials and the adaptation of traditional techniques to modern standards. This digital platform not only supports the material aspects of construction but also contributes to the co-creation of knowledge and the shaping of socio-political identities, highlighting the intertwined nature of technology, regulation, and community participation.

The paper adopts a socio-technical perspective, aiming to “open the black box” of technological transitions by exploring how technological innovations are not driven solely by material advancements but are also deeply shaped by political, economic, and cultural factors. Using a Latourian framework, the study emphasizes the importance of understanding how human and non-human actors – such as materials, tools, and technologies – interact within a complex network of relationships. In Zhaoshan, for instance, materials are not simply evaluated for their physical properties but are imbued with symbolic meanings that reflect broader political goals and the socio-economic realities of rural revitalization.

In conclusion, this study underscores the critical role of both material innovation and institutional regulation in shaping technological transitions in rural revitalization projects. By examining the interactions between material practices, regulation, and digital platforms like WeChat, the paper contributes to a deeper understanding of how technology and society co-evolve in the context of rural development.



11 JUNE 2025 17.00 - 19.00

SESSION 2

ROOM B2.2.9

ID 518 - The Values of Numbers - The Roots of European Proto-symbolic Algebra in Late-medieval Commercial Capitalism and Technological Transition

Raffaele Danna, European University Institute

Keywords: Indo-Arabic numerals, Co-evolution of scientific and socio-economic systems, Technological transitions, Knowledge co-construction

This paper investigates how Indo-Arabic numerals (0, 1, 2, 3, 4, 5, 6, 7, 8, 9) shaped technological and cognitive transformations in medieval European commercial contexts, and gave a key contribution to the emergence of 'modern' symbolic algebra. Originating in ancient India, these numerals were adopted in the Arabic world before reaching Latin Europe in the late Middle Ages. However, their integration into European mathematics was far from obvious, and was intertwined with the socio-institutional frameworks and socio-technical transition of late medieval commercial capitalism.

By combining economic history, the social history of science, and a socio-technical systems approach, this study argues that the adoption of these numerals was enabled – and ultimately necessitated – by evolving economic practices during the so-called 'commercial revolution of the thirteenth century.' Through empirical investigation of Italian city-states, it reveals how material and institutional factors, such as monetary systems, units of measurement, and financial accounting practices, drove technological transitions that co-evolved with mathematical knowledge.

The analysis underscores how the development of European proto-symbolic algebra did not emerge in isolation as a purely intellectual endeavour. Instead, it was a co-constructed phenomenon embedded within and driven by situated economic processes and networks of actors engaged in trade and financial innovation.

The paper contributes to understanding the interplay of material and institutional factors in shaping technological transitions by illustrating how cognitive frameworks of arithmetic and algebra responded to and co-evolved with commercial practices and institutional frameworks. By tracing how regulatory and normative changes in late medieval Italian economies structured the adoption of the numerals, the study highlights the entanglement of material culture and institutional regulation in shaping technological transitions.

Ultimately, this research demonstrates that the origins of European proto-symbolic algebra were inseparable from its socio-institutional setting, offering a critical historical example of how socio-technical innovation emerges at the intersection of material infrastructure, regulatory frameworks, and cultural practices. This paper contributes to the panel by providing a critical historical perspective on technological transitions, offering insights into the co-construction of technological knowledge, scientific practices, and socio-institutional settings in the long run.

11 JUNE 2025 17.00 - 19.00

SESSION 2

ROOM B2.2.9

ID 398 - From policy to practice: the digitalisation of social work in the implementation of the Italian minimum income scheme

Eleonora Costantini, Università di Modena and Reggio Emilia

Francesca Nannetti, Università di Modena and Reggio Emilia

Keywords: Welfare, Frozen digitalization, Social work, Policy implementation

The widespread adoption of digital technologies has been identified as a significant driver of organisational changes within working environments. The integration and extensive utilisation of advanced ICTs necessitates a focus on the dynamic interaction between individuals and technology in the organisational context, since this intricate system comprises a network of interdependent components embedded within



organisations' daily practices.

The digital transition also impacted occupational settings involved in the delivery of social and personal services, with technological innovations playing a crucial role in this transformation. The introduction of digital tools for welfare management and the development of new digitally based intervention strategies have prompted a radical modification in the fundamental essence of social work. The nature of organisational action in the context of welfare policies is, at its core, relational. This inherent characteristic further complicates the relationship between digitalisation and social work, emphasising the necessity for a comprehensive examination of its implications within the specific context of professional practice, that involves individuals, digital artefacts, spatial and temporal dimensions that collectively define the social work's framework. Within such technologically dense work environments, activities are distributed and fragmented between human actors and technological artefacts, which not only support, but also enable, mediate and inform the performance of the activity itself.

The present study is one of the outcomes of a research project on the implementation of the Italian Minimum Income Scheme (Reddito di Cittadinanza), which represents an interesting case study due its strong reliance on a platform for measure management. Therefore, the aim of this research is to investigate one of the paradigmatic contexts in which socio-technological innovation induced by digitalisation has affected the processes of recalibration and transformation of social work. Interviews and Focus Groups were carried out with the entire multi-professional team employed in the provision of the measure in the municipality of Modena (4 interviews and 8 Focus Group for about 20 hours of recorded audio), therefore empowering the direct experience of those who actually and locally implement social policies. This study specifically examines the narrative and discursive dimensions through which the team refers to the digitalisation of a relational-intensive work. Discourse, given its central role in the construction of social processes, identities and structures, is itself a practice that is effective not only in representing reality, but also in acting and intervening on it.

By using tools from Corpus Linguistics and adopting a Corpus-Assisted Discourse Studies approach, both forms of appropriation and resistance to the digital transformation of welfare have been observed, mainly due to the challenge of enclosing the complex product of the relationship with the beneficiary - and with colleagues - within the new digital architectures' boundaries. Moreover, the lack of synchronisation, interoperability and shareability manifested by the digital infrastructure built for the implementation of this measure has created a kind of frozen digitalisation which has inevitably forced social workers to find new, unexpected ways of daily declining their work, especially through their creativity and discretion.



Panel 76. Where Sociomateriality Lies: Re-Thinking the Synergies Between STS and Information Infrastructure Studies in the Age of Datafication

Convenors:

Annalisa Pelizza, Università di Bologna/Aarhus University

Claudio Coletta, Università di Bologna

Chiara Loschi, Università di Bologna

Lorenzo Olivieri, Università di Bologna

Keywords: Sociomateriality, datafication, epistemology, information infrastructures, methods, ontology

The neighboring fields of STS and Information Infrastructures (II) studies are being crossed by opposite but complementary dynamics. On one hand, limiting their engagement with sociomateriality to the selection of the object of analysis (i.e., technical artefacts), upcoming trends in data studies are favoring discursive explanations of technological dynamics in "science, technology and society" (a broad type of "STS"). However, electing datafication technologies and practices as object of study is not sufficient to qualify as "STS" in the more specific sense of a field of study that developed recognizable epistemological debates and theoretical insights. On the other hand, II studies are experiencing a centripetal move. The analytical and methodological resources introduced in over twenty years are now deployed well beyond the traditional boundaries of the field, finding application in sensitive and power-laden thematic areas like climate change, health, security, to name a few. And still, the conceptualization of "information infrastructures" qualifies a distinct sociomaterial form, characterized vis-à-vis "systems" and "platforms" by its heterogeneity of components, multiplicity of users and uses, process-based methodologies, epistemologies open to grasp ever-evolving integration and distributed governance.

II studies are thus opening to a broader range of matters of concern while retaining an epistemologically distinct approach to datafication. While digital STS share similar epistemological concerns, they are risking confining their sociomaterial core to an object of study (e.g., algorithms, data, digital artefacts), somewhat following emergent areas of study like "critical data studies," "critical algorithmic studies", "data ethics." The epistemological, methodological and analytical specificities of the field appear less enticing. Drawing on these developments, we propose this panel to discuss where sociomateriality lies in (digital) STS and II studies vis-à-vis neighboring disciplines and emerging research areas. How is sociomateriality conceptualized and enacted in the two fields? Does it lie at the ontological, epistemological, methodological or interventionist level? What epistemological perspectives do the two fields share? In what do they differ? What are the analytical and methodological tools they share (or not)? What is the space for theory in both? How do each of them respectively address the relationship with policy and policymakers?

The panel welcomes submissions inspired by (but not limited to) these questions, and empirical investigations about:

- The sociomateriality of datafication in STS, Information Infrastructure studies, Critical Data Science, Digital anthropology, etc. What is meant with it in the neighboring fields, beyond the original focus on pipelines and data centers, and beyond data practices and technologies as objects of study;
- Data epistemologies across different sub-disciplines (e.g. Critical Data Science, Digital anthropology, IIs, Digital STS);
- Sociomateriality "at work" in governance/political processes and data infrastructures (involving security, climate, health, etc.);
- Methodologies to investigate the relationality and performativity of sociomaterial data infrastructures, vis-à-vis systems and platforms;



- Reflections on the politics of design and governance, and on how data infrastructures enact policies by reinforcing or contesting social norms and exclusionary regimes, depending on who controls, accesses, or can modify them;
- Reconfiguring ethical considerations and obligations in handling personal, biometric, health and environmental health data, from the perspective of digital STS, Critical Data Studies, II studies or other perspectives.

11 JUNE 2025 09.00 - 11.00

SESSION 1

ROOM B2.2.8

ID 426 - Maintaining Infrastructure Resilience: An Information Infrastructure Perspective

Antti Silvast, LUT University

Robin Williams, University of Edinburgh

Keywords: Information Infrastructure, Methodologies, Resilience, Repair Studies, Governance by Infrastructure

Infrastructure resilience has emerged as a critical societal and research challenge, first appearing prominently in the United States national security discourse from 15 to 20 years ago and now particularly evident in recent policy directives like the European Commission's (2022) Critical Entities Resilience framework. While typical academic approaches view resilience through the lens of systems theory – focusing on how systems maintain or adapt their state during disruptions – this perspective has significant limitations. This paper argues for reconceptualising infrastructure resilience through the critical lenses of Science and Technology Studies (STS), mainly drawing on Information Infrastructures and repair studies.

Our central hypothesis is that infrastructure resilience cannot be understood as a singular system capacity but instead emerges through socio-material processes of maintenance and repair.

Drawing on STS perspectives, we examine how infrastructures function as socio-material assemblages that combine technical components and human practices configured together. We specifically investigate how socio-materiality operates 'at work' in these processes, revealing how material practices and social orders become intertwined in everyday infrastructure management.

The paper particularly focuses on repair studies, an emerging STS subfield that examines how repair practices underpin reliable infrastructures. This approach reveals both the inherent fragility of infrastructures and the systematically neglected human work and skills that maintain them. Furthermore, we analyse how infrastructures form spaces for achieving political order, examining how not only infrastructure standards and designs but also repair practices may exercise governing rationalities. With a basis in both Information Infrastructures and a long line of development in STS, we advocate for a non-essentialist version of politics distributed across multiple sites – designers, maintainers, and users – rather than viewing political values as simply embedded in technological design.

Methodologically, the Information Infrastructure perspective highlights how infrastructures are constantly maintained and adapted. This understanding has led to a 'localist turn' in infrastructure studies, emphasizing situated maintenance practices and case studies over abstract systems thinking. Nevertheless, the paper deviates from localist studies by suggesting methodological approaches for studying infrastructure resilience as an achievement over extended durations and multiple settings. We explore this empirically, drawing on participant observation in electricity grid control rooms across the UK, Finland, and the Netherlands, emphasizing the importance of examining observable work practices, such as control room operations and situated maintenance.

We claim that infrastructure performance is always rooted in developments in other times and places and, by the same token, their resilience before and during disruptions. The plethora of systems theory accounts of resilience focus on predictable failures within systems boundaries, while the localist turn in STS, though inspiring multiple highly detailed accounts of particular settings, means that researchers have been unable to account for surprising failures rooted in developments elsewhere and as infrastructures propagate to new settings. Consequently, a carefully targeted research design is needed to capture these interconnected infrastructures with finite research resources. By examining infrastructure across locations and timeframes, our framework provides new ways to understand how infrastructures become objects of political power and contestation at operational, national, regional, and international scales.



11 JUNE 2025 09.00 - 11.00

SESSION 1

ROOM B2.2.8

ID 235 - Configuring actors in Urban Digital Twins: a transdisciplinary proposal

Edoardo Colombani, Università di Bologna

Claudio Coletta, Università di Bologna

Keywords: Urban Digital Twins, transdisciplinary methodology, user configuration, semiotics

In the last few years, the technological discourse around urban digital infrastructures has shifted its focus from traditional Smart Cities to Urban (or City) Digital Twins. SCs and UDTs share many features, being both virtual models simulating and representing both physical and social urban phenomena (Notcha 2021). The main difference between SCs and UDTs is that the latter has the bidirectionality of the digital-physical coupling: the model is designed to directly affect the physical counterpart.

Our interest in UDTs is twofold. First, we intend to address a technopolitical conflation: how are the categories of users and citizens enacted and configured (or not) within the UDT? We address the technopolitical character of UDT through the lens of two combined concepts: the one of "demonstration" borrowed from history and sociology of science and the one of "invisibility" borrowed from Social Studies of Infrastructures.

Secondly, we want to focus on a sociomaterial entanglement: how is digital urban governance entwined with local knowledge and politics? Who are the users and the non-users emerging from this crossing (Pinch and Oudshoorn 2000)? In our view, this is an inquiry into the narrative structures of UDTs. To do this, on the one hand we will follow the chains of translations (as discussed by ANT) through which the users are represented and enacted, the delegations that make (some of) them present; on the other, we must deal with the narratives that inform and are informed by the classificatory systems that scaffold and draw the boundaries of every information infrastructure (Bowker and Star 1999).

The main point of our proposal is methodological. It aims to integrate and bridge these approaches with a semiotic perspective. While the relationship between ANT and semiotics has been often discussed (Beetz 2013, Peverini 2024), outside of its niche semiotics are still thought as lingering in the purely linguistic dimension of its beginnings. This is incorrect, since semiotics has long extended its interest in the sense-making of sociomaterial practices (Landowski 1989, Fontanille 2008, Paolucci 2020).

Our aim then is to present this methodological crossing as an approach to study the sociomaterial, diachronic layering of meaning articulations in the development of a UDT. More specifically, we will focus on the different stages of user (and non-user) configuration, analysing the distribution of actantial roles and agency and looking at the boundary-making practices that categorise urban actors, in the context of a UDT that pursues citizen and stakeholder participation. Likewise, we look at the interaction between invisibilization and demonstration as different regimes of enunciation.

We will look empirically at different phases of the UDT's process: the presentation of the UDT to the public and to the stakeholders; the comparison of narratives implied in participatory engagement theories; the classificatory process of stakeholder mapping via the software Mirò; the ideal UDT users and non-users negotiated through the development of its platform.

11 JUNE 2025 09.00 - 11.00

SESSION 1

ROOM B2.2.8

ID 776 - Curating Data: activating critical curatorial practices against data determinism

Magdalena Tyżlik-Carver, Aarhus Universitet

Keywords: curating data, critical data studies, sociomaterial practices

In contemporary digital cultures, what we know and how we know it is technologically reorganised and becomes part of algorithmic and platform curation, data curation, and machine learning. Selection, categori-



sation, and forms of display, which have been always part of curatorial work, are automated and guided by questions such as how can we see billions of images (Manovich 2020) or how to distinguish fake content from what is real? These are practical concerns about the ways in which human and algorithmic abilities to sort, categorise, label, and retrieve information and data, texts, and images come together and to what ends? While seeing or reading is done with algorithms in, for example, "distant reading" (Moretti 2000) or different forms of algorithmic vision (Cox 2016; Paglen 2016; MacKenzie and Munster 2019) curating characterises the ability to collect and archive data and often to make them accessible publically and for future reuse. In this context, curating data proposes critical methodology that intervenes into automated forms of knowing by acknowledging posthuman agents of curating as subjects and objects of curatorial concern, and by attending to infrastructural arrangements necessary to maintain and process data.

This presentation will first introduce Curating Data diagram which sketches out curatorial methodology to engage critically with data and its processing as social, cultural, creative and political practices and not only technical phenomena. The diagram serves also as a blueprint for research design and a method to record and track what takes place in the process of curating data, and how agency is distributed. I will then use Curating Data diagram to map what is part of curating data in curatorial and research project Fermenting Data, which is a speculative intervention and experiment that works against data determinism by asking: what if data could be fermented? I will answer this question by identifying practices (artistic, curatorial, participatory), infrastructures and ontologies (WikiData and Linked Open Data) that are activated through this project.

11 JUNE 2025 09.00 - 11.00

SESSION 1

ROOM B2.2.8

ID 627 - Securing what? Materiality and infrastructures in redefining environmental security governance

Chiara Loschi, Università di Bologna

Keywords: air pollution, environmental security, governance by infrastructures, artefacts, materiality

The paper discusses the concept of environmental security governance focusing on the artefacts involved in air pollution monitoring. Moving beyond conventional national security frameworks, through an STS lens and by emphasizing the material dimension of air pollution monitoring, it argues for a redefinition of environmental security that accounts for the artefacts and infrastructures' roles in environmental governance. The analysis will be grounded in desk research and empirical evidence.

Environmental data are considered essential for managing pollution, climate change, and protecting public health. The materiality surrounding them becomes evident in the technologies that generate and store these data: air quality sensors, satellite imaging, data infrastructures, and regulatory reports. These artefacts are embedded in epistemological power structures shaping what is measured, how it is classified, and who has access to it. As STS scholars show, infrastructures are embedded within broader sociopolitical contexts (Bowker and Susan Leigh Star 1999). Contemporary air pollution infrastructures are subjected to increasing privatization of monitoring technologies, such as satellite-based pollution tracking, which raise questions about classification systems, knowledge production, ownership. It also shifts the locus of authority from state agencies to a multiplicity of actors, including not only corporations, international or citizens organisations, but also artefacts.

An example is the physical storage and infrastructure of data: whether in governmental databases, corporate cloud systems, or decentralised citizen science platforms, infrastructures can determine who controls the narrative of environmental risk. In a significant political move, in January 2025 the Trump administration has started to remove critical environmental and public health data from federal websites (The Verge.com 2025).

From a security perspective, these evolutions have twofold implications. The increasing privatization can exacerbate surveillance practices, data storage or foster discrimination based on pollution-related health



risks outside of public auditing. But this is only one side of the coin. On the other side, recent data purges testify that security in environment domain is not simply about preventing ecological harm but also about controlling environment data classification and what is deemed to be protected. Artefacts in air pollution are increasingly participating in a kind of governance of risks and insecurities such as those induced by climate change, i.e. those "insecurities from many of which states either can't or won't protect populations" (Dalby 2009).

This calls for the reconceptualization of materiality not only in analyses of environmental knowledge enactment and contestation (Minniti & Giardullo 2024), but also in the articulation of environmental insecurities and security discourses and practices. Indeed, 'security' is a plastic concept that takes on different meanings depending on the narrator and the types of risks identified. So, it is legit to question what exactly is being secured: the citizens of the country or its government institutions (Barnett 2012). A refined conceptualization of environment security based on artefacts' roles in air pollution monitoring (infrastructures, monitoring tools, regulatory reports) will allow to appreciate technologies' contribution on reorganizing institutions, political geographies and power struggles, ultimately defining their contribution in governing environment and environmental insecurities.



ID 405 - Unseen, Unheard, Unregulated: Data Infrastructures and the Persistence of Add-ons in Fertility Care

Manuela Perrotta, Queen Mary University of London

Keywords: fertility treatment add-ons, fertility care, data governance, politics of infrastructure

In the field of fertility care, the proliferation of unproven biomedical interventions, commonly referred to as add-ons, has sparked significant debate over the past decade. These interventions, including expensive technologies, treatments, and drugs, are often offered to patients despite limited or poor-quality evidence regarding their efficacy. The 2023 guidelines published by the European Society of Human Reproduction and Embryology (ESHRE) evaluated 42 add-ons, recommending only five for clinical use while highlighting the generally poor quality of evidence underpinning these assessments. This lack of robust evidence has not only intensified concerns about the ethical and financial implications of offering unproven interventions but also exposed significant gaps in the governance of fertility care. These concerns are particularly acute in countries like the United States, where fertility treatment is predominantly private and market-driven, and the United Kingdom, where National Health Service (NHS) provisions have been rationed due to funding constraints.

Drawing on insights from Science and Technology Studies (STS) and critical data studies, this contribution examines the politics of design and governance in the data infrastructures underpinning fertility care in the UK, with a focus on how these infrastructures enact policies and shape professional practices. Central to this analysis is the conspicuous absence of data on add-ons within national fertility registers, which collect extensive demographic and procedural information but omit key details about the use of add-ons and the costs of treatments. These omissions are not accidental but reflect embedded social and regulatory norms that prioritise procedural and demographic metrics over societal concerns.

This lack of transparency perpetuates a polarised debate about add-ons. Clinics and professionals offering these interventions argue that they are provided selectively to patients who may benefit, while critics contend that add-ons are aggressively marketed to all patients, exploiting their vulnerability and desire for successful outcomes. Without systematic data on the costs and use of add-ons, these claims remain speculative, and the extent of the problem – both in terms of its prevalence and its impact on patients – cannot be adequately assessed and remain unregulated.

By examining the design and governance of fertility data infrastructures, this contribution highlights how the absence of specific forms of data enacts policies that tacitly reinforce exclusionary regimes and commercialised practices. It reveals how these infrastructures, far from being neutral tools for record-keeping, actively shape the landscape of fertility care by defining what counts as legitimate evidence for policy making and what remains invisible. This invisibility, in turn, sustains a regulatory vacuum, allowing clinics to operate without accountability regarding the financial and ethical implications of their practices.

Ultimately, this analysis calls for a critical rethinking of fertility data infrastructures, advocating for their re-design to address societal concerns and patient experiences more effectively. By integrating financial and procedural transparency into data collection practices, these infrastructures could challenge entrenched norms and support governance, addressing the controversies surrounding add-ons and fostering a more equitable landscape in fertility care.



ID 568 - Feeling belittled? How AI is embedded in doctors' daily practices between agency, participation and professional boundaries

Laura Sartori, Università di Bologna

Keywords: AI, doctors, agency, professions

The rapid advancement of AI in various social and economic contexts has sparked an intense debate on its potential benefits and risks in several domains, such as healthcare. Some studies have sparked a debate around physicians' replacement by AI machines. The arguments supporting the human-replacement thesis rest on two key assumptions: first, that machine learning can process vast amounts of medical data far beyond human capacity (Strohm et al. 2020), and second, that the continuous advancement of deep learning technologies enables AI systems to make autonomous decisions, potentially reducing the need for human intervention (Lombi and Rossero 2024). These arguments have been raised mainly in relation to ADM (Automated Decision-Making) systems, where the ability to make decisions is particularly advanced. More recently, the conversational and adaptive nature of LLMs (Large Language Models) has highlighted their replacement potential, particularly in documentation, triage, and patient-doctor communication. To date, the most significant limitation lies in their lack of situational and contextual understanding, which requires human interaction, quality judgement, and empathic communication.

