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Editors

Cristiana Bolchini, Ingrid Verbauwhede and Ioana Vatajelu

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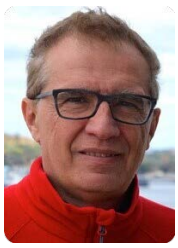

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