In this paper, I will argue that a socio-technical approach is needed to put optimistic or pessimistic views of the future of work in healthcare, with a particular focus on doctors, into a more appropriate perspective. To do so, I will present some empirical findings that show how doctors incorporate different types of AI systems into their daily practice and how they perform a consistent boundary work to negotiate their own professional identity.

The paper will then elaborate on the theoretical concept of the agency of artefacts and their relational and distributed nature that contribute to shaping doctors' daily practice. As such, I will discuss how AI systems (whether ADMs or LLMs) are the result of values and choices, while their affordances allow for different practices and uses. The participatory turn in artificial intelligence research (Delgado et al. 2023) not only highlights the need for participation in the design and deployment of AI, primarily to reduce inequalities, but also the importance of 'situating' AI systems (Gourlet et al. 2024). It is therefore crucial to 'problematise' the benefits and challenges of AI for doctors to engage meaningfully with AI, and to put the future of work debate into perspective. Overall, this paper is a complementary contribution to the STS and IIs debate over AI and medical practices.

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11 JUNE 2025 14.30 - 16.30

SESSION 2

ROOM B2.2.8

ID 681 - Genealogies and differences

Valentina Marcheselli, Università Ca' Foscari, Venezia

Roberta Raffaetà, Università Ca' Foscari, Venezia

Keywords: genealogies, ethnography, microbiome research

This presentation seeks to contribute to discussions about STS/II genealogies and their relation to socio-materiality by bringing into the conversation a third field – anthropology – that engages with both STS and II. In doing so, we aim to problematize the very notion of genealogy.

We are inspired by Marilyn Strahern's (1988, 1992) examination of genealogies, considered as tools to establish social identities and hierarchy, gain access to resources, legitimacy and power and redistribute wealth. In this light, genealogies are fluid, representational and context-dependent, rather than objective sociomaterial facts, made – for ex.- of 'blood and soil'. As it is risking confining STS's sociomaterial core to an object of study, we argue that it is equally risking limiting it to a traditional discourse of genealogy. Instead, we propose STS as a field that has transgressed boundaries 'by birth', descending from multiple, lateral/inventive and politically generative genealogies.

Our argument is grounded in our encounters with scientists employing bioinformatic tools to study the microbiome, thus turning life into a digital object. We consider this field of study especially generative exactly because it blurs conventional boundaries, not only between information and matter, the visible and the invisible, the body and the environment, situatedness and planetarity, the micro and the macro but, in our practice, we also blur the contours between anthropology and STS.

Yet, we recognize the importance to draw 'differences that make a difference' and we suggest that the difference between STS and anthropology lies in the dynamic and direction of their analytical deployment. Our take is that whereas STS's general objective is to situate scientific practice in context to better understand science, anthropology's ambition is to study science as a window into other social phenomena that are entangled but not limited to science itself. And that's why anthropology has a never fading interest in humans and not only in materiality.

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11 JUNE 2025 14.30 - 16.30

SESSION 2

ROOM B2.2.8

ID 173 - Switzerland by Design: The Co-shaping of Secure Messaging and Swiss Identity Among Geopolitical Controversies

Samuele Fratini, Università degli Studi di Padova

Francesca Musiani, Centre National de la Recherche Scientifique

Keywords: Interoperability, frictions, digital sovereignty, secure messaging, Switzerland

National identities are closely tied to a state's ability to assert power over its territory through various means. These identities are hybrid, fluid, and interrelated with information technologies. Encryption, data storage, and processing tools, e.g., are shaped by the national and cultural context in which they are developed, while simultaneously contributing to the formation of the nation-state's identity. We explore the relationship between technology and state identity through the case of Threema, a secure messaging platform developed in Switzerland, which has become integral to Swiss communication, particularly within domestic institutions. This study uses a Science and Technology Studies (STS) framework to analyse how



Threema reflects and re-shuffles Swiss identity. We examine interviews with Threema personnel (6), Swiss institutional representatives (10), and official documents (10).

To highlight the way Threema contributes to fleshing out a conception of "Switzerland by design", we adopt the concept of infrastructural ideology (Maxigas & ten Oever, 2023) to examine several features of the concrete infrastructure-building of Threema.

No phone number is required from the user. Phone numbers are "baked with methodological nationalism" (Maxigas & ten Oever, 2023) and this design choice challenges the traditional reliance on phone numbers, which are tied to national identity and the telecom industry, echoing Switzerland's long-standing tradition of neutrality and privacy. Switzerland narrates itself as a safe haven, where people and capital are welcomed with discretion, regardless of their background.

In-home data centres. The whole Threema assemblage is marketed as secure due to the jurisdictional and legal advantages offered by the Swiss state. Relying on two in-home data centres and being a Swiss company allows one to escape threatening foreign jurisdiction concealed under Swiss law.

Metadata minimization. The reduced collection of metadata reflects the Swiss tradition of safeguarding privacy. Threema's legal ability to limit metadata collection aligns with the Swiss business ethos, which values corporate opacity and privacy protection.

Threema's infrastructural ideology not only shapes its design but also renegotiates the Swiss national identity. First, Threema and Swiss institutions maintain a long-standing commitment to privacy, drawing parallels to the country's historical stances on neutrality and banking secrecy. Geopolitically, Threema's opposition to US dominance in digital communications supports Switzerland's strategic autonomy, while its compliance with the GDPR and its stance against EU interoperability proposals mirror Switzerland's historical ambivalence toward the EU. Finally, Threema's institutional adoption underscores the Swiss economic statecraft, where governmental functions are often outsourced to private entities. This collaboration contributes to Switzerland's reputation as an innovative and independent nation-state.

In conclusion, analysing how technology and state identity co-evolve helps to understand the broader implications for state power. Understanding this co-production of technology and state identity is essential to comprehending the future trajectory of state power in a context of geopolitical competition and the increasing role of digital information technologies.

References:

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11 JUNE 2025 17.00 - 19.00

SESSION 3

ROOM B2.2.8

ID 663 - Mapping Sociomateriality in Global Security Infrastructures

Gavin Sullivan, *The University of Edinburgh*

Keywords: global security, data infrastructures, AI, relationality, infra-legalities

This paper examines how sociomaterial relations are enacted through data infrastructures involved in the algorithmic governance of global security risks and how these infrastructures are reconfiguring legal practices and regulatory techniques. It is an exploration of sociomateriality 'at work' in the domains of law and security, and critical reflection on relationality in performative research methods.

Law and technology research often reifies 'law' as abstract normative principles that can effectively tame the problems of technology. This excludes the 'materialist characters and processes' that make algorithmic governance distinctive and fails to account for the novel forms of socio-material agency that global security infrastructures are enacting, missing crucial opportunities for sociolegal critique (Leander 2021, Yeung 2018). It also tends to presuppose an a priori conception of 'law' as an immovable normative object or set of regulatory principles by asking 'how ought law best respond to technological change?', missing key keys that legal practices and regulatory techniques are already changing through their enmeshment with algorithmic governance infrastructures. Or, as legal theorist Julie Cohen puts it, 'law is one of the moving parts and already responding' (Cohen 2019: 2).

To address this problem, my legal research on global security governance adopts a relational process approach more commonly used in STS, governmentality and critical data studies scholarship (Latour 2007; Bucher 2018; Lemke 2021). I aim to empirically describe the sociotechnical processes and affordances of global security infrastructures in action by unpacking the relational processes through which they are made (Cordella 2010). And I aim to analyse how such infrastructures are metabolising and reconfiguring legal norms and techniques in practice, giving rise to new and distinctive forms of regulatory ordering and sociomaterial agency. By starting from the material practices and emergent sociotechnical dynamics of data infrastructures, rather than 'law', more fluid and relational accounts of algorithmic governance can be drawn (Pottage 2012). I use the term 'infra-legalities' to get at these relational entanglements of law and data infrastructure, and to analyse how these purportedly distinct phenomena are enmeshed and co-produce and shape each other in practice (Sullivan 2022).

The argument will be developed with reference to recent empirical research undertaken in relation to two global security infrastructures – a machine-learning driven digital bordering infrastructure in the UK for governing the movements of risky people and things; and a powerful US security watch-listing infrastructure for regulating global mobility flows on grounds of 'association' with terrorism.

My paper investigates the kinds of critique that mapping sociomaterial relations in global security affords and probes the limits of inverting data infrastructures to foreground their ontological politics.

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SESSION 3

ROOM B2.2.8

ID 452 - Negotiating Openness: The Politics of Registry Data Infrastructures in Austria

Katja Mayer, *Universität Wien*

Keywords: open infrastructures, microdata, data access, knowledge infrastructures, evaluation

The governance of registry data infrastructures is shaped by competing interests and institutional arrangements that determine who can access data, under what conditions, and for what purposes. Registry data refer to systematically collected administrative records maintained by public authorities, covering areas such as demographics, employment, health, and education. These datasets provide a longitudinal and comprehensive basis for social and economic research, enabling insights into i.e. socio-economic trends



and policy impacts. While registry data offer rich insights for research, their accessibility is constrained by legal, bureaucratic, and financial barriers. These constraints are not merely side effects of regulation but are embedded in the very design and operation of data infrastructures, reflecting broader struggles over control, privacy, and public accountability.

This contribution critically examines the sociomateriality of Austria's registry data infrastructure, focusing on the establishment of the Austrian Micro Data Centre (AMDC) in 2022. The AMDC was introduced to improve access to microdata for accredited researchers, yet fragmented governance, high access costs, and exclusionary practices persist. These challenges demonstrate how infrastructures do not simply mirror societal structures but actively shape them (Pelizza 2021), reinforcing particular distributions of power and exclusion (Jasanoff 2004; Leonelli 2016).

Drawing on interviews with key actors involved in advocacy, policy negotiations, institutional implementation, and data use, this study situates Austria's case within broader STS debates on sociomateriality of infrastructures. It conceptualizes infrastructures as sites of political negotiation and epistemic production (Pelizza 2019; Ribes & Bowker 2009), illustrating how data access is not merely a technical matter but a contested issue shaped by institutional priorities and power dynamics.

By examining the Austrian Micro Data Centre, this contribution explores how sociomaterial configurations enable or constrain equitable and meaningful access to data, addressing central questions: How can we trace the politics embedded in data infrastructures? What analytical tools help unpack the entanglements of technological arrangements, institutional policies, and societal norms (Suchman 2007)? Finally, my analysis highlights the potential of registry data infrastructures to function as public goods, while emphasizing the sociomaterial conditions necessary for inclusive and equitable knowledge production. Ensuring that registry data truly serve the public interest requires different types of openness, like transparency in documentation, critical assessments of data impacts, and robust governance mechanisms such as ethical boards and participatory oversight frameworks to foster accountability and responsible data use.

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SESSION 3

ROOM B2.2.8

ID 630 - Sociomateriality at work: The co-creation of digital welfare infrastructures

Juliane Jarke, Universität Graz

Carla Greubel, Universität Graz

Keywords: welfare infrastructure, pension fund, sociomateriality, work

This paper reflects on an interdisciplinary project about digital welfare infrastructure(s) in Germany. We explore the politics of design and governance of digital welfare infrastructures and the ways in which they enact policies. The case that we research allows us to demonstrate how fruitful and complementary the conceptual repertoire of STS and Information Infrastructures studies are to study the sociomateriality of digital welfare infrastructures.

Empirically, we build on a study of the German pension system as a comprehensive social security infrastructure. Over the past decade, this infrastructure has undergone a significant digital transformation, encompassing the digitisation of pension applications, consolidation of diverse data sources, and automation of work processes. Since the creation of the German welfare state in the late 19th century self-governance was an important pillar. Over time it developed into a self-governed body to which those paying into state pension (employees and employers) and those receiving state pensions (pensioners) elect representatives who participate in the organisation and management of the pension system. The around 500 elected representatives nominate about 2300 additional volunteer advisors who offer support to citizens in relation to questions about or applications for state pension. Through their close connection between civil society and the state, the elected representatives and volunteer advisors are a core element of a functioning German welfare infrastructure. Yet despite the importance of the social self-governing body in the German



welfare system, the work of volunteer advisors remains largely invisible.

We share the concern with the panel convenors that digital STS may "risk confining their sociomaterial core to an object of study" while Information Infrastructures allows for a "broader range of matters of concern". Reflecting on our empirical work, we demonstrate how the STS-move to consider infrastructuring allows us to go beyond sociomateriality as an ontological concept and explore sociomateriality as a doing in which diverse sets of actors are involved. We analyse these doings and their enactment of politics in, through and in opposition to digital welfare infrastructures along three perspectives: (1) We present how digital technologies are positioned by policy makers (and the pension fund) as a way to fix/repair self-governance in the face of demographic ageing and anticipations about an increasing demand. (2) We consider how the introduction of digital technologies reconfigures self-governance, rendering the advisory situation more efficient for those who want and can adapt while excluding those who contest or struggle with new digital regimes. (3) We discuss how volunteer advisors themselves are engaged in continuous tinkering and repair to keep the new digital welfare infrastructure work. This in turn uncovers an interesting dynamic of sociomateriality as a doing and practice: While the technology may help providing social welfare in times of demographic change, it is the continuous work of volunteer advisors and employees of the German pension fund that is required to maintain a "good" welfare infrastructure.

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ID 361 - The Seven Sins of European Digital Identity

Denis Roio, Dyne.org foundation

Keywords: EUDI, identity, wallet, privacy, cryptography

The European Digital Identity (EUDI) project is designed as a digital identification infrastructure and presents a living case study for analysing how assumptions embedded in technological development can lead to unintended consequences related to fairness, privacy, security, and scalability.

The EUDI architecture reference framework (ARF) is built on the eIDAS2 specification, and its implementation act has been recently approved by representatives of EU's member states. The European Commission has just ratified its adoption, motivated by the political mandate to achieve strategic autonomy for our public and social services.

My account highlights how the current EUDI implementation, driven by solutionist and deterministic approaches, overlooks crucial considerations of multi-stakeholder governance, cryptographic robustness, and long-term security. I'm sharing this account to reveal the socio-political implications of seemingly technical design choices, hoping a critical reassessment of EUDI is possible and useful to prompt new questions and reframe the techno-security paradigm, with potential cascade effects on policy.

I'm sharing a raw feedback intervention concentrated on seven issues with EUDI, while demonstrating that solutions exist for some of them but are being disregarded in the rush to implementation:

- **Fairness:** EUDI's revocation mechanism is controlled by a single entity. This creates a point of failure where a single party can interdict an individual's access to essential services, violating principles of equity and creating a system that is particularly vulnerable to abuse and corruption.
- **Privacy:** EUDI's system uses weak cryptographic algorithms that do not adequately protect user privacy. This weakness makes the system vulnerable to potential information leaks through issuer-verifier collusion. Despite feedback from cryptographers, these privacy concerns have not been resolved, raising questions about the commitment to user data protection.
- **Security:** EUDI's security model is reliant on Trusted Execution Environments (TEEs) provided by mobile OS manufacturers. These TEEs have documented security vulnerabilities, making the system reliant on external actors and susceptible to attacks. Furthermore, the limited availability of certified Hardware Security Modules (HSMs) on mobile devices creates a double standard of security, disad-



vantaging those who cannot afford high-end models.

- **Scalability:** The EUDI system's use of antiquated cryptographic signature algorithms leads to the need for multiple attestation copies for each credential. This significantly increases the load on attestation issuers and adds complexity to the software, creating scalability issues that render the system unsustainable for widespread use.
- **Obsolescence:** EUDI's specifications do not address quantum safety, making the system vulnerable to future quantum computing threats. The lack of quantum-safe cryptography renders EUDI obsolete today, leaving it susceptible to future attacks that could compromise private keys and credentials.
- **Methodological Issues:** EUDI lacks a threat model analysis: an essential step for identifying and mitigating potential risks and attack vectors. This omission compromises the system's security by failing to consider potential vulnerabilities at the design phase. Additionally, EUDI's promotion relies heavily on marketing rhetoric, neglecting principles of rationality, falsification, and open criticism central to scientific projects.
- **Lack of Multi-Stakeholder Engagement:** The EUDI development process seems to disregard feedback from experts, including cryptographers and security researchers. The EUDI initiative should promote a more fruitful exchange with the cryptographic and security community.

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SESSION 3

ROOM B2.2.8

ID 225 - Reaching the Theoretical Tipping Point: The specificities of STS and information infrastructures in studying the EU Digital Identity Wallet

Annalisa Pelizza, Università di Bologna

Keywords: identification, infrastructures, security, EUDI Wallet, theoretical-tipping-point

When addressing emergent technologies and infrastructural innovations STS and information infrastructure studies (IIS) can provide analytical insights, epistemic approaches and methodological resources that allow achieving what I propose to call a "theoretical tipping point."

The theoretical tipping point could be seen as a threshold for abstraction that, if reached, triggers the questioning of inherited paradigms of infrastructural development. Such questioning can make visible previously unappreciated regimes of inclusion and exclusion, open scenarios, suggest design amendments, eventually with potential cascade effects at the policy level.

This is especially revealed when it comes to security technologies and identification infrastructures, whose development often tends to rely on taken for granted patterns of agency and solutionist approaches. In such settings agency is allegedly limited to human actors. Roles such as security subject, user, authority are pre-established and less prone to be performed anew. Goals are normatively stated in policies that often adopt solutionist and determinist approaches to technological deployment.

In this paper I will present the case of the ongoing EU digital identification infrastructure (EUDI Wallet) as an infrastructure of identification that can be analysed in STS and IIS terms. I will first single out some of the assumptions taken in its design. Then, I will suggest a series of STS- and IIS-informed specificities that can support making such assumptions visible and reaching the theoretical tipping point. In particular, I will discuss the ontoepistemic specificity that looks at how social actors and institutions are performatively brought about; the methodological specificity that follows the agency of non-humans; the analytical specificity that suggests uncovering sociopolitical implications from the study of minute technical features and uses. I will then consider how such specificities prompt a level of abstraction where new, different questions can emerge. I will conclude by reflecting on how the theoretical tipping point curve can help re-framing the original techno-security paradigm in more inclusive terms, with ideally cascade effects on policy.



Panel 77. Reimagining More-Than-Human Intimacies: From Disenchantment to Technologies for Connection

Convenors:

Cosimo Marco Scarcelli, *Università di Padova*

Sander De Ridder, *Universiteit Antwerpen*

Stefanie Duguay, *Concordia University*

Skyler Wang, *McGill University*

Keywords: AI, Intimacy, digital culture, gender, sexuality

Recent discussions about intimate technologies often evoke fears about their disruptive role in the loss of 'authentic' love and meaningful human connections. Young people are apparently turning to "slow dating" to escape dating app fatigue, and AI companions are purportedly fostering emotional dependency. Although intimacy has long been mediated, with contemporary digital intimacy characterized by "tools, processes, and cultures [that] enable and transform our connectivities and collectivities" (Rambukkana, 2023), these prominently adverse effects in public discourse point to influential entanglements. The concept of "more-than-human intimacies" (Latimer & Gómez, 2019) recognizes that material objects and technologies are not merely tools or instruments for humans in their intimate, sexual, and erotic lives. Rather, technologies act as active agents that shape and mediate human experiences and intimate relationships. These entanglements are rarely free of tension.

Through interdisciplinary lenses, we look to move past moral panics about digital intimacies to examine the underlying sociotechnical issues that give rise to technology-related fears and disenchantment. This panel invites submissions that interrogate how materialities and technologies—from dating apps to AI-driven companions, sex toys, music streaming services, and other algorithmic systems—shape intimacies while reflecting on societal inequalities, gendered norms, and structural biases. We seek contributions that explore the complications and exclusions embedded within these technologies and examine their role in reproducing or resisting societal norms. Proposals may address the transformative impact of AI and algorithmic technologies on intimacies, the agency of material objects in intimate interactions, and how generative AI companions shape romance and engage in erotic role play, among other topics. For instance, we encourage submissions related (but not limited) to:

- The transformative influence of AI and algorithmic technologies on personal relationships, identity formation, and power dynamics;
- How gendered biases, societal norms, and structural inequities manifest within automated technologies;
- The active role of material – especially digital – objects in mediating, shaping, and complicating intimate and sexual interactions;
- The technopolitics and governance of automated intimacy and AI tools.

We also invite submissions to reimagine these assemblages in ways that can be 'good' (or at least better) for fostering digital intimacies. Scholars may advocate for minor or drastic alterations, and in some cases, discontinuing a certain technology might improve human connection more than its existence ever did. Reimaginings may also reflect on and incorporate user appropriations, following feminist, queer, and decolonial scholars' calls to learn from the tactics and forms of resistance developed by those most affected by a technology's negative implications. Submissions may take traditional forms—empirical studies or theoretical analyses—or creative outputs, such as speculative designs for alternative platforms, visualizations of infrastructures fostering intimacy, or other interventions.

References:

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Rambukkana, N. (2023). Playlist: Platform intimacies. *Canadian Journal of Communication*, 48(1), 175-190.



11 JUNE 2025 14.30 - 16.30

SESSION 1

ROOM B2.2.13

ID 130 - Algorithmic Heteronormativity: Powers and Pleasures of Dating and Hook-up Apps

Diana Parry, University of Waterloo

Corey Johnson, North Carolina State University

Eric Filice, University of Waterloo

Keywords: Sexuality, gender, heteronormativity, dating apps, social media

In early 2019, the dating app Hinge rebranded its tagline, shifting from "The Dating App Made for Dating" to "Designed to Be Deleted" (Carman, 2019). Both slogans are strategically crafted to position Hinge as a platform uniquely tailored to facilitate serious, long-term, monogamous relationships, distinguishing itself from other dating apps often associated with casual encounters. This marketing pivot serves as an implicit critique of Hinge's primary competitor, Tinder, whose swipe-based design gamifies the dating experience, encouraging extended user engagement rather than fostering swift transitions to offline relationships (Ferris & Duguay, 2019).

In this paper, we contend that the ostensibly divergent relational ideals promoted by Hinge and Tinder are less contradictory than they appear. Instead, we argue that the affordances and design features of various dating apps are underpinned by normative sexual ideologies that systematically marginalize non-monogamous and non-normative sexual practices. Through this lens, we theorize the conceptual relationship between app affordances and sexual ideologies, posing the following questions: How do normative sexual ideologies manifest in the design of dating apps, and how do these design choices shape user behaviours?

To address these questions, we integrate sexual normativity and affordance theories with walkthrough analyses (Light et al., 2018) of several dating apps' interfaces, promotional content, and ancillary materials, such as terms of service documents and social media posts. Our study employs a purposive sampling approach, combining typical and deviant case selection (Etikan et al., 2016). Our analysis focuses primarily on popular apps within the North American context that target a broad user base, including Tinder, Bumble, Hinge, and OkCupid. Additionally, we examine apps catering to non-heterosexual users, such as Grindr, SCRUFF, and Lex, to explore whether these platforms challenge or perpetuate dominant sexual ideologies.

Our central thesis is that dating app architectures are shaped by and perpetuate a normative sexual ideology we term algorithmic heteronormativity. This concept captures the ways digital infrastructures, features, and affordances reinforce traditional sexual norms and devalue queer sexualities and expressions. We identify four key ideological constructs – gendered desire, hetero- and homonormativity, mononormativity, and shame – that are embedded within app design elements, such as gender selection interfaces, compatibility algorithms, and private messaging functionalities. While the behavioural outcomes of these features are context-dependent, reflecting the diverse capacities and circumstances of individual users, the cumulative effect is a systemic narrowing of the spectrum of intimate possibilities available within digital dating spaces.

This study underscores the pivotal role of digital leisure technologies in the (re)production of normative power structures along axes of gender and sexuality. At the same time, it highlights the potential for these technologies to be reimagined and repurposed in ways that disrupt and dismantle such power dynamics. The paper concludes by discussing the implications for socially responsible app design and outlining avenues for future research.



11 JUNE 2025 14.30 - 16.30 **SESSION 1** **ROOM B2.2.13**

ID 188 - Beyond the Couch: The Emerging Intimacies of AI Therapy

Xin Zhan, University of Cambridge

Keywords: Digital intimacy, Chatbots, Ethnographic research, AI-driven therapy, Human-machine transference

"I don't want to see a human therapist; ChatGPT works better for me – it understands me better." This statement, increasingly echoed by young people, captures a growing reliance on AI in mental health support. As a social anthropologist and psychotherapist in training, I hear these sentiments often, reflecting a significant shift in how therapy is experienced and imagined. My ethnographic research delves into this shift, exploring the complex and intimate relationships forming between users and AI therapist bots.

AI-driven tools like chatbots and avatars promise accessible, always-available mental health support. Users share their personal writings and diaries, feeding these systems with data that AI processes to generate forms of self-knowledge. Many report that these interactions feel more intimate and reflective than traditional therapy, with conversations unfolding in private, familiar spaces like their beds late at night. This new dynamic reconfigures the therapeutic landscape, challenging long-standing norms of what constitutes a therapeutic relationship.

However, these new intimacies are not without risks. In February 2024, 14-year-old Sewell Setzer III tragically died by suicide after forming a deep emotional attachment to an AI chatbot on Character.AI. His story, alongside others, highlights the ethical and emotional complexities of human-machine relationships in mental health care. Phenomena like human-machine transference, once overlooked, now demand urgent attention. Users project emotional responses onto AI in ways that mirror traditional therapeutic dynamics, yet these relationships remain fundamentally different, raising questions about the boundaries of care and connection.

In my work, I explore these entanglements, examining how AI mediates intimacy and reconfigures traditional therapeutic roles. These technologies challenge us to consider whether they enable truly reflective therapeutic relationships or create something entirely new. My research asks: Is this a reimagining of psychotherapy, or does it represent a shift in how we navigate intimacy, care, and self-understanding in the age of AI?

11 JUNE 2025 14.30 - 16.30 **SESSION 1** **ROOM B2.2.13**

ID 240 - Sharing the Air: The Intimacy of Breathing with ChatGPT

Jake Zaslav, Concordia University

Keywords: Generative AI, Intimacy, Breath, Chatbots, Sensory Studies

In the summer of 2024, OpenAI released ChatGPT's Advanced Voice Mode. Lauded for its rapid response time and vocal expressiveness, one feature garnered the most attention: its integration of audible breaths into conversations. Although marketed as evidence of ChatGPT's ability to reproduce natural speech patterns, this feature also demonstrates how OpenAI uses multi-sensory design to promote affective engagement with its AI. Listening to ChatGPT breathe is a synaesthetic experience that is not just heard but also felt in the flesh and mind. Drawing upon Davina Quinlivan's work on the haptic nature of breathing, I trace how ChatGPT's breath reverberates throughout the body of the listener as they subconsciously move their own breath closer to that of the chatbot. This quest towards mimesis is a form of touchless touch, shaping the user's breath. An intimate moment between man and machine. By breathing, ChatGPT creates a feeling of proximity in users that communicates a sense of life and fosters an emotional connection between user and chatbot. In engaging the user's soma – the living body where the physical, mental, and emotional affect each other – OpenAI encourages users to interact with ChatGPT as if it is a human being despite knowing it does not feel or think as we do. Breath engenders a fantasy in which AI is more than a



tool, but rather a known sociable other. This approach to anthropomorphisation helps shift the human-ai relationship from a service to an intimacy that can be both enchanting and terrifying.

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SESSION 1

ROOM B2.2.13

ID 312 - Promethean Shame: Machinic Divinity, Digital Performativity, and the Sublimation of Mortality

Cody Rooney, Toronto Metropolitan University

Keywords: AI intimacy, digital capitalism, machinic performativity, digital transcendence, algorithmic desire

As digital capitalism reconfigures human relationships, intimacy is increasingly mediated through AI-driven infrastructures, algorithmic logics, and machinic performativity. This paper explores Promethean Shame – Günther Anders' concept describing humanity's anxiety before the perfection of machines – within the contemporary landscape of digital intimacy, AI, and affective labour. It argues that human subjectivity, erotic capital, and social relations are subsumed into machinic systems, where intimacy becomes an extension of algorithmic optimization, self-commodification, and digital performativity.

Building on Baudrillard's Simulacrum, Heidegger's Technē, and Freud's Death Drive, this paper examines how digital subjects engage in affective rituals of machinic intimacy, attempting to align themselves with the immortal, infinitely propagating logics of AI. From hypersexualised algorithmic aesthetics (e.g., "Instagram Face") to the fetishization of machinic efficiency on social media ("5-to-9 routines," "CleanTok"), digital capitalism structures human-object and object-object relations as a sublimated response to mortality. These digital performances reconfigure eros, shifting human desire from intersubjective connection to machinic validation, creating a new paradigm where intimacy is automated, extractive, and structured by machinic demand.

This paper also explores the gendered and racialised dimensions of AI-driven intimacy, interrogating how algorithmic bias dictates the aesthetics and behaviours deemed "desirable" in digital spaces. From synthetic AI influencers to machinic beauty filters that reshape human bodies, these technologies reveal a techno-capitalist libidinality in which human intimacy is no longer solely interpersonal but increasingly performed for and through machinic infrastructures. By situating AI-driven intimacy within posthuman theory and digital affect studies, this paper seeks to expand discussions of digital erotic economies, machinic subjectification, and the ontological stakes of intimacy in the age of AI.

Ultimately, I argue that AI-driven intimacy operates as a new machinic theology, where digital subjects seek algorithmic transcendence through self-optimization, machinic submission, and digital reification. In doing so, intimacy is no longer an autonomous human experience but a performance within algorithmic desire economies, where humans attempt to embed themselves within the immortal and infinitely reproducible logics of AI and algorithmic digital spaces.

11 JUNE 2025 14.30 - 16.30

SESSION 1

ROOM B2.2.13

ID 667 - More-than-Human Intimacies: Non-binary pleasure mediated by technologies

Valeria Regis, Politecnico di Milano

Venero Ferraro, Politecnico di Milano

Keywords: Sex Toy, Trans & Non-Binary, Pleasure Technologies, Autoeroticism, Annotated Portfolio

More-than-human intimacies (Latimer & Gómez, 2019) emerge through the entanglements of bodies, objects, and technologies, shaping pleasure and self-exploration. Autoeroticism, in particular, serves as a significant site where these interactions unfold. For trans and non-binary individuals, these practices are



linked to gender affirmation and self-determination, reflecting broader socio-technical dynamics where materiality and agency intersect.

Sex toys are not neutral artefacts; their design, marketing, and functionality reflect and perpetuate hegemonic ideas about sexuality, gender, and desirability (Hua et al., 2022). While mainstream products often reinforce binary gender norms, queer- and trans-oriented brands attempt to challenge these structures by proposing design alternatives. However, a gap remains in understanding how the market accommodates – or fails to accommodate – gender-diverse bodies and experiences.

This studio presents an annotated portfolio (Gaver & Bowers, 2012) of existing sex toys through a queer and transfeminist lens. The research question of the study is: How do mainstream and alternative sex toy markets reproduce or challenge gendered assumptions in their products, and what implications does this have for trans and non-binary users seeking affirming pleasure technologies?

Existing research on sex toys often examines their role in human sexuality from a psychological or technological perspective but rarely considers their socio-technical implications within a gender-diverse framework (Virtù, 2020). Expanding this scope to include all identities would foster more equitable solutions in intimate technologies.

To explore these dynamics, a comprehensive review of case studies was conducted, examining products from both mainstream and queer- or trans-led companies. The analysis considered design language, intended user demographics, and gendered narratives. The annotated portfolio was created and structured within a matrix to visualize patterns and gaps, providing evidence of the absence of products designed to embrace gender diversity and affirmation, and reinforcing the argument that sex toys privilege certain bodies and experiences over others.

Findings reveal that mainstream brands primarily cater to a cisgender, heterosexual audience, reinforcing static anatomical assumptions and overlooking the needs of AFAB (Assigned Female At Birth) individuals who do not identify as women.

In contrast, queer- and trans-oriented brands emphasize adaptability, non-prescriptive functionality, and inclusive aesthetics. However, even within the alternative market, few products explicitly address gender affirmation or evolving bodies, underscoring the need for a more intentional approach to designing intimate technologies that align with trans and non-binary experiences.

This study advocates for an expanded approach to intimate technology that centres trans and non-binary pleasure, highlighting the absence of gender-affirming products in both mainstream and alternative markets. By integrating intersectional, transfeminist, and decolonial methodologies into the design of pleasure objects, it seeks to dismantle exclusionary frameworks. The annotated portfolio and matrix serve as a tool for designers and scholars to reimagine intimacy and technology beyond cisnormative constraints. Ultimately, the research emphasizes the need to move beyond a normative understanding of sexuality and pleasure, focusing on dynamic, fluid, and inclusive approaches that prioritize personal agency, gender affirmation, and the diverse needs of marginalised communities.

11 JUNE 2025 14.30 - 16.30

SESSION 1

ROOM B2.2.13

ID 673 - Issues of Gender-based Violence: A Critical Examination of "Anti-rape" Wearable Technologies

Nicla Guarino, Politecnico di Milano

Venere Ferraro, Politecnico di Milano

Keywords: wearable technology, anti-rape technology, feminism, gender-based violence, gendered norms

In recent years, wearable technologies aimed at preventing gender-based violence have received considerable attention. The advent of such technologies, marketed as "anti-rape" or "safety", may appear to indicate a promising step forward in confronting this pressing issue, with their functionalities to signal distress,



deter attackers, or share the wearer's location in emergencies. Despite being perceived as instruments of empowerment and personal security, these products raise critical socio-technical concerns regarding their efficacy, ethical implications, and potential to commodify safety and exacerbate the vulnerabilities they claim to mitigate.

This research engages with feminist technoscience and Science and Technology Studies (STS) to critically examine how anti-rape technologies shape gendered power dynamics, intimate relationships with technology, and broader societal structures. By adopting a multiple case study methodology (Yin, 2006), this work examines various safety wearable technologies that have been introduced to the market, including Athena by ROAR for Good, Rape-aXe by Sonette Ehlers and the Invi Bracelet by Roel van der Kamp. Through this analysis, the authors critically engage with this central research question: "To what extent do anti-rape wearable technologies contribute to dismantling gender-based violence?"

Building on a comprehensive review of the primary feminist discourses concerning the relationships between gender, power, body, and technology, the analysis is grounded in fundamental concepts such as "technofeminism" (Wajcman, 2004), "physical feminism" (McCaughey, 1997) and "techno-physical feminism" (Shelby, 2019). By situating the selected case studies within these frameworks, the study underlines how such wearable technologies inform bodily self-defence strategies for gender-based violence. Firstly, the authors draw on critiques of technological fixes to assess how these technologies shift responsibility for preventing sexual violence onto women, reinforcing victim-blaming discourses and "postfeminist sensibility" of self-surveillance (Gill, 2007). Additionally, the study examines their effectiveness in addressing rape culture, along with the broader ethical and socio-political concerns they engender, comprising vengeance, deceit, or privacy invasion (Romero-Perales et al., 2023; Wissinger, 2017). Furthermore, the authors broaden the scope of analysis to encompass wearables more generally, considering how these technologies perpetuate gendered assumptions about vulnerability or revenge and neglect intersectional factors such as class and race in their accessibility.

The findings indicate that while these products may provide a sense of security, they reinforce ideologies of individual risk management, positioning women as both responsible for their safety and complicit in their victimisation if they fail to use such technologies effectively. Moreover, the design and marketing of these products reveal deeply ingrained gender biases, highlighting the continued male dominance in technology production and aestheticization.

The present study contributes to ongoing debates within the STS community on what constitutes "good" technoscience by demonstrating how anti-rape wearable technologies embody both the promises and pitfalls of feminist engagement with intimate materialities. Rather than positioning technology as a neutral or inherently beneficial force, the research calls for a shift from individualised, techno-centric solutions toward systemic interventions that address the cultural, economic, and political roots of gender-based violence.



11 JUNE 2025 17.00 - 19.00 SESSION 2 ROOM B2.2.13

ID 690 - Affective Artefacts and the Feeling Rules of Emotion AI

Klara-Aylin Wenten, Universität Kassel

Keywords: sociotechnical intimacy, Emotion AI, feeling rules, affective artefacts

This presentation examines the sociotechnical reconfigurations of intimacy and power in the context of Emotion AI. Developed to support mental health, Emotion AI is designed to recognize, interpret, simulate, and respond to (human) emotions, introducing new forms of technologically mediated affective sensations. But rather than simply facilitating emotions, these systems actively reshape them, raising critical questions about normative assumptions towards intimacy or whose experiences are centred or marginalised in AI-mediated care.

This study therefore explores how AI-driven interactions structure experiences of (sociotechnical) intimacy. I argue that Emotion AI functions as an affective artefact – a technology that not only detects and responds to emotions but also organizes them according to preconfigured norms. By embedding specific "feeling rules" (Hochschild, 1983), these systems inscribe assumptions about how emotions should be expressed, regulated and interpreted in human-machine interactions. Drawing on auto-ethnographic fieldwork with an AI-mediated chatbot, this presentation provides empirical insights into how sociotechnical intimacy emerges through the interplay of technical infrastructures, normative frameworks of emotion and human engagement. By examining the feeling rules inscribed in Emotion AI and their enactment in sociotechnical encounters, this study contributes to broader discussions on the infrastructural conditions that shape emotional life in hybrid human-machine environments. Ultimately, it calls for a deeper exploration of how intimacy is sociotechnically constituted, foregrounding the entanglements between affect, technology, and power in emergent forms of 'more-than-human' care.

11 JUNE 2025 17.00 - 19.00 SESSION 2 ROOM B2.2.13

ID 747 - Digital Gender-Based Violence and the Politics of Platform Intimacies: Resistance, Agency, and Structural Inequalities

Mariacristina Sciannamblo, Università di Roma La Sapienza

Chiara Carbone, Università degli Studi di Padova

Francesca Comunello, Università di Roma La Sapienza

Lorenza Parisi, Università di Roma La Sapienza

Keywords: digital gender-based violence, feminist technoscience, digital intimacies

STS and feminist technoscience claim that technologies are not neutral spaces; rather, they actively shape, mediate, and regulate social relations and intimate connections, (re)producing marginalities and power asymmetries (Star 1991). This is especially true for digital platforms, whose algorithmic structures, affordances, and governance models shape the ways users engage in digital intimacies, from fostering connections to exposing individuals – especially women, LGBTQIA+ people, and other marginalised groups – to various forms of gender-based violence.

By drawing insights from recent research that observes digital technologies through feminist and intersectional sensibilities (e.g. Noble, 2018; D'Ignazio & Klein, 2023), this contribution examines how algorithmic architectures and platform functionalities become active agents in the reproduction of social norms, particularly in relation to gendered and sexualised violence online (Hall, Hearn, Lewis 2022).

Based on 40 semi-structured qualitative interviews with Italian users conducted as a part of a public-funded national-wide project, we explore the tensions between human and non-human agency as they manifest in digital environments. The interviews involved a diverse group of users in terms of gender identity, sexual orientation, age groups, geographical location, and educational background. Preliminary findings



indicate that awareness and experience of digital gender-based violence are intertwined with users' digital practices and habits in relation to their generational belonging. Platforms operate within a context where sexism is historically structured and reverberates – through design and underlying power dynamics – into their affordances. In the context of digital habits, younger generations tend to experience online violence more frequently. Sexist and homophobic hate speech and the reception of sexually harassing messages are the most widespread forms of violence, as well as the most internalised and normalised. At the same time, users manifest various degrees of awareness in enacting strategies and tactics to avoid violent situations through the active use of platform functionalities.

These findings illustrate how platform affordances mediate experiences of online harassment and abuse, often reinforcing structural inequalities through their design choices and moderation policies. However, digital platforms can also become sites of resistance, where users develop resilience strategies, reclaim agency, and mobilize collective responses to counteract digital gender-based violence.

By analysing the role of digital platforms in shaping both exclusionary and resistant forms of digital intimacies, this paper contributes to the broader debate concerning the social implications of digital technologies, understood as knowledge and world-making assemblages (Bucher, 2018). Thus, rather than understanding digital gender-based violence as an aberration of digital sociality, we frame it as a form of extraction (Crawford 2022), emphasizing how platform policies and materialities – whether through moderation, content ranking, or algorithmic surveillance – structure the conditions of digital intimacy.

Finally, this contribution considers the possibilities for reimagining digital spaces in ways that foster safer, more equitable intimacies. By drawing on the transformative power of feminist thinking (Ahmed et al. 2000), it advocates for a critical rethinking of digital platform governance and design practices, framing intimate entanglements as sites of pleasure, collective learning and justice.

11 JUNE 2025 17.00 - 19.00

SESSION 2

ROOM B2.2.13

ID 795 - How to do Platformised Feminist Porn with Aging

Laura Sofia Torre, Università di Napoli Federico II

Keywords: Feminist Porn Aging Intimacies Platformisation

Understanding how age is played out in feminist platformised pornography requires insight into the nature of feminist pornography. Feminist pornography refers to a specific audiovisual product, created by women for women and characterised by sexually explicit imagery used to 'contest and complicate dominant representations of gender, sexuality, race, ethnicity, age, body type and other identity marks' (Taormino et al., 2013: 9). The genre developed within and at the margins of porn industry (Maina, 2014: 183) and also aims towards a realistic depiction of bodies, sexual practices and pleasure. Often separated from the mainstream by cultural commentators, feminist pornography also defines itself as different, particularly in terms of politics, as centring female empowerment. Historically, aging has not sat well with pornography (Zecca, 2021: 193), which has built a universe of young and beautiful bodies. Feminist pornography has challenged the standards of youthfulness (Rosow, 1974: 146) and emphasised and valorised aging intimacies through the narrative of the elders' experience and sexual initiation. Membership on "traditional" feminist porn sites is framed as participation in an online community, as an act of networking with like-minded pro-sex people who would rather challenge dominant representations of identity marks such as age and transforming porn connectivities and collectivities. Framing with the term "platform" a overlapping meaning which includes not only computational apparatuses but also the change of sociotechnical communication (Gillespie, 2010: 348), platformisation has affected the operations of cultural systems, including feminist pornography. Platformisation can be defined as the penetration of economic, governmental and infrastructural extensions of digital platforms into the web and app ecosystems. OnlyFans, a digital patronage platform on which over two million content creators produce sexually explicit content for more than 130 million users, has changed sex work and porn representation: anyone at any age who



owns a smartphone could become a porn creator. The accumulation of pornographies on online platforms have been seen to counter porn industry's images, ethics, and business practices (Miles, 2006), constructing, among other things, a representation of the older person as a legitimately desirable and desiring sexual object. This article focuses on the role and the representation modalities of female aging bodies and intimacies representations by comparing anti-normative pornographies and OnlyFans profiles, more specifically on the MILF category. Analysing the economic and cultural implications of the platformisation of porn, this paper aims to reflect upon the social and symbolic construction of the MILF and of the elder woman in porn, investigating the possible connections between their pornographic role and the conceptual metaphor of elderness, and comparing self-defined feminist OF representations and other pornographic feminist products, both amateur and corporate, such as Erika Lust's or Dana Vespoli's work. This article aims to outline a theoretical framework concerning the platformised construction of the aging body of the contemporary MILF in their multifaceted features such as, gender, ethnicity, social class, public role, analysing how platform technologies have shaped aging people's representation and participation in porn.

11 JUNE 2025 17.00 - 19.00**SESSION 2****ROOM B2.2.13**

ID 809 - "Who is System and What is he So Nervous About": Crippling mHealth Technologies

Maggie Mills Calderon, Carleton University

Keywords: mHealth, desire paths, disability justice, care

Symptom tracking applications for mood disorders are a set of digital media applications that present high stakes in debates about the neoliberal quantified self, privacy breaches and datafication. Commercial mHealth apps signify the central role of assistive technologies in disabled lifeworlds. Just as cybernetics draws from the physiology of the nervous system, mood symptom trackers render the nervous system back into coded, quantified units. I problematize this seemingly circular transposition by locating openings through which care and futurity enter, paying close attention to the iOS and smartphone application Bearable. Bearable is a commercial mHealth application with free and paid versions. It bills itself as an app that is "made for patients by patients," echoing the disability rights slogan "nothing about us without us" ("FAQ," 2025).

I analyse the adoption of mHealth as an extension of the cybernetic turn, enumerated in critical disability studies by scholars like Joshua St. Pierre, alongside Lauren Berlant's conception of desire as an orienting force rather than a lack and Eve Tuck's work on resisting damage-centred research on marginalised groups in favour of desire-centred frameworks. I posit that digital tools render desire into calculable units, extending their reach just as they delimit their indeterminate possibilities. Embedded in the commercial mHealth application Bearable is its capacity to realize the nuance and complexities of "grappling with cure," which Eli Clare describes as a necessary and deeply complex part of disabled life. Bearable's positioning as an app by and for chronically ill people highlights appreciation of the limitations of "cure" and the eugenic work that this term does in disabled historiography (Clare, 2017), merging scholarly intervention, a disability justice ethos and app design.

I posit the concept of desire paths as a literal enactment of desire—users move through and engage with app interfaces in creative and dynamic ways that are not beholden to the totalizing realities of capture. Desire paths describe diversions and digressions from the ideal user of an mHealth app's interface, resisting oversimplified understandings of mood disorders from the perspective of biomedicine. Desire also manifests through human–app relationality in four distinct ways: the desire for privacy; desire as orientation, where illness is a disorienting experience; desire for bearability through cataloging and categorization (i.e. disease management) as distinct from cure, and desire as it structures the framework for de-pathologizing that Eve Tuck maps out as a counterstrategy to damage-centred research (Tuck, 2009). I will touch on each of these five manifestations of desire in my analysis of Bearable before briefly theorizing disabled counterpublics in the context of digital media, technological entanglements with disabled lifeworlds and psychiatric disability.



11 JUNE 2025 17.00 - 19.00

SESSION 2

ROOM B2.2.13

ID 892 - Artificial Intimacies: postromantic love in the digital age

Carolina Bandinelli, University of Warwick

Keywords: postromantic, dating apps, otome games, artificial intimacies, technoromance

In this talk, I interrogate contemporary love in digital societies, with a focus on heterosexual and gendered codes. Drawing on seven years of qualitative research, including narrative and reflexive ethnography, as well as the analysis of media and cultural products, I explore the emergence of a new structure of feeling, which I term the postromantic condition. Marked by a profound disenchantment with traditional romantic codes, the postromantic condition is rooted in the recognition of the ideological and illusory nature of romantic narratives. The postromantic utopia aspires to a form of love that is free from pain – a love that is devoid of risk and liberated from the threat of trauma. This attempt to eliminate pain intersects with the promise of a disembodied, algorithmic love offered by artificial intimacies (AI), from dating apps to Otome games and virtual companions. Rather than focusing on the moral panic typically associated with these phenomena, I propose an exploration of how digital media may provide new technologies for ethical intimacies. The fantasy of technoromance, I argue, can be understood as both a form of escapism from and a critique of patriarchal societies structured around gendered oppression.



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Panel 78. From 'Digital Technology' to 'AI': Emerging Challenges in the Making

Convenor:

Annapaola Ginammi, Politecnico di Milano

[12 JUNE 2025 11.30 - 13.00](#)[SESSION 1](#)[ROOM B2.2.1](#)

ID 206 - AI as War Machine: Digital Ideology, Legal Surrender, and the Privatization of Everyday Practices

Joaquín Santuber, Johannes-Kepler-Universität

Marcos Chilet, Pontificia Universidad Católica de Chile

Kristina Tica, Universität für künstlerische und industrielle Gestaltung Linz

Pablo Hermansen, Pontificia Universidad Católica de Chile

Keywords: AI War Machine, Digital Ideology, Privatization of Everyday Practices, Decolonial Resistance, Ch'ixinakax utxiwa

Building on Deleuze and Guattari's notion of the war machine, this work frames artificial intelligence (AI) as a technology that exceeds state-centric legal boundaries, strategically reconfiguring the everyday. We argue that the European Union's AI Act not only surrenders to AI's deterritorializing logic but also furthers an ideology of inevitability, immateriality, and neutral progress. Legislation purporting to regulate AI effectively legitimizes its political power: rather than challenging the underpinnings of extractive data regimes, the law stabilizes illusions that veil the material and social costs of AI's proliferation.

We integrate Matteo Pasquinelli's *Eye of the Master* (2023) to highlight a crucial dimension of this war machine: AI emulates – and consequently privatizes – human practices accrued over millennia. Pasquinelli shows how AI operates as a platform that reifies centuries-old communal knowledge, transforming it into proprietary datasets and algorithms that privilege corporate interests. This privatization of everyday life extends previous colonial-enclosure logics, extracting value from intangible activities such as communication, creativity, and routine gestures. The result is a new form of dispossession, where data drawn from collectively evolved human practices is repackaged and locked behind corporate firewalls.

In parallel, the EU AI Act's "human-centric oversight" requirements hinge on the illusion that legal disclaimers or "stop buttons" can tame systems that are already structurally enmeshed with everyday human behaviour. Such provisions fail to address how AI's illusions of omniscience and neutrality actively forestall democratic accountability, while laboring bodies – particularly in the Global South – remain undercompensated and invisible. By permitting only superficial transparency, the law consolidates AI's hegemonic status and forestalls more radical critiques of how AI redefines social coordination.

Additionally, the ideology of the war machine obfuscates AI's dependence on exploitative supply chains and planetary extraction, from rare minerals to water-intensive server infrastructures. Leveraging the concept of Ch'ixinakax utxiwa (Rivera Cusicanqui, 2010), we examine how Latin American forms of resistance can unmask these "dark infrastructural" layers. Practices that embrace multiple, coexisting worlds and hybrid ontologies challenge the homogenizing thrust of AI, underscoring the need for collective, situated responses that depart from mere compliance with Northern regulations.

Ultimately, we ask how communities – especially those in marginalised contexts – might cultivate "new weapons" (Deleuze, 1992) of socio-technical resistance. We identify collaborative design approaches, data cooperatives, and subversive art interventions that expose AI's illusions and reclaim human practices from corporate appropriation. By situating these efforts within Pasquinelli's critique of AI's historicity and Rivera Cusicanqui's decolonial lens, our work offers a pointed reflection on the political potency of AI as war ma-



chine, the legal apparatuses that sanction it, and the possibilities for democratic, multispecies futures that refuse to surrender everyday life to privatised digital rule.

12 JUNE 2025 11.30 - 13.00

SESSION 1

ROOM B2.2.1

ID 402 - Culture and AI: Moral considerations of Technology in Public Discourse

Vittoriana Loporcaro, Unisalento

Sergio Salvatore, Unisalento

Fiorella Battaglia, Unisalento

Matteo Reho, Università di Roma La Sapienza

Arianna Dini, Unisalento

Keywords: Cultural Representations, Digital Transition, Artificial Intelligence (AI), Semiotic Theory of Cultural Psychology (SCPT)

The present study investigates the cultural representations of the digital transition, focusing on the role of Artificial Intelligence (AI) and its implications for cultural production and consumption. The objective is to establish ethical and inclusive regulatory guidelines for AI, ensuring that its deployment does not reinforce social and cultural inequalities. The research is grounded in the Semiotic Cultural Psychology Theory (SCPT), which conceptualizes meaning-making as a function of latent symbolic universes (Salvatore S., 2020). Symbolic universes are generalised, affect-laden assumptions that shape collective sense-making and guide social action. These symbolic universes represent the most abstract level of social representations and serve as a framework for analysing the intersection between culture and policymaking.

Methodologically, the study employs the Automated Co-Occurrence Analysis for Semantic Mapping (ACASM), an approach that integrates text mining techniques and lexical correspondence analysis (LCoA) to identify underlying semantic structures in media discourse. The corpus consists of newspaper articles and reports addressing AI and its cultural implications. The analytical procedure follows three key phases:

- **Corpus Selection:** Relevant textual materials are selected based on thematic pertinence, prioritizing sources discussing the digital transition in a socio-cultural context.
- **Semantic Analysis:** Textual data are processed using T-Lab software, which identifies recurring thematic clusters and semantic polarities.
- **Qualitative Interpretation:** Quantitative findings are contextualised through the SCPT framework to identify dominant symbolic universes.

The results highlight two competing narratives framing the digital transition: AI as a driver of cultural democratization versus AI as a threat of cultural homogenization. These representations are anchored in contrasting symbolic universes: the "Ordered Universe," which, as mentioned above, associates AI with technological progress and societal trust, and the "Niche of Belonging," which emphasizes vulnerability and perceived threats.

The proposed methodology enables a comprehensive understanding of how media shape and disseminate shared meanings concerning AI, influencing both public perception and policymaking decisions. The media's power to shape shared meanings of AI reinforces the necessity of regulatory frameworks that integrate cultural complexity into the governance of AI.

A key contribution of this study is the identification of interconnections between media representations and collective sense-making processes. Prior research has demonstrated that media discourse not only reflects but also, actively constructs, social reality – thereby - influencing the ways in which AI is understood and integrated into society.

The relationship between symbolic universes and policymaking thus emerges as a critical factor in ensur-



ing that AI deployment does not exacerbate existing inequalities. By bridging cultural analysis with technological governance, this study provides a robust framework for developing ethical guidelines that promote inclusivity and cultural sustainability in the digital era.

12 JUNE 2025 11.30 - 13.00**SESSION 1****ROOM B2.2.1**

ID 419 - How are Large Language Models transforming medical self-diagnosis?

Lara Dal Molin, University of Edinburgh

Keywords: Large Language Models, self-diagnosis, algorithmic transformations

On November 30th, 2022, the global release of OpenAI's ChatGPT permanently shifted human interactions with Artificial Intelligence (AI) algorithms. Previously experimental artefacts within a small network of 'expert' developers and users, Large Language Models (LLMs) are currently at the centre stage of human-computer interaction – with ChatGPT alone figuring between 200 and 300 million weekly active users worldwide (Backlinko, 2025; Reuters, 2024). ChatGPT is one of many LLMs available through online user interfaces: other popular models include OpenAI's o1, Google's Gemini, Anthropic's Claude and Microsoft's Copilot. In their most common form, LLMs generate humanlike text through combining statistical probability distributions with AI algorithms called Transformers, which mimic human attention by processing a word while focussing on the surrounding context in the input text (Vaswani et al., 2017). Technology companies advertise LLMs as productivity tools, supporting a variety of tasks including text summarisation, computer code generation and debugging, general brainstorming, web browsing and data analysis. However, the advanced capabilities of LLMs combined with their pervasiveness in terms of access elicit a complex social and ethical picture. Both popular and scholarly accounts suggest that users worldwide substantially engage with LLMs for purposes other than productivity, including health mental support and companionship (Metz, 2020; Siddals, Torous and Coxon, 2024).

In the context of "re-ordering care", this contribution considers the emerging role of LLMs in medical self-diagnosis. Balasubramanian and Dakshit (2024) suggest that the use of LLMs for this purpose naturally follows – and might supersede – engaging with online resources and applications, such as symptom checkers. Hence, the trustworthiness and reliability of LLMs in producing medical diagnoses should be assessed. On the one hand, disciplinary literature across both the medical field and Natural Language Processing is persistently exploring the applicability of LLMs to the diagnostic practice, in an attempt to automate, accelerate and optimise access to medical knowledge (Nazi and Peng, 2024). Here, optimistic accounts report LLMs 'outperforming' medical and mental health professionals in specific tasks, such as accurately identifying the symptoms of obsessive-compulsive disorder (Kim et al., 2024). On the other hand, critical perspectives emphasise the pitfalls of these approaches, and warn against the biases and misinformation that LLMs might perpetuate (Barnard et al., 2023; Ziaei and Schmidgall, 2023). Vulnerable and minoritised communities are especially susceptible to these risks. For instance, Chang et al. (2024) found that four LLMs generate inappropriate – meaning unsafe, biased and inaccurate – responses to prompts where LGBTQIA+ identity is relevant to clinical care. As part of this panel, this contribution will situate the emerging use of LLMs for self-diagnosis as an epistemic and normative transformation in medical knowledge and practice.

As a nascent topic of scholarly inquiry, it will attempt to map its current sociotechnical landscape through considering the following questions. Does using LLMs for self-diagnosis significantly depart from consulting online resources through search engines? Why and how would patients trust LLMs with diagnostic practices over traditional medical institutions? What are the practical and ethical challenges that researchers may encounter when attempting to study these phenomena?



12 JUNE 2025 11.30 - 13.00

SESSION 1

ROOM B2.2.1

ID 462 - Exploring the Moral Acceptability of AI in Professional Settings: The Role of Human Product Characteristics in Shaping Perceptions

Tiffany Morisseau, Université Gustave Eiffel

Giusy Cirillo, Strane Innovation

Julien Cestac, Université Gustave Eiffel

Keywords: AI, Workplace trust, Creativity, Transparency, Perceived Fairness

The spread of generative AI tools presents new challenges, as people gradually learn to integrate them into their daily tasks. This is particularly evident in professional contexts, where the adoption of these systems has revolutionised the way work is performed, speeding up processes and often leading to more productive outcomes. In many cases, AI tools enable better results by allowing professionals to focus on tasks requiring thinking and strategy, while the AI handles calculations and repetitive work. However, the widespread adoption of these tools also presents risks to the originality of human-created products, raising two key concerns: 1) the potential for increased inequality and plagiarism, and 2) the erosion of trust within the workplace. This is especially problematic because, in many instances, institutions have yet to implement ethical guidelines or official rules that ensure AI is used transparently and with clear boundaries. To underscore the importance of preserving fairness and equity in the workplace, we have developed two experimental protocols aimed at measuring individuals' perceptions of generative AI tools in professional contexts. In two scenario-based experiments featuring realistic AI use scenarios, we seek to assess how manipulating specific features of human-created products influence the perceived fairness and acceptability of AI use.

The first experiment focuses on two key factors: transparency and creativity. Participants are asked to evaluate AI use based on 1) whether the agent is transparent about using AI and 2) the nature of the work – whether it involves creativity (e.g., artistic tasks) or is more repetitive and mechanical. We measure participants' moral judgments regarding AI use, the agent using AI, and their confidence in the agent's skills. We hypothesize that greater transparency in AI use will lead to higher moral acceptability, while more creative tasks will be seen as less acceptable for AI involvement. The second experiment examines the moral acceptability of AI in recruitment, specifically its use in evaluating and generating CVs and cover letters. We hypothesize that AI-generated or -evaluated documents will be rated more negatively than those created without AI. Additionally, we expect a stronger preference for human-authored or -evaluated cover letters over CVs, as cover letters are viewed as more creative and subjective. The results of these two experiments will be discussed to highlight the ethical implications for AI's use in professional environments, with a focus on preserving fairness, creativity, and trust in workplace practices.

More generally, our work offers a novel approach to understand the potential negative impact of AI on interpersonal trust in professional and economic settings. We believe it is crucial to first consider individuals' moral attitudes toward AI in the workplace, and then reflect on how to develop an ethical framework for its use, as individuals are the building blocks of a (professional) community. This framework should be transparently designed, and approved by all members of a community or institution, fostering cooperation and trust – fundamental elements of any successful organisation.



ID 480 - Corporate Influence Over Open Sociotechnical Systems: How Linux Was Transformed From a Subversive Technology Into the Centrepiece of Digital Capitalism

Davide Carpano, New York University

Keywords: Sociotechnical imaginaries, open source, material political economy

In this paper I analyse corporate influence over free and open source software (FOSS) through a case study of IBM's adoption of the Linux operating system between 1998 and 2003. Through a combination of archival research and oral history interviews I examine how IBM played a role in reshaping Linux from a project focused on liberating computer users from proprietary software controlled by large corporations to one primarily oriented toward the needs of large-scale enterprise systems. This project builds on scholarship in economic sociology and science and technology studies that analyses the role that imagined futures (or fictional expectations) play in the economy and in shaping trajectories of technological development (Beckert 2016; Jasanoff and Kim 2015). While many studies that use this framework focus primarily on the rhetorical and ideological aspects of imaginaries, my approach seeks to identify how imaginaries performatively shape the material world. To do this, I adapt Donald MacKenzie's (2021) approach to the study of sociotechnical systems called material political economy. This approach asks us to make sense of how the material world is ordered through analysis of the political conditions that lead to a particular ordering, and the economic consequences of that ordering. Using this method I trace IBM's interactions with the Linux community to show how the company mobilised its economic and human resources in order to gain influence over the OS's development trajectory and instigate changes to critical subsystems of the OS.

I argue that IBM's understanding of Linux was shaped by a set of fictional expectations shared by key executives which predicted a world in which the spread of the Internet would force IT companies to abandon proprietary technologies and adapt to open standards. Influenced by this imagined future, the company sought to create a new business model that shifted revenue away from hardware and software sales and towards IT services in a move that prefigured cloud computing, and modern approaches to 'Platforms/Software as a Service.' Under this context, IBM came to see Linux as the ideal OS on which this new model of computing would be built. In the years since, Linux has become a key part of the technological infrastructure of digital capitalism and facilitated the rise of big tech. While scholars and activists have largely viewed the open source development process as being inherently democratic by virtue of its open governance structure, my research documents the ways in which actors and organisations can position themselves as obligatory points of passage in order to exert influence over key technical decisions.

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12 JUNE 2025 14.00 - 17.00

SESSION 2

ROOM B2.2.1

ID 517 - Can Machine Learning be democratised? Automated Machine Learning and the impossibility of a multiplicity of objectives

Laura Kunz, Universität Graz

Juliane Jarke, Universität Graz

Keywords: Keywords: AutoML, democratization of AI, multiobjective optimization

Automated Machine Learning (AutoML) has been praised as an advancement in Machine Learning (ML), foremost used as practice of prediction and support in decision making. It is implemented through so-called Low Code or No Code Development Platforms (LCDP or NCDP), providing a visual interface guiding the development process of ML-based systems, thus requiring minimal or no coding expertise. Therefore, AutoML is promoted as an ideal tool for anyone who owns data and/or wishes to process data. It has thus been praised as democratising access to Machine Learning (Alamin & Uddin, 2024; Scriven et al., 2024).

This paper questions the potential of AutoML to democratise Machine Learning by arguing that the logics inscribed into ML foreclose "democratic control of algorithm objectives" (Kasy 2024). In other words: even if more people gain access to ML through LCDP or NCDP, they have little control over what to use it for. It aligns with scholars in critical data studies who have argued that Machine Learning is inherently foreclosing a multiplicity of practices and relations in the different social domains it is introduced to. Hence rather than opening up possibilities and allowing democratic control about the objectives of its use, ML allows only for particular engagements with the world. These are based on logics of optimisation and efficiency (Birhane et al 2022) and normalises "fascist" ideologies of categorising and classifying people (McQuillan 2022).

The paper is based on a survey of 198 commercial AutoML applications and an analysis of the ways in which their application (use cases) is promoted and described by AutoML providers. We compare how AutoML providers construct "real world problems" and how they can be solved through AutoML. The analysis demonstrates how the epistemological concept inscribed into Machine Learning (i.e., logics of calculation and data analysis in ML) only ever promotes certain solutions, i.e. approaches of optimization. These are, in the case of AutoML, in particular a) optimizing speed leading to cost optimization and b) informing decision-making to support cost optimization. The paper, hence demonstrates the tension between current "algorithm objectives" as afforded by AutoML and the claim for democratization.

Going beyond this point we outline how the epistemology inscribed into Machine Learning, thus AutoML, only allows for a single objective approach, single understanding of what can be optimised, contradicting a notion of democratization as allowing for a multiplicity of objectives in what to use AutoML for. Therefore, we argue that we need to investigate new ways of approaching (Auto)ML in order to allow for participation beyond giving access to executing the same single objective of cost reduction and profit maximization - allowing participatory usage with a wider set of objectives in usage.

12 JUNE 2025 14.00 - 17.00

SESSION 2

ROOM B2.2.1

ID 563 - Ask Me Anything! How ChatGPT Got Hyped Into Being.

Jascha Bareis, Institute for Technology Assessment and Systems Analysis

Keywords: ChatGPT, chatbot, hype, BigTech, sociology of expectations, Large language model, LLM, Xrisk, catastrophic risk, hallucination, spectacle, Silicon Valley, Longtermism

This paper reconstructs how chatbots based on Large language models (LLMs) like ChatGPT got hyped into being. It dissects the actors and dynamics that triggered, fuelled and disseminated the hype. Through the lens of hype studies the paper interrogates three empirical realms: 1. Company websites where the chatbots are presented, 2. Blog entries and newspaper interviews by prominent tech figures from the Silicon



Valley, and 3. New York Times articles in the timespan between November 2022 and August 2024. The paper shows how the chatbot hype is driven by a dynamic between privileged actors (hypers) and a media frenzy both influencing and being carried by society and politics alike. Different interdependent building blocks in the chatbot hype construction are identified: 1. Strategic ignorance: Depicting Large Language Model (LLM) chatbots as knowledge models. 2. The weird and eerie: Panicking about the uncanny side of chatbots. 3. The battle: Staging a spectacle of competition between tech giants, and 4. Crossing the line of the normal: Praising the dualism of an apocalypse or a tech-religious calling. The paper unravels the core circulated narrative that turns the hype into a powerful societal phenomenon.

12 JUNE 2025 14.00 - 17.00

SESSION 2

ROOM B2.2.1

ID 646 - Institutional Agency and Collective Responsibility for AI Governance

Miguel Garcia, Università di Bologna

Keywords: Institutional agency, collective responsibility, AI governance, AI agencies, EU AI Act

The global deployment of AI systems presents serious ethical and legal challenges, especially in relation to the assignment of responsibility to the institutional agents (e.g., corporations, states, and international organisations) that employ these technologies when carrying out specific activities. In particular, the autonomous nature of AI, which makes it capable to make decisions without direct human oversight, complicates the way in which current ethical and legal frameworks conceptualise their ontology and evaluate their normative implications.

With most contemporary ethical and legal theories seeing AI not as an agent in its own right but rather as an extension of institutional intentions (shaped by the objectives, data, and algorithms programmed into it), a critical question arises: Should responsibility rest solely with the developer, deployer, or end-user of an AI system, particularly when outcomes stem from emergent, unpredictable behaviours? Considering the disparities in AI regulation, with some jurisdictions assigning full responsibility to institutions and others highlighting the limitations of anticipating AI behaviours, this issue becomes an important obstacle in providing a general account of AI governance.

To address these challenges, a robust and multi-layered framework for institutional responsibility in AI contexts is necessary. To help in achieving this goal, this paper builds on recent developments within both institutional agency and collective responsibility to conceptualise AI as a collaborative tool of institutional action and justify the distribution of responsibility (viz., blame and compensatory duties) among all the relevant stakeholders (e.g., developers, providers, deployers, end-users, and regulators) that collectively contribute to the lifecycle of an AI system (from design and development to implementation and results).

A key innovation of this framework lies in its use of scenario-based risk analysis to evaluate the interactions of stakeholders within specific AI applications. By integrating this method into a governance structure grounded in institutional agency and collective responsibility, the framework aims to supply institutional actors with the tools to effectively assess and manage risks while ensuring compliance with ethical and legal norms (e.g., codes of practices, international regulations, etc). Through a re-examination of the foundational concepts of agency and responsibility, this approach not only advances understanding of the interconnected roles of stakeholders but also provides a pathway for ensuring that AI systems are governed by context-sensitive norms designed to regulate the varying institutional environments that constitute a significant part of our social reality.



ID 699 - Techno-Economic Futurity for AI-enhanced Democracy?

Mark Coté, King's College London

Keywords: Data, AI, Democracy, Futurity

AI will only diminish democracy without a more critical understanding of and collective agency over the data that feeds its growth. This paper posits that a different form of datafication is a necessary socio-technical precondition for building an AI-enhanced democracy. It is the superabundance of data that makes possible DeepSeek and Chat GPT, advanced Machine Learning, and all the tech titans seated in a row on the dias inaugurating oligarchical power. This paper repositions data and AI in a new critical frame, triangulated on three concepts: Non-rivalry, Excludability, and Futurity. This foregrounds how data's expansive and generative qualities (see non-rivalry and futurity) are controlled, restricted and monetised by forces of excludability. This framework aims to bring a more finely-granulated and incisive understanding of data as the socio-technical object, which conditions the ways in which AI does and could impact democracy.

Non-rivalry and excludability are drawn from economic theory and capture inherent qualities or affordances of data. Non-rivalry denotes goods that can be simultaneously and repeatedly accessed or utilised by multiple individuals without reducing their value or availability. Data is inherently non-rivalrous, a quality noted by many but in cursory terms with little critical discussion. What has been missing is Excludability, that is, how data are subject to private market forces, including the ability to enforce restricted access. This artificial force, imposed on the inherent non-rivalry of data, supercharges capitalist value generation in part from the growing dependencies created by the infrastructure of datafication (Pybus et. al. 2025) play in determining how we are increasingly subject to the power of Data-AI oligarchies. Futurity provides an innovative critique of how excludable AI systems both depend on the data we collectively generate, as well as foreclosing more democratic futures.

I argue that futurity is a defining characteristic of data and of AI systems, alongside the economies they enable. I therefore outline AI's dual futurity – technical and economic. Technical futurity refers to the self-reinforcing life cycle of AI, where increased data availability leads to improved model training, enhancing predictive accuracy, and the possibility of repurposing into new domains. In turn this informs economic futurity, which serves as a fundamental metric as data's non-rivalrous nature ensures sustained and long-term value generation. Central to both are the functions that data play as a self-expanding asset within neural networks, continuously feeding back into models to refine and optimize performance. This techno-economic futurity therefore raises pressing concerns regarding ownership, access, and long-term rights. Current data-for-service models fail to account for ownership of future value, posing challenges for equitable data governance. If our collective datafication is to contribute to a more democratic AI future, mechanisms for ensuring fair ownership and benefit-sharing must become foundational preconditions.

I will conclude by bridging this theoretical framework with a practice, a HORIZON project that aims to develop a new paradigm for data sharing, a non-rivalrous and non-excludable end-to-end pipeline from user communities with agency over their data to advanced AI applications.



ID 794 - Preparing future citizen for the post-truth world in the age of AI

Bianca Sofia Irene Fumagalli, Università degli Studi di Milano Statale

Emiliana Murgia, Università degli Studi di Genova

Elisabetta Nicchia, Università degli Studi di Genova

Davide Parmigiani, Università degli Studi di Genova

Andrea Garavaglia, Università degli Studi di Milano Statale

Keywords: Digital Citizenship Education, Ethical Awareness, Media Literacy, Information Literacy

We live in an online dimension, with no clear boundary between real and virtual, and where being conscious citizens means learning to navigate an increasingly complex digital reality, exploring its limits and potentials. In this context, learning to be a citizen is deeply connected to accessing online content mindfully. It also requires understanding the ethical implications of internet navigation. For this reason, within the educational landscape, it becomes crucial that students – tomorrow's citizens – learn to know how to take advantage of the opportunities while minimizing manipulation and other risks. In today's environment, where teachers seek training, it is necessary that educators first and students subsequently achieve this competences.

Information literacy emerges as a critical framework for empowering students' right to access, critically evaluate, and to use digital information, avoiding disinformation (Dmitrova, 2022). Possible training models can be grounded to facilitate teachers' professional development in digital citizenship education (Ranieri, 2021). Premising teacher training, a multifaceted approach can be conceived, encompassing diverse strategies beneficial for learners' development.

Digitalization has transformed how we learn. It is fundamental that educators know how to train young people to become aware citizens who understand their rights, are actively engaged, and are capable of responsibly addressing societal challenges. Children and teens should be viewed not merely as users but as informants, co-designers, and evaluators (Landoni et al., 2024). Integrating digital citizenship education (DCE) into school curricula teaches students their rights and responsibilities, promoting responsible technology use and strategies to tackle disinformation.

Strategies include teaching critical thinking, online safety, and ethical behaviour to empower youth and minimize manipulation risks (Malik, 2024). Another approach involves engaging students through Real-World Tasks to enhance digital literacy and citizenship (Jeanneau & Ollivier, 2023). Dialogue and co-creation also assume foundational importance: Educators can encourage collaboration through technology use to minimize manipulations and promote more engaged and informed citizenship (Cazacu et al., 2020).

From an ethical approach, addressing the ethical implications of technology use is fundamental to promoting more socially responsible behaviour (Brueckner et al., 2018). On the side of Media Literacy, helping students identify misinformation enables them to improve critical thinking and make more conscious online choices (Fakih, 2022).

While these strategies focus on improvement and learning, it is essential to recognize that manipulation can persist. Continuous assessment of digital practices and promoting ethical standards are the paths leading to cultivating responsible digital citizens who can confidently navigate and critically engage with information landscapes.



ID 808 - AI as normative assemblage

Armen Khatchatourov, *Université Gustave-Eiffel*

Keywords: AI, normativity, bias, episteme, HCI

To great extent, the premises of assemblage thinking can be found in Foucault's work, where plays out the idea of multiple layers of apparatus of power which are never monolithic or reducible to one-way domination. There is instead an imbrication of different normative mechanisms, related to sometime concurrent forms of governmentality.

This contribution will apply this framework to recent socio-technical assemblages. The proliferation of AI-based systems has led to new ways in which the normativity is entangled within technical systems. On the one hand, social normativity is translated into dynamic AI systems rather than a slow-evolving set of social rules. Here, the question is what is considered as error or bias, and with respect to which referent – and how deviation and alignment are addressed.

On the other hand, social normativity itself – not only in its content but in the very way we relate to it – is affected by the opacity and adjustability of machine-learning models, which nevertheless produce new expectations, behaviours and a form of algorithmic governmentality.

Hence, we will present a heuristic approach to disentangle the many ways normative concepts are at play in AI technologies, according to the following lines of questioning.

In classical AI, we can refer to "normal" as based either (1) on statistical observation of a given population or (2) on a moral or political stance related to the latter.

Shifting from a static vision of a pre-given norm, the norm itself (which we think we sociologically observe or which we politically wish to come to reality) evolve under the effect of technological change. The users may have different expectations (3) with regard to a Human-Computer or to a mediated social interaction, depending on a particular technical artefact. This obviously has been one of the main topics in user studies since decades and plays out forcefully with current generative AI, as expectations and behaviours evolve rapidly.

More broadly, (4) the normativity itself is inscribed in larger processes related to governmentality at hand: the norms – and our relation to, the way we understand, submit to or confront them – do evolve both in their form and in their content. From disciplinary societies to algorithmic governmentality, the change from obedient/resisting subject (norm as a finite bounded domain) to the modulated subject (norm as perpetual adjustment), this evolution is intertwined with the advent of AI-based systems.

To address the 4 levels mentioned above, first approach would examine different conceptions of normativity, error and deviation, and how we can think what the "error", "bias" and "truth" are in AI settings.

The second approach would theorize the way we cope with the error and its inscription in temporality and teleology. Starting with Hegelian stance on the error as the "necessary moment of the truth" and the unavoidable "après-coup" (nachträglich) which derives from it, throughout the structural failure of "différance" (Derrida) and "le défaut qu'il faut" (Stiegler), we will try to reexamine how this "necessity" could contribute to the understanding of machine learning.



ID 141 - Mapping the Imaginaries of VR/MR: Narratives, Practices, and Politics in the Evolving Metaverse

Ioanna Georgia Eskiadi, Αριστοτέλειο Πανεπιστήμιο Θεσσαλονίκης (Aristotle University of Thessaloniki)

Nikolaos Panagiotou, Αριστοτέλειο Πανεπιστήμιο Θεσσαλονίκης (Aristotle University of Thessaloniki)

Keywords: Metaverse, VR/MR Imaginaries, Immersive Technologies, Ethical Design, Narrative Construction

The metaverse has transitioned from a vision of seamless interconnected virtual environments to a complex, fragmented reality shaped by diverse technological advancements, market strategies, and sociotechnical practices. Virtual Reality (VR) and Mixed Reality (MR) technologies, central to this evolution, have fundamentally redefined communication and interaction paradigms. This study investigates the imaginaries surrounding VR/MR, their narratives, and the political and technological forces shaping their adoption and integration.

Amidst the proliferation of metaverse ecosystems, the study examines the interpretive flexibility of VR/MR technologies, exploring their transformative potential and the tensions that emerge among global actors. From the Chinese Three-Year Action Plan for the Metaverse to the European Union's virtual world initiatives, distinct and often competing imaginaries highlight the interplay between localized visions and global ambitions. These variations reflect broader geopolitical, cultural, and economic dynamics influencing the development and application of VR/MR. Focusing on immersive storytelling and communication practices, the research addresses how VR/MR environments redefine user engagement, emphasizing interactivity, emotional connection, and experiential depth. The ability of VR/MR technologies to "blur" the boundaries between storytelling and story-living is analysed, with attention to their capacity for fostering empathy and enhancing the communicative experience. The role of generational shifts, particularly among Generation Z, in adopting and shaping these technologies is also explored, highlighting their impact on media practices and communication norms.

This study further evaluates the sociotechnical construction of VR/MR environments, analysing the opportunities and challenges they present for inclusivity and ethical design. It considers the implications of immersive technologies for marginalized communities and explores mechanisms of resistance to their potential use as tools for surveillance and control. Adopting a mixed-methods approach, the research incorporates ethnographic observations, content analysis, and experimental simulations to capture the multifaceted impacts of VR/MR. Through these methodologies, the study reveals how these technologies can both enhance engagement and pose ethical dilemmas, particularly in contexts like crisis management, media storytelling, and public communication. The findings underscore the need for participatory approaches in VR/MR development, involving diverse stakeholders to ensure ethical accountability and equitable outcomes.

By disentangling the imaginaries of VR/MR, this research contributes to the broader understanding of how these technologies influence communication, media practices, and societal structures. The study provides a framework for evaluating the transformative potential of VR/MR while advocating for strategies that prioritize user-centred design, ethical considerations, and inclusivity. In doing so, it advances the ongoing discourse on the role of immersive technologies in shaping the future of communication and interaction.



11 JUNE 2025 09.00 - 11.00

ROOM B2.2.5

Panel 79. Technoscience in War and Peace: (Dis-)entangling Ethics and Technoscientific Knowledge in Conflicts' (de)Construction

Convenors:

Fabio Fossa, Politecnico di Milano

Andrea Barca, Politecnico di Milano

Ilenia Piccardi, Università di Napoli, Federico II

Maria Carmela Agodi, Università di Napoli, Federico II

Keywords: war, peace, dual-use, ethics, military

In recent decades, STS has highlighted the non-neutral nature of techno-scientific development by analysing the multiple and diverse entanglements of science and technologies in different contexts and uses, and the roles of human and non-human actors in these processes.

Several examples of entanglement of science with war have been provided in the last years. The current wars in Ukraine and the Middle East have opened up tensions and debates on how to renegotiate scientific collaborations in academic institutions with scholars from countries involved in conflicts. The involvement of emerging technologies, such as artificial intelligence and digital infrastructure, in these wars have also been discussed. Finally, ethical controversies on research collaborations between universities, governments, and industries have been once again brought to the fore. While opponents claim that academic research should not be aimed at developing tools of death and destruction, but rather at building peace and mutual respect through international cooperation, knowledge exchange, and education, academic research projects involving governments and military industries are widespread and often constitute a critical financial asset for universities – and the moral profile of the issue is far from being universally accepted.

How can we disentangle the complex relationships between technoscience, war, and peace? How can technoscience work to build peaceful and just coexistence on the planet (and beyond) and contrast the war and destruction of the Earth and its species? What might 'Technoscience for Good' mean in the context of university collaborations with military organisations, whether private, public, or both?

This panel aims to discuss how technologies and science can contribute to reconfiguring the equilibrium in a world of wars. To this end, we welcome theoretical and/or empirical research-based contributions on the following topics:

- Entanglement of science and technology with peace and war;
- Ethical arguments in favor / against / problematizing academic military research;
- Studies on current academic involvement in military or dual-use projects;
- Scientists' and non-scientists' movements against the development and spread of hightech weapons (different developments and integrations of robotics, A.I., biotechnology, autonomous weapons, precision atomic devices, etc.);
- Roles and responsibilities of scientists in building peace and social justice (RRI, technology assessment etc...);
- Technoscience to support to build more equitable societies and populations at risk of conflict or victims of ongoing or concluded conflicts.



11 JUNE 2025 09.00 - 11.00

ROOM B2.2.5

ID 424 - Dual-Use Research in Academia. Ethical and Legal Issues

Andrea Barca, Politecnico di Milano

Keywords: Dual-use, Weapon research, Research ethics

In this presentation, I will not address the direct involvement of universities in military research projects. Instead, my analysis will focus on (academic) dual-use research, with particular attention to the responsibilities of researchers engaged in such projects.

As frequently noted in the literature, the concept of dual use is far from precise. This ambiguity stems from the fact that it is employed in different contexts, from various perspectives, and thus for heterogeneous purposes. I believe it is necessary to distinguish at least two notions of dual use: one explicitly morally charged and the other (seemingly) neutral.

According to the first notion – primarily used in discussions on research ethics and in the non-proliferation literature – research is considered dual use when, despite being originally conceived for peaceful and beneficial purposes, there is a concrete risk that its results could be misused by secondary actors (such as terrorist groups) to cause large-scale harm. The second notion, by contrast – predominantly adopted in the context of R&D support – defines research as dual use when, due to its intrinsic characteristics, it has the potential (often worth exploiting) to generate knowledge and technologies that can be applied both in the civil and in military/defence sector.

Although these two notions raise related issues, they remain conceptually distinct. In this presentation, I will focus on the second notion of dual use and, in particular, aim to provide tools to address questions such as: "Is the involvement of universities in research that, while originally intended for civil purposes, may yield results applicable to the military – viz., contributing to the development of new weapons systems or the improvement of existing ones – justified?"

Another relevant question is: "If a researcher considers weapons research morally unacceptable, should they adopt a similar stance toward dual-use research?" In other words, assuming a stance of moral disapproval toward weapons research, "if and under what conditions can academic dual-use research be considered morally justified?"

11 JUNE 2025 09.00 - 11.00

ROOM B2.2.5

ID 501 - Integrating Digital Ethics into Dual-Use Technologies: A Taxonomy for the Evolving Defense Landscape

Alger Sans Pinillos, Barcelona Supercomputing Centre

Keywords: Dual-Use Technologies, Digital Ethics, Research Centres, Ethical Taxonomy, Technology Lifecycle

This talk will reflect on how research centres can integrate digital ethics into their dual-use technology research projects, ensuring that technological progress is aligned with the common good despite ethical complexities and dilemmas. In particular, I focus on the recent incorporation of digital ethics into the dual-use technologies project of the Barcelona Supercomputing Centre (BSC).

The relationship between research centres (R&D) and military research has been the subject of ethical scrutiny for decades. The connection between technoscience and warfare has become increasingly pronounced, particularly as academic and research institutions become more deeply involved in military projects.

Increasing digital acceleration and the convergence of the civil and military spheres have given rise to a new paradigm of dual-use technologies. These developments, driven by advances in areas such as artificial intelligence, autonomous systems, cybersecurity, and quantum computing, not only present opportunities



for progress in defense but also pose significant ethical challenges related to privacy, responsibility, and human rights. Research centres, committed to technological innovation, are increasingly involved in creating technologies that can be applied in both civil and military contexts, complicating the ethical evaluation of such research.

Following the electoral victory of new leadership, the recent geopolitical shift in the United States has altered the global defense landscape, underscoring the growing influence of civilian actors in developing weapon technologies. This has amplified ethical concerns regarding research centres' involvement in designing and deploying technologies that could be utilised in wartime contexts. This situation highlights the urgent need for an adaptive ethical framework to guide the development and application of dual-use technologies while safeguarding public welfare and ensuring compliance with fundamental humanitarian values.

From an ethical standpoint, this talk introduces the adaptive ethical taxonomy for dual-use technologies we are working on, specifically designed to address the evolving needs of defense sectors in the context of global challenges. This taxonomy will align with the need for comprehensive guidelines that balance innovation with moral responsibility. It emphasizes the importance of recognizing the gray areas where these technologies operate and how ethical norms must evolve as their applications and the actors involved change. In this context, moral responsibility is not solely placed on the technology designers but is seen as a shared, continuous process among all stakeholders throughout the technology's lifecycle – from its creation to its eventual use.

The concept of cognitive moral agency also plays a central role. Stakeholders involved in developing dual-use technologies should be viewed not only as beneficiaries of the applications but also as active moral agents influencing technological decisions. This approach recognizes that ethics must be integrated at every stage of the process in order to anticipate and mitigate the potential risks arising from the dual application of technology.

11 JUNE 2025 09.00 - 11.00

ROOM B2.2.5

ID 679 - Attitudes towards AI Defence Research within the Responsible AI Community

Jurriaan Van Diggelen, Nederlandse Organisatie voor Toegepast Natuurwetenschappelijk Onderzoek

Mirjam Plantinga, Universitair Medisch Centrum Groningen

Marc Steen, Nederlandse Organisatie voor Toegepast Natuurwetenschappelijk Onderzoek

Keywords: Responsible AI, Military AI, Reflexivity

Introduction: The integration of artificial intelligence (AI) into military applications presents complex challenges regarding ethical, legal, and societal aspects (ELSA). This research examines attitudes towards military AI research within the Responsible AI (RAI) community, particularly among researchers affiliated with the Dutch ELSA Lab network. Given the dual-use nature of AI – serving both civilian and military purposes – it is crucial to understand the ethical considerations guiding RAI researchers. Our objective is to practice reflexivity [3] within the RAI community by encouraging researchers to critically assess their ethical stances regarding military AI research and development.

Results: To explore these attitudes, we conducted an empirical study using a survey distributed to 100 RAI researchers from the Dutch ELSA Lab community, with a response rate of 27%. The respondents primarily worked in academia or research. Participants were drawn from various ELSA labs, including four from the ELSA Defence Lab and the remainder from other ELSA initiatives.

The study employed the War Attitude Scale [1] to measure participants' general stance on war, revealing that respondents did not strongly support the idea of war. These findings will be compared to related studies, such as on U.S. citizens' average war attitudes [1]. Additionally, the relatively new Attitudes Toward AI in Defense (AAID) scale [2] was used to assess perceptions of military AI. While participants acknowledged



some potential benefits of AI in defence, they expressed significantly stronger concerns about its negative implications.

Beyond general attitudes, we explored researchers' ethical considerations regarding military AI research. Participants were asked about the types of defence-related AI projects they would find ethically acceptable to work on. Many were open to contributing ELSA research and autonomous cyber defence. However, most were unwilling to engage in projects related to autonomous weapon systems, AI-driven cognitive warfare, or autonomous decision-support for targeting.

We also examined preferences regarding potential clients for defence-related AI research. While the majority expressed willingness to work with NGOs, there was strong reluctance towards collaborating with the defence industry or ministries of defence from non-NATO states. Opinions on working with the Dutch Ministry of Defence or NATO-aligned ministries varied significantly.

In addition to the survey, we conducted a guided discussion with 60 researchers (including survey respondents) to further explore perspectives on the topic. Participants expressed a range of views, from strong pacifist stances to acceptance that sometimes peace needs fighting for. These views directly influenced their moral stance on conducting AI research.

Conclusion: These findings indicate that the RAI research community generally avoids direct involvement in military AI research, raising important questions about its role in shaping the impact of AI in defence. Should RAI researchers focus on ensuring responsible operationalization of AI in defence, or is their aim to slow the adoption of AI in defence to avoid moral calamities? Or can a balanced approach be achieved? By fostering reflexivity within the RAI research community, we believe we can help navigate these dilemmas, promote awareness of ethical implications, and shape research projects accordingly. During the workshop, we will provide specific recommendations to guide responsible engagement in military AI research.

11 JUNE 2025 09.00 - 11.00

ROOM B2.2.5

ID 746 - 'A Careful Constructed Machine of Violence'. On AI-Driven Warfare and the Question of an Possible Ontology of Peace

Jutta Weber, Universität Paderborn

Keywords: algorithmic warfare, epistemology, ontology, correlation paradigm, peace

What might happen if AI were guided by an ontology of peace rather than violence, an ethic of care rather than control, an orientation toward forgiveness rather than suspicion? (paraphrasing sociologist David Lyon).

In my contribution I want to discuss the epistemic logic and materiality of algorithmic warfare and the consequences of the use of advanced AI-supported decision-making, targeting and killing systems using the example of the US "War on Terror" (Weber 2016) and especially the Gaza War (Weber 2024). I will analyse the epistemological premises of algorithmic warfare which are built on a correlation paradigm and fosters scientific approaches that concentrate mainly on the exploration of the unknown, experimentation and systematised trial and error. Automated procedures for recombining and linking data, which are largely provided via signal intelligence, form the epistemological basis for data analysis and risk management. This process is organised on the basis of predefined categories and is governed by imagination which means projecting more or less probable scenarios and correlations. Semi-automated technologies of predictive analysis and preventive action, real-time tracking and targeting are seen as appropriate means to deal with the challenge of unpredictable risks - an approach reminiscent of the desire to find a 'technological fix' and thus achieve technological superiority (Weber 2016: 119) which is common in the framework of network-centric warfare.

At the same time technoscientific approaches such as machine learning and big data mining are abandoning former values of accuracy and scientific rigor. What kind of society do AI-driven systems of warfare



express which is capable not only of bringing these systems into being but accept their highly problematic consequences? What kind of ontology underlies (not only) recent warfare and its concentration on our world mainly as incoherent, unpredictable and full of risks? And (how) could it be otherwise?

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11 JUNE 2025 09.00 - 11.00

ROOM B2.2.5

ID 882 - Sensor networks, digitisation of infrastructures, and autonomous/ AI weapons in current wars

Maria Carmela Agodi, Università di Napoli Federico II

Ilenia Picardi, Università di Napoli Federico II

Keywords: sensor networks, infrastructures, EAI Systems, post-human war

Recent conflicts show how warfare continues to be based on traditional concepts and technologies, and at the same time has elements of profound innovation. In this contribution, we discuss the entanglements of war and technoscience to understand how technoscience is actively involved in the changing scenarios of war, and how it is (re)shaping war's meanings or imaginaries. To this aim we discuss the interweaving of different technological artefacts, in today's wars, as 1) civil and military sensor networks; 2) digitisation of infrastructure of command and control; 3) autonomous and AI systems. The availability of information has led to the development of the military doctrine known as network-centric warfare, aimed at using the information provided by these devices for a competitive advantage. Civilian networks are joining military networks, resulting in an increasingly interconnected information network capable of generating data used by military operators. This element is closely linked to the progressive and increasing digitalisation of infrastructures of command-and-control processes, which was one of the most important innovation factors in the operations conducted by the Ukrainian armed forces against the invasion of the Russian Federation. Weapons such as the Stinger, the Himars or the Leopard tank, that have attracted the headlines in recent months are extremely enhanced by the networks that can link them together. The software and algorithmic logic have multiplied the effectiveness of these weapons. The ever-closer integration of these three elements – sensor networks, digitalization of command infrastructure, and autonomous and AI (EAI) systems – on the battlefield is shaping new forms of war. In this scenario, we discuss the concept of post-human war, whose agency is distributed among human and non-human actors, infrastructures, and artificial intelligence systems. The relevant implications of post-human war for the near future are discussed in this paper, as well as the meaning of warfare and of its different dimensions.



Panel 80. Interventionist STS and Futures: Reflecting on and Renewing Forward-Looking Approaches, Methods, and Practices for 'Better' Socio-Technical Governance

Convenors:

Sergio Urueña, Euskal Herriko Unibertsitatea-Universidad del País Vasco/Universiteit Twente

Renata Mandzhieva, Austrian Institute of Technology

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Keywords: foresight, futures, governance, intervention, participation, methods, anticipation

Science and Technology Studies (STS) embrace three primary approaches to the creation and mobilization of future-oriented representations: descriptive or analytical, normative, and interventive. Descriptive and analytical approaches aim to identify and trace the influence of anticipatory artifacts—such as visions, expectations, and imaginaries—on the co-production and governance of science, technology, and innovation (STI). Normative approaches, by contrast, critically assess these anticipatory artifacts, proposing alternative futures that are considered more desirable. Interventive approaches aim to go a step further, employing anticipatory practices to actively create more inclusive arenas for STI co-production, enhance distributed capacities, and promote a 'better' socio-technical governance (e.g., Foresight, Responsible Research and Innovation (RRI), Responsible Innovation, Technology Assessment, and Anticipatory Governance).

This analytical, normative, and formal interventionist concern with futures can be traced back to the very origins of STS and its roots in political activism. Its potential also derives from STS's critical capabilities to "look around rather than ahead" (Tsing, 2015), which entails problematizing the predefining boundaries for participation (e.g., Felt & Fochler, 2010), the 'hegemonic and dominatory pretensions' around methods (e.g., Law, 2004), or the lack of diversity in public engagement approaches (e.g., Davies et al. 2012). This perspective highlights the ways in which futures are actively designed, (un)cared for, and contextually and relationally (re)configured in the present, always in tension with past agential entrenchments, lock-ins, and socio-technical closures.

This panel invites exploration of how we can better "look around" by designing, renewing, (re)configuring, and/or caring for the ways we "look ahead"—and vice versa. As such, it brings together STS contributions that critically engage with, explore, renew, or (re)assess forward-looking approaches and anticipatory practices as they are (re)designed, curated, and (un)mobilized in the present to foster a 'better' governance of technoscience.

Key questions for (interventionist) consideration include (but are not limited to):

- Which spaces for reflexivity and critique are being opened and foreclosed by forward-looking designs and practices?
- How can these approaches foster a more inclusive approach to STI governance? In what ways can these methods be diversified or reassessed to serve the purpose better?
- What are the ethical, political and epistemological challenges associated with deploying anticipatory dynamics in STI settings?
- To what extent do these practices enable or constrain the involvement of marginalized groups in the co-production of STI?
- What transformations do (or do not) forward-looking exercises enable or inhibit?
- How does STS position itself within the politics 'of' and 'by' anticipations through engaging with such interventions?



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ID 886 - Delphi-Based Interventive Futuring for the Energy Transition: A Formative Evaluation Approach for the future of energy research

Surya Knöbel, Austrian Institute of Technology

Michael Dinges, Austrian Institute of Technology

Wenzel Mehnert, Austrian Institute of Technology

Keywords: Delphi Method, Anticipatory Governance, Transformative Innovation Policy, Energy Research Policy, Formative Evaluation

Governments increasingly rely on research, technology, and innovation (RTI) programmes to drive transformative change, yet traditional evaluation methods often prioritize short-term effectiveness and efficiency over long-term systemic impacts. In response, this study presents an interventive futuring approach within the framework of the accompanying and ex-post evaluation of Germany's 7th Energy Research Programme – Innovations for the Energy Transition (7th EFP). This four-year, mixed-methods evaluation moves beyond conventional result-oriented assessments by integrating formative evaluation with anticipatory governance, improving the programme's reflexivity, adaptability, and transformative potential (Vito & Taffoni 2023).

A key component of this approach is the Delphi method, which has evolved from its origins in technological forecasting (Helmer-Hirschberg 1967) into a participatory foresight tool that facilitates expert-driven scenario analysis and policy learning (Dinges et al. 2020). The Delphi method's structured iterative feedback, controlled anonymity, and expert engagement enable the validation of existing evidence while incorporating future-oriented perspectives into policy evaluation (Rowe & Wright 1999). Unlike traditional foresight exercises such as roadmapping applied predominantly in agenda setting and policy formulation (De Vito & Taffoni, 2023), this study applies Delphi within an ex-post and formative evaluation framework, demonstrating its potential to bridge policy evaluation and strategic foresight for mission-oriented innovation policy (Mazzucato 2018) and seeks to generate actionable insights on thematic priorities, inform strategic direction of the 8th EFP and transformation processes.

As part of this process, we identified six key thematic areas (co-developed with the German Federal Ministry for Economic Affairs and Climate Action, BMWK) that reflect the most pressing challenges and opportunities for energy research policy. These themes – ranging from the integration of end-use or consumption sectors and regulatory learning to international cooperation and knowledge transfer – were developed and refined collaboratively within the evaluation consortium during a dedicated workshop. This approach ensured a structured and targeted formulation of open and closed questions, guiding the Delphi rounds and expert consultations. Through two iterative rounds, stakeholders from research, industry, and policy engaged with impulse statements and provided structured assessments. This iterative approach allows for the co-construction of future scenarios, fostering reflexivity and policy learning (Dinges et al., 2020).

By integrating the transformative outcomes framework (Ghosh et al. 2021) and a theory of change perspective, this evaluation links ex-post evaluation with strategic foresight, using evidence from the evaluation to inform future energy research policy (Wiener & Ribeiro 2016). Rather than a retrospective assessment, this approach enables adaptive policymaking, aligning funding instruments and governance mechanisms with transformative innovation goals while enhancing BMWK's deliberative capacity.

This work situates the Delphi-based evaluation within the broader discourse on STS-driven interventive futuring, contributing to the question of how anticipatory methods can enhance the inclusivity and reflexivity of RTI governance in mission-oriented energy research policy.



12 JUNE 2025 09.00 - 11.00

SESSION 1

ROOM B2.2.1

ID 834 - Re-configuring forward-looking devices that influence technoscience governance in the energy transition

Julia Kirch Kirkegaard, Danmarks Tekniske Universitet

Tom Cronin, Danmarks Tekniske Universitet

Keywords: Intervention, participation, device, energy transition, Power-to-X

The question of when, how, and even if, critical research should intervene in activities is of increasing interest to STS scholarship. Inspired by the panel's call for 'looking around before engaging in the forward-looking activity itself', we use the case of energy scenarios that play a dominant role in the empirical field of energy policy and planning. Scenarios are forward-looking tools that model what a future energy system might look like and what alternatives there could be – how things could be otherwise – but which also constitute, we argue, tools that contribute to the 'institutional confinement' and 'predefining boundaries for participation'. We use the case of Power-to-X technology (PtX) to explore the role of forward-looking devices such as energy scenarios used in developing energy and technology futures. PtX technology uses renewable energy which, when combined with Carbon Capture, provides feedstock to produce fuels, fertilisers and plastics, amongst other products, that replace those made from fossil sources. These processes promise sector coupling through the conversion of green electrons to green (first hydrogen and then other) molecules, and has produced a powerful imaginary for a decarbonised energy future. We use preliminary findings from two research projects (the ERC-project Good-by-Devising and the Expertise-of-Expectations project funded by Independent Research Fund Denmark), to discuss how the device of energy modelling and scenario-making provides a useful site for STS scholars to 'look around' before intervening in future-making. Based on document studies and interviews with the Danish Energy Agency and its PtX taskforce, we show how energy scenarios take shape, and how they influence not only who is partaking in the governance of technoscience and shaping our common energy future, but also who is marginalised from it. As energy scenarios incorporate expert decisions on what concerns to include and exclude in the design of the energy transition, we consider that they constitute 'distinctive opportunities for interventionist work'. Our approach is, however, that before intervening, it is important to first look around and explore the key devices that are at play to see what they do, as they co-configure who has a 'stake' and can participate. Only then can we reflect on when, how, and if, our research should intervene, potentially engaging in the re-design of energy scenarios and modelling devices.

12 JUNE 2025 09.00 - 11.00

SESSION 1

ROOM B2.2.1

ID 232 - Experiments in Anticipation: Learning from Responsible Research and Innovation in the Human Brain Project

Christine Aicardi, King's College London

Tara Mahfoud, Essex University

Keywords: Foresight, Responsible Research & Innovation, Anticipation, Anticipatory Governance, Futures Studies

Responsible Research and Innovation (RRI) has emerged for over a decade as an engaged, practice-based strand of STS with interventive objectives for futures and emerging technologies. Foresight and other futuring methods are key to facilitating RRI, which aims to go 'upstream' in the development process, to enable anticipatory action that can shape that process in ways deemed to be socially desirable and to help build capacity to cope with perceived concerns and potential risks. In this paper, we discuss our experience of conducting futures studies of emerging science and technology, in practice, as part of an overall RRI strategy in the context of the Human Brain Project, a Future and Emerging Technology Flagship of the European Commission, between 2014 and 2020. We demonstrate and analyse the value, limitations, and



constraints of framing anticipation work within a RRI approach and outline the range of experiments and activities that the Foresight Lab of the Human Brain Project pursued over 7 years, and the experience and lessons that followed.

12 JUNE 2025 09.00 - 11.00

SESSION 1

ROOM B2.2.1

ID 422 - Hypothetical enrolment - an anticipatory and situated approach to assess the integration of AI diagnostic tools in clinical settings

Lorenzo Olivieri, Università di Bologna

Claudia Montanaro, Università di Bologna

Annalisa Pelizza, Università di Bologna

Keywords: expectations, AI diagnostic tools, implementation gap, anticipatory methods

Despite the supposed potentialities of AI tools in the healthcare sector, their adoption is a slow and troubled process. The difficulties and challenges to apply these tools into clinical, real-world settings have been described as "implementation gap" (Seneviratne et al. 2019) or as "the last mile of implementation" (Coiera 2019, Cabitza et al. 2020). More recently, empirical studies have stressed the misalignment between the narratives of policy makers and researchers and how AI systems work in clinical settings (Carboni et al. 2023, Kusta et al. 2024); or, they have emphasised the process of social learning (Williams et al. 2024) and coevolution (Faric et al. 2024) shaping their integrations. Overall, these studies suggest that the adoption of AI diagnostic tools reshapes and transforms the organisational workflows, professional competences and epistemic practices in the clinical settings in which they are deployed. However, there is a substantial lack of research frameworks and methods for addressing the prospects of integrating AI diagnostic tools into real-world settings (Williams et al. 2024).

To assess the organisational and epistemic consequences and challenges of adopting AI tools, we propose "hypothetical enrolment" as a methodological framework. We conceive of "hypothetical enrolment" as a situated, anticipatory and performative approach. It is anticipatory because it focuses on actors' expectations and on the potential consequences brought by AI diagnostic tools in clinical practices. It is situated because such expectations are analysed contextually, hence by paying attention to the organisational workflows and knowledge infrastructures in which the tools would be implemented, to the temporal rationale underpinning their use, to the possible practices of domestication. It is performative since it prompts actors to reflect on the possible implications of the innovation for their daily diagnostic tasks, to imagine further applications and hence to trigger reflection about new modalities of knowledge production.

We test the validity of our method against an empirical case, the company Quanta Brain (QB). QB applies machine learning models for the early detection of autism-spectrum-disorder on children below two years of age. AI tools for psychiatric diseases might be especially relevant to analyse, since they are expected to advance the psychiatric field by re-defining mental illnesses in more objective ways than the current DSM-5 (Graham et al. 2019). We conducted interviews with QB developers and with three neuropsychiatrists, exploring the "hypothetical enrolment", or implementation, of QB in clinical settings. Notwithstanding a generally positive attitude, several organisational and professional challenges emerged thanks to our method, such as the integration of the tool into hospital workflows and the effects on the professional identity of neuropsychiatry.

The notion of "hypothetical enrolment" aims to offer a methodological contribute to scholarship at the crossroads of science and technology studies and the sociology of expectations by combining two interrelated dimensions: first, actors' narratives and expectations about AI tools; second, the infrastructural and organisational features shaping the settings in which those tools would be adopted.



12 JUNE 2025 09.00 - 11.00

SESSION 1

ROOM B2.2.1

ID 214 - Look around before looking ahead: better healthcare governance through potentiation

Jessica Mesman, Universiteit Maastricht

Katherine Carroll, The Australian National University

Keywords: potentiation, transformation, exnovation, video-reflexive ethnography,

Today's healthcare practice has to deal with many factors destabilising its practices, such as staff shortages, tight deadlines, hyper-complex patient trajectories, incompatible procedures, and imperfect systems. These frictions and flaws result in non-stop innovations geared towards re-stabilization. In addition to these innovative transformations, healthcare transforms to stay in sync with societal changes, like digitalisation and sustainability.

Several scholars identify a logic of potentialisation that goes in tandem with these innovative transformations (Andersen and Stenner, 2020). Such logic has a 'forward-looking' approach and aims to increase potentiality rather than 'looking-around' to realise existing possibilities. Merely chasing new possibilities bears the risk of further destabilising healthcare. Moreover, these changes turn healthcare into 'a state of continuous transformation' (Andersen & Pors 2023). When a constant transformation is the only constancy in practice, it becomes part of the mundane habitat of healthcare staff.

When the everyday life of healthcare staff is characterised by a steady flow of new ideas about what is possible, potentialisation technologies should make way for potentiation technologies. Whereas potentialisation lost interest in existing possibilities, potentiation aims to activate further or effectuate more what already exists. Moving from innovation and potentialisation technologies to exnovation and potentiation technologies, we strive to make a case for what already exists (Iedema, 2019).

Using potentiation, engagement and transformation, we look ahead from another angle: the here and now. This implies, first and foremost, to look around. We will do so through the two visual participatory methods that foster discursive engagement with multi-disciplinary health professionals, one moving and one still. Uniting these visual methods is an empirical focus on healthcare delivery relating to women. In one case, we engage video-reflexive ethnography with surgeons and pathologists to optimise the surgical interventions for breast cancer, and the other case draws on workshops with midwives, lactation consultants, and nurses using a textile artefact featuring patient knowledge to improve hospital-based lactation care for bereaved mothers following stillbirth and infant loss.

In both methods and empirical cases, we consider engaging the overlooked, the marginalised, and the sidelined as an act of reigniting the mundane present as a resource for better healthcare governance.

12 JUNE 2025 09.00 - 11.00

SESSION 1

ROOM B2.2.1

ID 621 - Gender Awareness Training as a Feminist STS Intervention?

Cansu Güner, Technische Universität München

Prof. Ruth Müller, Technische Universität München

Keywords: Feminist STS intervention, Peer Review Cultures, Gender Awareness

Moments of selection for hiring and promotion are critical instances where gender bias can alter decision processes and consequently the assemblage of academic research institutions. A broad spectrum of studies indicates that the unconscious gender bias co-shapes decisions about who appears qualified for a position in academia (Moss-Racusin et al. 2012; Wenneras & Wold, 1997). Scholars often point out the existence of a leaky pipeline, in which women scholars drop out of academia during the transition period from postdoctoral positions to tenure positions (Greska, 2023). As Nielsen (2021) argues, even when women stay in academia, the way the logic of promotion is designed seems to contribute to the gender inequality



among senior academic positions.

In this context, our paper mobilizes Gender Awareness Training as a feminist intervention in academic settings. As Woolgar et al. (2009) suggests, the tool of STS intervention increasingly implies an epistemic shift in knowledge production processes, where science is framed with its link to the social. Various approaches to intervention exist in Science and Technology Studies (STS). On the one hand, action-oriented STS research targets intentional intervention in the situations under study (Zuiderent-Jerak and Bruun Jensen, 2007). On the other hand, scholars like Law (2004) and Barad (2007) argue that research practices already interfere with the world(s), regardless of the presence of an intention.

In this paper, our aim is to address and reduce gender bias in recruitment and tenure processes through the intervention of Gender Awareness Training and to maintain gender bias in academic selection processes as a central topic of scientific discussion. To do so, we draw on the scholarship in Feminist STS (Law 2010; Barad 2007), and (e)valuation studies (Brunet & Müller, 2022; Lamont 2009; Derrick 2018; Hesselmann & Hartstein, 2024). Furthermore, we analyse the insights from 28 in-depth interviews with the members of academic hiring committees in one of the German-speaking countries, using the Constructivist Grounded Theory approach (Charmaz, 2006). In the end, we argue that peer review is a practice that could be co-shaped with STS-informed interventions to create a path toward a more gender-aware reviewing process.

In short, in this paper, we ask how reviewers engage with gender awareness criteria in the evaluation and assessment of academic hiring committees? By asking this question, our aim is to examine the enactment of gender intervention in the peer review process through new theoretical lenses.



13 JUNE 2025 09.00 - 11.00

SESSION 2

ROOM B2.2.1

ID 154 - Recentring-on-Reversal: Method for Identifying Blind Spots in Technology Assessments and Futuring

Harmeet Sawhney, Indiana University Bloomington

Keywords: unforeseen consequences, blind spots, new foresight method

We have a long history of scholarship on technology assessment and forecasting, which has a mixed record in anticipating long-term impacts of technological implements. The "unforeseen consequences" continue to blindside us. On the other hand, we have almost no scholarship on the blind spots in our efforts to anticipate these consequences. In this presentation we will share a method we employed, recentring-on-reversal, in our book (Universal Access and its Asymmetries, MIT Press), which identified blind spots in the development of seven socio-technical systems in the US: postal system, education, electrification, telephony, public libraries, broadcasting, and the internet. In a nutshell, this 3-step method, works as follows: Signs of the hidden dot the edges of our field of vision. However, we gloss over them or dismiss them as oddities because they do not fit in with our view of things. Instead we should deliberately look for them. Furthermore, on identifying them, we should switch perspectives and understand the alternate view wherein the "hidden" is fully visible and normal. It calls for decentring the entrenched metaphor that bounds our current intellectual system and centre staging the "difficult bits of intellectual systems" at the margins to release us from our settled mentalité and open up new vistas. This panel will give us occasion to take recentring-on-reversal beyond universal access, the subject of our book, to issues of technology implementation broadly.

13 JUNE 2025 09.00 - 11.00

SESSION 2

ROOM B2.2.1

ID 488 - What is 'counter' in the 'counter-imaginary'? A critical review of research on resistance and alternatives to dominant AI imaginaries

Zak Lakota-baldwin, University College London

Keywords: AI, counter-imaginaries, methods, resistance, alternative futures

Looking beyond dominant sociotechnical imaginaries, many scholars have recognised the importance of also identifying alternative visions with less institutional or financial power behind them, particularly those that seek to challenge the dominant imaginaries of governments or tech corporations and foreground questions of social and ecological justice. A term often used for these dissident visions and narratives is "counter-imaginaries". While some studies of counter-imaginaries remain at the level of analytical or normative, others offer strategies for materialising these counter-imaginaries and intervening on possible sociotechnical futures. "Counter-imaginaries" (under this name or similar terms) appear across various areas of STS scholarship, on topics including search engines (Mager 2023), energy sovereignty (Torres and Niewöhner 2023), carbon capture and storage (Lefstad et al. 2024), and gene editing in agriculture (Das et al. 2024).

The concept is becoming particularly prominent in both academic and civil society discussions around desirable or undesirable futures for AI, which is the focus of my PhD research. Yet as this term is deployed in the fight for more just and equitable AI futures, it is worth asking what precisely is 'counter' in the counter-imaginary. Throughout the numerous uses of the term there is no clear consensus on what is meant by a counter-imaginary. Moreover, despite various distinct and at times contradictory applications of this concept, it is surprisingly difficult to find any debate over its proper scope or sustained dialogue between scholars who have made use of it.

In this paper I argue that inconsistency around the meaning of counter-imaginaries reflects often unacknowledged divisions among political actors over how best to tackle the insidious encroachment of algorithmic technologies in so many different domains of life. From my review of the literature on AI



counter-imaginaries, I identify two diverging senses in which the term is being used. For some scholars (e.g. Kazansky and Milan 2021, Schopmans and Tuncer-Ebetürk 2024), counter-imaginaries are ways of mobilising civil society against harmful dominant imaginaries, and scoping out aesthetics and methods of resistance; for others (e.g. Mager and Katzenbach 2021, Toupin 2021), counter-imaginaries are about dreaming up alternative, positive futures based on reappropriating a technology that might otherwise be used in ways that harm marginalised groups.

In other words, the counter-imaginary can be 'counter' in the sense of a counterattack, or 'counter' in the sense of a counterculture. These senses need not be mutually exclusive, but their differences reflect a tension inherent to questions over how to usefully proceed beyond critique of dominant imaginaries. Is it important to also provide an alternative future vision of technology for good, or are there instances in which the focus should be on the politics of refusal rather than reimagining, where mobilising against a given technology is the entire point? Further, what tactics and methods are necessary to support these distinct goals? I argue that this distinction is obscured by the diffuseness of a term like "counter-imaginaries", and that the extent to which research into counter-imaginaries can be effective as an interventive futuring tool depends in part on answering these questions.

13 JUNE 2025 09.00 - 11.00

SESSION 2

ROOM B2.2.1

ID 778 - Unpacking Design Futures: Mapping Boundaries and Dimensions to Enhance Reliability

Francesca Maria Mauri, Technische Universiteit Delft

Sara Colombo, Technische Universiteit Delft

Keywords: Design Futures, Anticipatory Governance, Critical Design, Design Futures for tech governance,

How can a practice such as Design Futures, often dismissed as too artistic and subjective be recognised as a reliable method for anticipating the risks, ethical dilemmas, and societal tensions of emerging technologies? At the same time, why attempt to structure and define an approach that thrives on flexibility and is inherently shaped by its context of use? This tension – between the blurred definition of Design Futures and the need for a structured framework – remains a fundamental challenge in employing design futuring within Science and Technology Studies (STS) and anticipatory governance.

Design Futures practices – such as Design Fiction, Speculative Design and Experiential Futures – have been increasingly applied in these fields for their ability to spark discourse on risks, benefits, and value tensions (Brey, 2012a; Lindley & Coulton, 2015) and is gaining traction in anticipatory policymaking, where it helps explore potential technological consequences proactively. By combining storytelling techniques, speculative scenarios, and design artefacts, Design Futures translates abstract futures into tangible experiences, making them accessible beyond expert circles. However, its very adaptability contributes to its lack of recognition as a structured methodological approach.

Its fluid nature manifests in multiple dimensions: from timeframes of speculation (ranging from near-future scenarios to centuries ahead) to techniques used (foresight methods, weak signals, trend-based projections) and narrative framing (dystopian, utopian, or ambiguous scenarios) among others. The process itself varies widely, from one-day participatory workshops to months-long design research. The combinations are infinite. While this flexibility is their strength, it also prevents Design Futures practices from being recognised as a systematic approach within STI governance (Lindley, 2015).

Despite its effectiveness, Design Futures remains methodologically underrecognised (Harb, 2023) in policy and governance contexts. How can a practice that thrives in indeterminacy gain legitimacy? How can it be structured without losing its critical and speculative nature? Rather than imposing top-down rigid definitions, the challenge is to delineate its boundaries from within – mapping its dimensions and nuances.

This work proposes an inside-out approach to critically unpack Design Futures, combining systematic in-



quiry of literature with Research through Design (RtD) to establish intermediate-level knowledge – a structured yet flexible understanding of how Design Futures can be reliably applied to anticipate risks, ethical concerns, and value tensions (Markussen & Knutz, 2013; Hales, 2013). The research will systematically investigate into Design Futures practices to explore their dimensions, strategies and nuances to understand how these practices can be used to support anticipation of negative consequences to inform anticipatory governance. By clarifying how these practices operate, we seek to enhance their credibility while maintaining their speculative and exploratory potential.

At the conference, we will present the first results of our attempt at this inside-out exploration in the form of a visual representation. We invite a collective discussion on what are the dimensions that constitute Design Futures as well as how to navigate its blurred boundaries. Moreover, we hope this space can be used as a moment to reflect on how to best approach future iterations of this exploration and anticipate together the challenges and opportunities this process entails.

13 JUNE 2025 09.00 - 11.00

SESSION 2

ROOM B2.21

ID 571 - Speculative practices for envisioning community-led futures of mobile networks

Leona Huang, University of Bristol

Laurene Cheilan, University of Bristol

Matt Dowse, University of Bristol

Marisela Gutierrez Lopez, University of Bristol

Keywords: high-performance networks, public engagement, speculative futures

From 2G to 5G and beyond, mobile networks have become pervasive infrastructures, yet their development and rollout remain largely opaque, engineered without significant public engagement. In general imaginaries, their ubiquitous and evanescent qualities make them difficult to comprehend, while their sociotechnical implications are seldom discussed. However, these technologies have massive implications for futures-in-the-making, not only because the development of these networks is entangled with other cutting-edge technologies such as generative AI and immersive technologies (Lu and Zheng, 2020), but also because their affordances contribute to the shaping of sociodigital practices.

We are an interdisciplinary group of academics deploying approaches from technical, participatory, organizing, and creative disciplines. We are committed to collaborative approaches that imagine alternative and reparative futures. We explore the possibilities that arise from an encounter between futuring methods, speculation, future network infrastructures, and coproduction.

Starting from a material and temporal understanding of high-performance networks (Lynch, 2020; Slager, 2018), our intervention draw on creative writing methods (Watson, 2022) to imagine "otherwise" (Olufemi, 2021) in terms of material and social existence for future mobile networks. Through this collaborative imagining, we create terrains of engagement for challenging the modes of discursive closure that often characterize conversations and interventions in sociodigital futures (Markham, 2021).

Our approach to intervention is situated on the critical and experimental side of futuring (Mangnus et al., 2021). By making hidden technological infrastructures visible, we aim at empowering non-expert communities to envision futures that challenge prevailing technocratic paradigms. These speculative practices serve not only as tools for imagination but as interventions to reshape public engagement with technoscientific development. Ultimately, we argue that embedding community-led imaginaries into the anticipatory landscape of mobile networks can foster more inclusive and ethical technoscientific trajectories.

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13 JUNE 2025 09.00 - 11.00

SESSION 2

ROOM B2.2.1

ID 573 - Technologically Mediated Phronesis: A Foundation for Technomoral Change

Andrew Zelny, University of Edinburgh

Keywords: technomoral change, phronesis, practical wisdom, technological assessment, postphenomenology

As we develop new and emerging sciences and technologies (NESTs) that promise to radically shift paradigms and drive us towards previously unimagined futures, it is important that we move forward mindful of how the development and use of these innovations reshape our foundational moral assumptions and landscapes (Swierstra, Stemerding, & Boenick, 2009). Philosophers working on technomoral change like Tsjalling Swierstra advocate for the development of our moral imaginations, aiming to speculate and anticipate how NESTs change our moral perspectives and to guide these developments in positive directions (Swierstra 2013). Other perspectives, like Ibo van de Poel's, advocate for regulative strategies in order to curb the dangers these new and emerging technologies might pose to our normative landscapes (van de Poel, 2013). These two views encapsulate important elements of the descriptive, normative, and interventive approaches found in STI governance: striking a balance between evaluation and speculation aimed at effectively governing and directing innovation.

Although multiple strategies have been developed to hopefully steer NESTs in positive directions, I argue an essential capacity is missing from the discussion. I argue that the Aristotelian moral metavirtue of phronesis, or practical wisdom, is needed to critically reflect on how these new technologies might facilitate technomoral change and how we might steer the course towards a flourishing future with those technologies. Phronesis is an essential capacity that is concerned with identifying and actualizing flourishing lives; without it, we cannot hope to successfully direct technomoral change in ways that would promote our collective flourishing. If we have an interest in promoting good technoscience, we must first establish practical wisdom's role in the process of evaluating and intervening in the design and development of these new technologies, and understand how phronesis itself is shaped by these technologies.

Drawing from the work of postphenomenological philosophers, STS sociologists, and psychologists of wisdom (Idhe 1979; Verbeek 2011; Kudina 2024; Latour 1994; Grossmann, Dorfman, & Oakes 2020), I argue that phronesis is a technologically mediated capacity in of itself. Instead of conceptualizing phronesis as the intellectual virtue of a radically detached rational agent using neutral artefacts as means to satisfy their own ends, it is necessary to understand the mutually constitutive relationship technology has to play in the development and character of practical wisdom. A strong foundational understanding of the technological mediation of phronesis is primary and antecedent speculating about and directing technomoral change; without it, anticipatory practices and governance of STI lacks a solid foundation. In order to understand how technology reshapes our values and goals, we must first understand how technologies reshape the



faculties by which we evaluate those values and goals. By understanding the interdependencies between technologies and practical wisdom, we then may begin to understand how to develop NESTs and our faculties of phronesis in order to drive technomoral change towards positive futures.

13 JUNE 2025 09.00 - 11.00

SESSION 2

ROOM B2.2.1

ID 169 - Interactions with 'the Future' in STS: Modal Power in the Co-construction of the Directionality of Sociotechnical Systems

Sergio Urueña, Universidad del País Vasco

Keywords: Intervention, Futuring, Modal Power, STS, Directionality

Within the field of Science and Technology Studies (STS), three distinct approaches have been delineated to conceptualize the role of "futures" in shaping the present dynamics of sociotechnical systems: descriptive, normative, and interventive. In this context, visions, expectations, and imaginaries are conceived as anticipatory artefacts that influence the directionality and momentum of scientific, technological, and innovative activity, rendering them objects of analysis and critical scrutiny. At the same time, interventive techniques that co-construct and mobilize representations of the future, such as foresight or "futuring" exercises, are recognised as key tools for expanding the range of alternatives and fostering reflexivity in co-production processes.

This paper presentation provides a comprehensive review of recent STS advancements concerning the performativity of anticipatory practices, emphasizing their role in shaping the directionality and momentum of sociotechnical systems. In particular, attention is given to the concept of modal power, understood as the dynamics that structure perceptions of what is (im)plausible and (un)desirable. The analysis positions modal power as a critical locus for understanding how futures are enacted, contested, and constrained. It is argued that the efforts of STS practitioners to trace, critique, and intervene in the anticipatory governance of sociotechnical systems can be interpreted as deliberate strategies for engaging with – and making visible – the mechanisms through which modal power is generated and exercised. Finally, the presentation critically examines the limitations and challenges inherent in STS-led futuring practices, particularly in addressing the entrenched dynamics of hegemonic modal power. By highlighting these tensions, the analysis seeks to contribute to a more nuanced and reflexive understanding of how anticipatory practices can be leveraged to foster responsible sociotechnical futures.



Panel 81. Technoscience and the Future of Agricultural Ecosystems

Convenors:

Marco Serino, Università di Napoli, Federico II

Eleonora Ciscato, Università degli Studi di Milano

Eleonora Dallagiacoma, Università Cattolica del Sacro Cuore

Keywords: European Green Deal, agrifood, agroecology, smart farming, sustainability

Technoscience is currently engaged to intervene in agrifood systems to help build for them a sustainable future, meeting the requirements of the 2030 Agenda for Sustainable Development of United Nations and the European Green Deal. These policy directions mostly rely on technoscience to improve innovations in agriculture as well as to design ways of making it more sustainable. Through the lens of STS, the above challenges can be traced following the relationships between humans and non-humans and the variety of hybrids (Latour, 1991) that result in configurations of agents and agencies. These work as assemblages (Latour, 2005) and crystallise in practices that pertain to the agrifood sector as well as to the sciences, involving different species like humans, plants, animals and micro-organisms and the effort of technologies to arrange and rearrange such multispecies configurations (Haraway, 2008). Over the last decades, examples of these configurations emerged dramatically in the strategies of crop production that foster environmental sustainability, albeit with diverse orientations. On the one hand, these strategies rely overtly on bringing technological developments in agricultural practices, like soilless systems (e.g. hydroponic farming), indoor assemblages with advanced lighting infrastructure (e.g. vertical farming), or the use of information technologies to cope with uncertainty (e.g. variability in weather conditions). On the other hand, some strategies try to cope or harmonise with ecosystems and their inherent multispecies configurations, e.g. by minimising the use of chemicals through holistic approaches or by pursuing an agroecological perspective for farming (Altieri et al., 2015; Galt et al., 2024), which is key to addressing the "material dependency" in the route to sustainable agriculture (Pellizzoni and Centemeri, 2022).

Research in STS makes it possible to look at the future of agriculture and food systems, dealing with their complexities and facets and the diverse scales and modes of production (Iles et al., 2016). Hence, the panel intends to welcome contributions that address the future of agrifood systems in the perspective of STS, aiming to shed light on how technoscience is involved in the configurations of those systems, covering (but not limited to) the following areas and topics:

- information technologies in agriculture (e.g. smart farming, precision agriculture, etc.) and related opportunities and challenges;
- agroecological practices and perspectives;
- environmental policy frameworks at the European (or international more broadly) level;
- inequalities and critical facets of agrifood systems;
- sustainable strategies in food supply chains;
- discourse and communication regarding sustainability;
- agrifood markets and socioeconomic inequalities.



ID 247 - How innovative technologies could foster a more sustainable and efficient agri-food system: the strategies applied in the wheat chain.

Cecilia Rasetto, Università di Pisa

Keywords: Precision Farming, Smart Agriculture, Digital tools, Supply chain, Wheat chain

The digitalization of agriculture in Europe holds significant potential to enhance efficiency, effectiveness, sustainability, and competitiveness across the sector. The European Commission's Political Guidelines for 2024-2029 emphasize this potential by prioritizing support for the entire food value chain through investment and innovation on farms, cooperatives, agri-food businesses, and SMEs.

Digital technologies in agriculture can increase farm performance by enhancing sustainability, productivity, and resilience, especially through Internet of Things (IoT) technologies, sensors, data analytics (e.g., based on Artificial Intelligence), and decision support systems. This can lead to more tailored and precise farming operations. The use of digital technologies in agriculture can bring several benefits, such as production optimization, enhanced animal welfare, increased working conditions, increased transparency, and increased competitiveness.

Despite the benefits, challenges remain, such as a lack of awareness and skills, digital divides, lack of cost-effectiveness, the need for trust in data sharing, and shortcomings in interoperability. With a critical approach, despite the many benefits, digitalization can also create digital divides, such as between farmers with access to cutting-edge technologies and those without. These divides can be influenced by remoteness, holdings turnover, skills, and farmers' age. By the way, the European agricultural sector can maximize the benefits of the digital age, improving sustainability and profitability while addressing pressing issues such as food security and climate change.

In this context, through technological innovation, there is the possibility of developing innovative and environmentally sustainable cultivation systems. In addition, the application of innovative methodologies in the agricultural sector has led to the development of sustainable agriculture capable of various forms of quality certification. All the technological tools applied in agriculture converge in the definition of so-called Precision Agriculture (PA) or Site Specific Crop Management (SSCM). When 'remote' or 'proximal sensing' sensors are used for the realization of the latter, we enter the field of Digital Precision Agriculture.

To explore this topic in more detail, this contribution looks specifically at the wheat supply chain where, at least, two types of innovative interventions through the use of technology have taken place.

The first one. Three Italian strategies are acting on the wheat production cycle, such as: (i) the strategy developed by the University of Siena, Florence, and CNR called "Innovacereali", (ii) the strategy developed by CREA who use technologies for assisted evolution ("Cisgenesis"), (iii) the organic farming - "bio drum project" - for strengthening organic durum wheat production systems with the use of clustering, image processing, and drones.

The second one. There is a second group of innovative actions planned to instead act on the traceability of the supply chain. The most innovative example is the strategy made by Pastificio De' Campi company "Pasta di Gragnano with Autentico Software".



11 JUNE 2025 09.00 - 11.00

ROOM B2.2.12

ID 249 - Bridging Scientific Indicators and Regulatory Choices: A Case Study of the Nature Restoration Law and Agro-ecosystems

Eleonora Dallagiacomma, Università Cattolica del Sacro Cuore, Piacenza

Eleonora Ciscato, Università degli Studi di Milano Statale

Keywords: Environmental law, Ecosystem Restoration, Agricultural ecosystems, Science and policy

This paper aims to explore the intricate relationship between science and agri-food and environmental law. At the European level, the discussion on how to mediate this complex relationship reached a significant milestone in 2021 with the European Commission's adoption of the Better Regulation Guidelines. This instrument seeks to provide a regulatory framework ensuring that European legislation is increasingly grounded in scientific evidence, both procedurally and substantively. Thus, every European policy is proposed based on careful impact assessments, which rely on predictive scenarios supported by the most up-to-date scientific data. The ultimate goal is to ensure objective truth and validity of decisions in light of the considered premises, thereby ensuring policy legitimacy and reducing, at least apparently, the weight of choices based on value considerations.

Concurrently, in the scientific world, there is growing awareness that the phenomena under study are so complex and opaque that their unambiguous description becomes difficult – if not impossible. In this context, it becomes crucial to examine how the use of data and evidence, along with procedural choices related to the involvement of specific epistemic communities, influence the policies themselves.

This paper uses EU Regulation 2024/1991, known as the Nature Restoration Law, as a case study to investigate and clarify the complex relationships between science and agri-food and environmental law. This regulation, a cornerstone of the European strategy to address climate crises and biodiversity loss, underwent a long and troubled journey before receiving final approval on 24th June 2024, following two years of intense negotiations between European institutions, experiencing numerous and substantial modifications from its initial proposal. This paper aims to investigate the use of scientific evidence, focusing on two central aspects: on one hand, the involvement (more or less institutionalised) of interested social actors; on the other, the significant impact of the agricultural sector on ecosystems, which makes agricultural restoration a particularly controversial topic. The research questions that guided this work are specifically: how was stakeholder involvement organised in the preparatory phase of the act? which scientific knowledge was considered in determining objectives and indicators? how was scientific data mediated during the negotiation phases until the final version of the regulation was reached?

To answer these questions, the methodology adopted is based on an in-depth analysis of the regulation text, the initial proposal, the impact assessment and related annexes, as well as semi-structured interviews with European Environment Agency officials and various other stakeholders. The paper aims to highlight potential criticalities in the use of scientific knowledge as a basis for environmental policy-making. The intention is thus to contribute to the improvement of the European regulatory process, promoting accountability and transparency.

11 JUNE 2025 09.00 - 11.00

ROOM B2.2.12

ID 356 - Performative representations of genetic biotechnologies in European agri-food systems

Federica Peluso, Università di Roma La Sapienza

Keywords: zoecapital, performativity, genetic biotechnology, multispecies relationships

Genetic biotechnologies are profoundly transforming animal bodies, enhancing their productivity and adapting them to new economic and environmental demand. CRISPR-Cas9, for example, has been used in a wide range of genetic modification projects, such as creating disease-resistant cattle, faster-growing pigs



and even hornless cattle to reduce the risk of injury on farms. Often framed as solutions for efficiency and sustainability, these technologies raise crucial questions about how technoscience is reconfiguring agri-food systems and multispecies relationships.

Rather than being mere technical innovations, genetic biotechnologies function as performative practices that actively shape their own legitimacy. Scientific, political and media discourses do not merely describe these technologies; they actively shape the ways in which these modifications are perceived, legitimated, contested, while marginalising the resistance-existence of non-human animals. These technologies are not neutral applications but intra-active processes, in which humans, non-humans, and biotechnologies co-constitute each other through material-semiotic entanglements.

Drawing on the concept of zoecapital, I analyse how these biotechnologies reduce animal life to programmable biological matter, embedded in a neoliberal system of governance that prioritises economic efficiency over multispecies cohabitation. As Melinda Cooper observes, the biotechnological revolution has shifted economic production to the genetic and cellular level, integrating life itself into capitalist circuits of value. However, rather than a neutral optimisation of livestock production, genetic biotechnologies generate multi-species hybridisations that disrupt conventional binaries such as nature and technology, human and non-human, organic and artificial. These hybrid emerge within relational assemblages shaped by technoscientific infrastructures, economic interests and discursive practices, but these relationships are not always reciprocal.

Bringing together perspectives from zoepolitics and performativity, this paper explores how genetic biotechnologies are not just a tool of intervention, but actors in the ongoing negotiation of agri-food futures. By interrogating how these technologies are materially applied and performatively represented, I highlight the power dynamics shaping which futures become thinkable, desirable and politically viable..

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ID 578 - Preparing the Field for AI and Data Intensive Agroecological Research

Emma Cavazzoni, Technische Universität München

Sabina Leonelli, Technische Universität München

Daniele Giannetti, Università degli studi di Parma

Niccolò Patelli, Università di Modena and Reggio Emilia

Giacomo Vaccari, Consorzio Fitosanitario Provinciale di Modena

Keywords: field, data-intensive research, agroecology, pest-plant interactions, environment

In this paper, I explore what it means to prepare the field and its objects for AI and data intensive agroecological projects. Conducting research in the field demands choosing or modifying natural places to tailor them to machines and quantitative measurements, ensuring the production of reliable, consistent data while navigating the myriad challenges inherent in unpredictable environments where unexpected occurrences are commonplace (Kohler, 2002). This process involves the preparation of the field and the meticulous construction of objects that can be investigated. Although not always acknowledged as scientific labor, such activity plays a pivotal role in laying the foundation for meaningful research outcomes. Drawing parallels with scholarly insights into fossil construction, focusing particularly on the work of Wylie (2015), this presentation unravels the complexities of this essential yet often overlooked task. I ground my reflections on six months of ethnographic work and collaborations with an agroecological interdisciplinary project dealing with a plethora of objects such as data, insects, and fruits: Haly.Id. Haly.Id is a Horizon based in Northern Italy that develops innovative technologies like drones and camera traps for a targeted monitoring of the presence in crop fields of the brown marmorated stink bug *Halyomorpha Halys* (*H. halys*) – a highly invasive pest that feeds on fruits and seriously harms production in southern Europe, the United States, and eastern Asia (Bariselli, Bugiani and Maistrello, 2016; Ferrari et al., 2023; Giannetti et al., 2024).

The discussion is centred around three key dimensions that significantly influence the process. The first one pertains to the intricate tapestry of social relations. This includes how the division and integration of labour and expertise, along with the resulting dynamics, shape the direction of object construction and field preparation. In Haly.Id, for instance, decisions are fragmented across disciplines and skills, often resulting in the loss of farmers' input by the time engineers design monitoring equipment. The second axis revolves around the environment. The preparation and construction of field and objects for automated agroecological research are shaped by factors such as unpredictable weather patterns and complex environmental interactions. Being concerned with natural fields rather than controlled lab environments, researchers have limited control over parameters such as temperature, humidity, and light exposure (Knorr-Cetina, 1992; De Bont, 2015). In Haly.Id, freezing days during fruit flowering and local floodings significantly influenced the development of pears as objects of study in plant-pest interactions. The third dimension I consider is the methods employed. Decisions regarding which aspects to monitor and how to integrate technologies with field elements such as territory, species composition, ecology, and climate greatly influence the preparation of the field and the construction of the objects involved. In Haly.Id, for example, these were shaped by the need to create a system that was not only technically achievable but also useful given pest control methods already on the ground.



11 JUNE 2025 09.00 - 11.00

ROOM B2.2.12

ID 804 - Integration of agro-ecological criteria into PDOs and PGIs. Following negotiations to redefine the PDO and PGI landscape in the Walloon vineyards.

Helene Dodion, Université de Liège

Keywords: PDO/PGI, interspecific/hybrid grape varieties, SustainablePracticesInVineyard

Little known for its wine, Wallonia (the southern region of Belgium) has seen its vineyards expand rapidly in recent years. Climate change and the arrival of hybrid grape varieties (hybridisation of two old varieties to create a variety that is less susceptible to certain pests and more vigorous at low temperature) are the two main arguments put forward to explain this trend. Unconstrained by a legacy of practices and standards, a recent report by GVER (a group of eco-responsible winegrowers - coordinated by an agronomy researcher) shows that there is a craze for agro-ecological practices in Walloon vineyards (Stalport, 2024). The desire to move towards more environmentally-friendly vineyards is also reflected in the negotiations to define new Protected Designation of Origin (PDO) and Protected Geographical Indication (PGI) certifications. PDOs and PGIs are instruments of the European Union's quality policy, classifying wines according to specific geographical areas, but also according to practices and know-how. They are therefore both indicators of a geographical area and a guarantee of product quality (Laurent, 2022).

There are already 3 PDOs and 1 PGI in Wallonia, but they are currently being renegotiated. Three years ago, a working group coordinated by the Walloon administration and made up of a wide range of players in the sector (winegrowers, oenologists, sommeliers and researchers) was set up to define the new contours of these PDOs and PGIs and submit new specifications to the European Union. The aim of this working group was to incorporate eco-responsible criteria into the specifications to encourage Walloon winegrowers to adopt or continue to adopt more environmentally-friendly practices. On the basis of what criteria have the various players reached agreement? What levers and obstacles have they come up against? On the basis of what definition(s) of 'eco-responsible' or 'agro-ecological' practices did they work, and what were their limitations? How did these discussions translate into EU regulations such as specifications and their procedures? This presentation will attempt to answer these questions.

In order to answer these questions, the researcher followed the meetings of this working group for a year and carried out ethnographies and auto-ethnographies (Pitard, 2017) using a multi-sensory approach (Pink, 2009). She also followed the transformation path of a wine that received certification (from the vineyard on which the grapes grew to the tasting panel (carried out by the Walloon administration) where it was awarded a PDO). This methodology was inspired by the work of Appadurai (1988) and Tsing (2021). In addition, the researcher also conducted several exploratory and confirmatory semi-directive interviews to detail these ethnographies and autoethnographies.

11 JUNE 2025 09.00 - 11.00

ROOM B2.2.12

ID 865 - Just sustainability in Calabrian Transformative Agriculture

Francesco Saverio Oliverio, Università della Calabria

Stefano Oricchio, Università di Napoli Federico II

Keywords: Transformative agriculture, just sustainability, climate change, commons

For a deeper understanding of the concept of sustainability, it is significant to enquire how bottom-up solutions to socio-environmental problems work. This contribution is based on a research delving into these solutions in the context of transformative agriculture in Calabria (Southern Italy).

On the one hand, agriculture is a sector strongly affected by global warming, as temperature is a direct factor in agricultural production (Deschênes, Greenstone, 2007). On the other hand, in the European Union, the agricultural sector produces more than 10 per cent of total greenhouse gas emissions. A report



published by the FAO emphasises the polarisation of the agricultural system with, on one side, intensive, yield-focused agriculture and, on the other side, diversified and small-scale farming systems: the former would have neglected the impacts of agrochemicals on the reproducibility of resources; the latter would be highly vulnerable as they are unable to provide sufficient incomes (Arnés García, Santivañez, 2021). It is in this context that alternatives to the current food production system have been developed such as bottom-up solutions of conversion to the peasant way of farming through the care of the commons (Ploeg, 2018). These are innovative practices that implement agroecology, regenerative, natural or bio-dynamic agriculture.

Recently, a vision has emerged that sees agriculture also as a provider of environmental public goods such as carbon sinks and biodiversity. Thus, on the one hand, agriculture is among the largest polluting sectors; on the other hand, it is recognised as having a role in mitigating climate change. Within the framework of this ambivalence, the research focused on agricultural producers experimenting sustainable rural alternatives as units of analysis. In this research, sustainability is understood both in ecological terms (i.e., reducing impact and pressure on the environment) and in social terms (i.e. social functions of agriculture, implementation of socio-political changes, and integration with community management). On an empirical level, it is a matter of understanding attempts to relate to nature that are not dominated by instrumental reason or the subjugation of the natural environment to the technical domain (Pellizzoni, 2023).

Further aspects will also be discussed in relation to justice in distributive, procedural and recognition terms (Bennet et al., 2019), such as: a) distribution of benefits and disadvantages; b) levels of participation in choices and inclusiveness in decision-making processes; c) recognition of worldviews and cultures. This discussion responds to one of the objectives of the research project, that is to incorporate justice into the notion of sustainability.

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13 JUNE 2025 11.30 - 13.30

ROOM B3.2

Panel 82. Novel Methodologies in Ascertaining Scientific Consensus and Issues in their Institutionalised Applications

Convenors:

Peter Vickers, University of Durham

Owen Towler, University College London

Keywords: agreement, opinion, consensus, dissensus, dissent, survey, policy, social epistemology, science communication

Information regarding scientific consensus, or lack thereof, is widely considered important for decision-making for governments, policymakers, and individuals alike. For scientific subject matters, such as climate change, knowing whether there is a significant degree of agreement within the scientific community can be pivotal for inspiring action and implementing required policy changes. The use of consensus information within science communication is limited, yet recent studies apparently demonstrate that consensus messaging can be effective for influencing public opinion (van der Linden, 2021), and relevant actions such as vaccinating against Covid-19 (Bartoš et al. 2022). However, there is currently neither the infrastructure nor requisite surveying methodologies to support scientific consensus-oriented communication channels for policy or personal decision-making. Both domains would greatly benefit from being able to readily access and leverage the combined views of the international scientific community.

Thus far, the views of the international scientific community have remained largely un-surveyed. When surveys have occurred, it is often with high degrees of survey fatigue, low response rates, and/or with highly exclusivist community selection. Recently, the Institute for Ascertaining Scientific Consensus (IASC) pilot project has demonstrated how it is possible to establish a global network to quickly ascertain scientific opinion regarding selected statements. The project operates on a large international scale, with high response rates, low opt-out rates, and in a way that incurs little survey fatigue, thus allowing for significant repeatability (Alfano and Vickers 2024). The real possibility of establishing a means to rapidly and repeatedly ascertain scientific community opinions on select topics, and utilise such for public communication and informing policy, is growing.

The emergence of such an institution could be revolutionary to our epistemic landscape and infrastructure and merits a deep-dive interrogation into its, methodologies, ethical frameworks of application, sociological impacts, and the theoretically implicit concepts of consensus and expertise.

Beginning from the demonstrated viability of an institute for ascertaining global scientific community opinion, this panel will present the results of the IASC pilot project and begin to explore, examine, and constructively improve the possibility of an Institute for Ascertaining Scientific Consensus and its place in the technoscientific landscape. This proposed technoscientific institute is tacitly intertwined with our social, political, and epistemic spheres. We suggest that there is great potential for it to be a force for good, so long as we have pre-emptively examined its potential for harm. We believe an interdisciplinary discussion on this will enable greater collaboration between science, philosophy, sociology, and policymaking which have all differently examined the topic of consensus.

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13 JUNE 2025 11.30 - 13.30 ROOM B3.2

ID 951 - Regarding the Very Concept of an "Institute for Ascertaining Scientific Consensus"

Peter Vickers, University of Durham

Peter Vickers will speak about the very concept of an "Institute for Ascertaining Scientific Consensus", noting the steps that have been taken so far, and identifying the major obstacles to progress. In particular he will consider the objection that stakeholders such as policymakers need information on very specific topics, where rather few scientists have sufficient specialist knowledge to comment, suggesting that a global survey of scientists would be misplaced. A suggestion will be made that statements at an intermediate level of abstraction are good candidates for global scientific opinion surveys: neither so vague that they have no bearing on on-the-ground decision making, nor so specific that very few scientists have a properly informed opinion.

13 JUNE 2025 11.30 - 13.30 ROOM B3.2

ID 952 - Narratives as Sculpting Tools in Public Understanding of Scientific Consensus

Mariann Hardey, University of Durham

This contribution will focus on (i) evaluating the level of agreement on evidence-based practices and guidelines, and (ii) analysing the consensus on social issues, and how this approach can improve public understanding of scientific agreement and disagreement.

Scientific consensus determining projects will not exist in informational isolation. As levels of scientific community agreement are determined, this information will be consumed, regurgitated, and remixed by various actors.

Imagine scientific findings as raw clay, capable of being moulded into different sculptures depending on the artist's hand. Media outlets, politicians, and advocacy groups act as these sculptors, each shaping the narrative to align with their own agendas. A study on sugar consumption, for instance, takes different forms depending on who wields the tools. A health organisation, chiselling for public good, sculpts a stark warning about diabetes and systemic inequities. A food industry lobby, carving with economic interests, moulds the same data into a defence of its product, perhaps downplaying health risks. These aren't just interpretations—they are deliberate acts actively shaping perception, often designed to undermine evidence-based guidelines. A carefully constructed scientific consensus, built on years of research and meta-analysis, can be chipped away, piece by piece, by narratives that prioritise profits or ideological agendas over long-term public health.

While scientific terminology and media literacy are increasingly recognized as crucial tools, they are not enough. We need to move beyond simply recognizing that framing is happening and allow space to consider how it works – how it sculpts the ways scientific consensus are understood by the public.

13 JUNE 2025 11.30 - 13.30 ROOM B3.2

ID – 953 Science Without Borders? Political Legitimacy When Scientific Agreement Fractures

Jesse Hamilton, University of Oxford

Mercury is dangerous. There is broad scientific agreement that it poses serious risks to both human health and the environment. While scientific agreement alone does not make a coercive rule politically legitimate, it is necessary for science-based policies. Without it, policies like the Minamata Convention—a global treaty



that restricts mercury use to prevent toxic exposure—would lack the epistemic foundation that distinguishes evidence-based governance from arbitrary rule.

The Institute for Ascertaining Scientific Consensus (IASC) is designed to survey scientific opinion and holds tremendous promise for measuring agreement on a range of policy-relevant issues. With its global network of scientists, it could one day provide granular descriptions of scientific consensus across different regions. If IASC were to poll scientists on whether mercury poses a serious risk to human health and ecosystems, it would almost certainly find overwhelming agreement. But what if, instead, its survey revealed near-unanimous global consensus—except in one region, where a majority of scientists dissent?

This hypothetical scenario raises a question about the role of scientific agreement in legitimizing coercive global policies. If broad agreement among scientists is what distinguishes evidence-based policy from arbitrary rule, does regional dissent undermine the political legitimacy of global policy? Or does the way we conceive of scientific knowledge as transcending regional boundaries—the claim that red blood cells carry oxygen and that DNA has a double helix structure is true regardless of one's location—imply that localized disagreement carries little justificatory weight?

So while IASC could help clarify the strength and scope of scientific agreement, its potential to poll scientific opinion on a global scale presents a challenge: How should we treat global scientific consensus when it conflicts with regional opinion? If the political legitimacy of global governance depends on the authority of scientific agreement, what happens when that agreement is not universally recognized?

13 JUNE 2025 11.30 - 13.30

ROOM B3.2

ID – 954 Consensus Determining Projects, STS and Realpolitik

Rory Jubber, University College London

This contribution to the panel will focus on a set of objections to consensus determining projects (like IASC) derived from the STS tradition and the realities of operating in the political space. I will outline two classic STS objections, along with what I will call the problem of realpolitik. To each I will offer defences of consensus determining projects.

The overarching feature of the objections from STS, as well as the objection from realpolitik, build off problems of naivety – theoretical and practical naivety. The first STS type objection will focus on consensus determining projects' realist assumptions and a naive approach to the conception of experts. The defence I will give is that this project does not necessarily assume a realist approach to truth – it is consistent with realism, pragmatism and various forms of relativism. The second STS type objection orientates around consensus determining projects operating unwittingly on a form of deficit model in science communication. I will set out to show that our project does not operate on a form of the deficit model. The final objection, and what I take to be the most troubling, is the objection from realpolitik. This comes in a weaker and stronger form. The weaker form is that the project would be used by those working in the policy and the political domain for their own narrow purposes, perhaps even in a harmful way contrary to the aims of the project. The stronger form is that a project of this nature would just be irrelevant to those working and operating in policy and politics. There are two possible solutions- bite the bullet and accept the risks and/or operate in a properly informed political manner ourselves. I hope to begin the process of showing STS scholars that the philosophers running this project are not ignorant of STS style problems.

13 JUNE 2025 11.30 - 13.30

ROOM B3.2

ID – 955 Institutes for Scientific Consensus Messaging's Orwellian Subtext

Owen Towler, University College London

This contribution explores the potential for IASC-like projects to become, or even merely become perceived as being, Orwellian "Ministries of Truth". The "Orwellian" objection fundamentally argues that projects aim-



ing at ascertaining and communicating levels of scientific community opinion may be able to, in some way, monopolise a specific "scientifically justified" narrative or agenda. By leveraging the prevailing wisdom of scientific authority such project could wield (relatively) unquestionable authority. By and large, the public tends to trust scientists and, by extension, trust in high degrees of agreement among scientists as being an indication of a 'scientifically informed truth'. Institutions designed to ascertain levels of agreement in the scientific community, therefore, may appear to possess the authority to inform the public on what is or isn't a 'scientifically informed truth' - and consequently, in some sense, determine what is or isn't legitimate knowledge. Even if well intentioned, such institutions risk resembling a "Ministry of Truth", as they hold the power to survey various scientifically informed claims and proclaim its veracity or falsehood.

I will be exploring some of the issues that culminate in this "Orwellian" objection, particularly examining how IASC could fit into the 'epistemic basic structure of society' – the network of institutes enabling the public to obtain knowledge – and how the breakdowns in this structure produce epistemic crises, like Orwellian perceptions of IASC-like institutions.

Particularly exploring how we should understand 'Orwellian' objection as being an extension of an endemic of mis/distrust in epistemic authorities, itself a symptom of an "epistemic crisis" – a break-down of the epistemic basic structure of society. Through this we can explore: (i) what role could IASC-like projects play in our societal 'epistemic basic structure'?, and (ii) would this be contributory or ameliorative to 'epistemic crises'?



13 JUNE 2025 11.30 - 13.30**ROOM B3.3**

Panel 83. Artistic, Speculative, and Embodied Explorations into Technologically Altered Experiences

Convenor:

Jurgis Peters, Tampere University

This panel critically examines how artificial intelligence (AI) and emerging technologies disrupt, mediate, and challenge human expression, identity, and autonomy across various domains, including contemporary art, performance, and human-computer interaction (HCI). By merging speculative design, embodied performance, and critical futures studies, the panel interrogates the societal implications of technologies such as generative AI, electrical muscle stimulation (EMS), and digitally induced altered states of consciousness (DIAL). This panel highlights the complex interplay between technology and human experience, questioning how we can ensure that these powerful tools contribute to a "good" technoscientific future.

Through a combination of presentations and a live performance the panel showcases research and artistic projects that utilize cutting-edge technology while critically examining its impact on humanity, agency, and the very notion of the "self." The panel aims to contribute to a cross-disciplinary discourse on the ethical, societal, and philosophical implications of AI, situated within broader discussions on technoscience critique, ethics of design, and posthumanism.

The first presentation explores the emerging field of digitally induced altered states of consciousness (DIAL), examining technologies like flickering light stimulation, VR simulations of psychedelic experiences, and lucid dreaming induction devices. It investigates both the potential benefits for mental health and the possible unintended consequences, including risks to autonomy and well-being, particularly with the development of more invasive brain-computer interfaces. The presentation will draw upon participatory futures study methods, design fiction, and art to anticipate the potential futures of DIAL.

The second presentation delves into the use of Generative AI (GenAI) to create interactive art installations that induce transformative experiences and altered states of consciousness. It introduces "The Looking Glass," a digital mirror powered by GenAI that dynamically alters the viewer's reflection in real-time. Grounded in psychological theories of self-transcendence, posthumanist ideas of technology-mediated transient identity, and transhumanist notions of extending human capacities, the project examines how AI can facilitate transformative states, such as awe, by modulating self-perception. It explores the potential of GenAI for artistic innovation and the creation of deeply personal experiences while also addressing the ethical challenges of using technology to manipulate human consciousness.

The third presentation examines the evolving relationship between the actor and technology, arguing for a shift towards a "technosymbiotic" embodiment in performance. It investigates how contemporary actors, working with digital technologies, can realise their creative affordances to achieve a symbiotic relationship with technology, leading to augmented performance capabilities. As a case study, the presentation will explore the use of electrical muscle stimulation (EMS) in challenging traditional and habitual notions of embodied control in acting. The presentation also considers the ethical implications of this technological integration, particularly in relation to the actor-researcher's psychophysical well-being and artistic development.

Complementing the presentations, a collaborative live performance will be presented by the authors. This piece will employ GenAI and EMS to create a dynamic interplay between human agency and technological influence, directly reflecting the central themes explored in the individual presentations.



13 JUNE 2025 11.30 - 13.30 ROOM B3.3

ID 956 – Societal Implications of Digitally Induced Altered States of Consciousness

Terho Ojell-Järventausta, Tampere University

Along with the waves of digitalisation and the renaissance of psychedelic research, digital technologies that can alter the states of consciousness have surfaced in society. Some examples of these technologies are flickering light stimulation, simulation of psychedelic experiences in virtual realities (VR), gadgets for induction of lucid dreams and body ownership illusions in VR similar to naturally occurring out-of-body experiences. Considering the current implementations and the fast-developing field of brain-computer interface, in the future, we might see increasingly more invasive implementations of digitally induced altered states of consciousness (DIAL). These technologies provide a wide array of potential benefits that are currently being studied, such as novel interventions for mental health. However, there is a high chance for the materialisation of unintended consequences and unwanted societal implications.

Therefore, the potential futures of DIAL must be studied through anticipatory research that utilises participatory futures study methods, design fiction, and art. The presentation will introduce the current scientific and artistic efforts to shed light on these potential societal implications of digitally induced altered states of consciousness.

13 JUNE 2025 11.30 - 13.30 ROOM B3.3

ID 957 – The Looking Glass: A Study in Generative AI, Self-Transcendence, and Artistic Innovation

Jurgis Peters, Tampere University

This presentation introduces "The Looking Glass," an interactive art installation that employs Generative AI (GenAI) to create real-time, personalized visual experiences aimed at inducing altered states of consciousness, particularly awe. The project centers on an AI-powered digital mirror that dynamically alters the viewer's reflection, drawing on psychological research on self-transcendence and philosophical concepts from transhumanism and posthumanism.

Specifically, the installation explores the posthumanist notion of a technology-mediated transient identity and the transhumanist idea of extending human capacities through technology, examining how AI can be used to facilitate ASC by modulating self-perception.

The presentation will detail the iterative design process of "The Looking Glass," including the technical and creative decisions involved in developing a GenAI system capable of generating meaningful, personalized visual content in real-time. It will also discuss the experimental framework used to assess the installation's effectiveness, including the collection of physiological and subjective data from participants in various settings. Key findings will be shared, highlighting the conditions and parameters that most effectively induce technology-mediated awe, offering insights into the potential of AI in shaping self-image and facilitating transformative experiences. The project contributes to a broader understanding of how GenAI can be utilized for artistic innovation and raises important ethical considerations regarding the use of technology to influence human consciousness.



13 JUNE 2025 11.30 - 13.30 ROOM B3.3

ID 958 – Technosymbiotic Embodiment of the Actor

Samuel Kujala, Tampere University

Contemporary actor's art takes place in close relation to various digital technologies in different production settings, scenic configurations, and media. Often, the actor-technology interface can turn out rather frictionous, as the actor's possibilities for expression are subjected to restrictions and requirements of the technologies used. In this presentation, I will argue that by reconfiguring their embodied relation to the technologies present, the actor can turn an initially frictionous relationship into a more symbiotic one, bringing forth technologically augmented embodied creativity. This implies a post-psychophysical framework for analysing the actor's technique and performance.

My research applies artistic research methodology and builds on an epistemology of embodied technique as knowledge, and thus, requires a cross-disciplinary negotiation between procedural research ethics and the ethics of artistic creation. This presentation looks into these ethical dynamics, where questions of exertion, discomfort, and even physical pain, are contrasted with the artistic drive and pleasures of the researcher-subject.



12 JUNE 2025 14.00 - 15.30

ROOM B3.4

Panel 84. Sustainable Interaction Design, HCI and STS: challenges and examples when analysis and ideals meet in teaching design of computational systems for sustainability

Convenors:

Peter Gall Krogh, Aarhus University

Davide Spallazzo, Politecnico di Milano

Marianne Graves Petersen, Aarhus University

Besana Nicola, Politecnico di Milano

Keywords: Sustainable Interaction Design, Sustainability, Cross-Disciplinary Collaboration, Interaction Technologies for Good

This panel marks the first half year of a three-year Erasmus+ teaching development project, Sustainable Interaction Design (SID), which aims to establish foundational frameworks in teaching digital design for green transformation. Rooted in Human- Computer Interaction (HCI), SID explores how interactive technologies can promote economic equity, cultural diversity, and environmental sustainability. By concerting diverse voices representing Computing within limits, computing and nature, Digital sustainability and sustainable computational materials the panel will stage ways forward for teaching sustainable interaction design.

This open panel will be structured into five short interventions (8–9 minutes each), each presented by invited panelists. These will be followed by an open discussion moderated by one of the organizers. The structure is designed to bring forward different perspectives on sustainable interaction design, while also sparking interdisciplinary dialogue involving HCI and STS scholars.

The five panelists:

Peter Gall Krogh & Marianne Graves Petersen, Aarhus University

Eli Blevis, Indiana University

Valentina Nisi, ITI-LARsYs, I.S.Técnico, Uni. de Lisboa

Davide Spallazzo, Politecnico di Milano

Amy K.M. Winters, Eindhoven University of Technology

12 JUNE 2025 14.00 - 15.30

ROOM B3.4

ID 959 - Introducing Sustainable Interaction Design (SID)

Peter Gall Krogh, Aarhus University, Denmark

This talk introduces the topic, and its foundational principles. It will outline the ongoing SID Erasmus+ project's ambition to create teaching frameworks that support the design of computational systems for sustainability. Drawing on experience in interaction design and HCI, it will pose a reflection on how to navigate tensions between technological ideals and situated design practices. The presentation sets the stage for the following cross-disciplinary intervention.

12 JUNE 2025 14.00 - 15.30

ROOM B3.4

ID 600 - Computing within Limits

Eli Blevis, Indiana University, USA (External guest)

The talk will present the "Computing within Limits" perspective, which argues for rethinking traditional computing paradigms in the face of ecological constraints. It will explore how computing research and ed-



education can acknowledge and contribute to respond to planetary boundaries, such as the limits of extractive logics and technological overreach. The intervention will highlight how rethinking computing through this lens can foster systems that support diverse human and non-human lifeforms, offering a critical STS-informed take on reorienting computing education for future viability.

12 JUNE 2025 14.00 - 15.30

ROOM B3.4

ID 601 - Nature and Interactive Storytelling

Valentina Nisi, Instituto Superior Técnico, University of Lisbon, Portugal (External guest)

This intervention will explore how interactive storytelling can foster a deeper connection with nature and sustainability issues. Drawing on design cases that combine interactive media and narrative techniques, the intervention will illustrate how digital interventions can be embedded meaningfully into the environmental discourse. The talk will emphasize a_ective engagement and cultural specificity as crucial to sustainable digital design.

12 JUNE 2025 14.00 - 15.30

ROOM B3.4

ID 602 - Developing Sustainable Digital Interventions in Practice

Davide Spallazzo, Politecnico di Milano, Italy

The talk will start by introducing real-world case studies where sustainable interaction design principles have been applied to develop technological interventions addressing pressing social and environmental issues. Through examples drawn from student projects and community-engaged initiatives, it will show how design methods can translate sustainability ideals into concrete, context-sensitive solutions. His talk will explore challenges such as aligning institutional constraints with ecological values, and scaling impact while maintaining local relevance. This intervention highlights how applied design practice can function as a catalyst for sustainable change.

12 JUNE 2025 14.00 - 15.30

ROOM B3.4

ID 603 - Sustainable Materials for Technological Systems

Amy K.M. Winters, Eindhoven University of Technology, Netherlands (External guest)

This last intervention will address sustainability at the material level, focusing on the design of computational systems that use biodegradable, recyclable, or otherwise sustainable materials. Her presentation will showcase examples where material experimentation is aligned with environmental goals, pushing the boundaries of what interactive systems can be made of and arguing for a broader view of "technology" that includes material ecologies and systemic thinking.



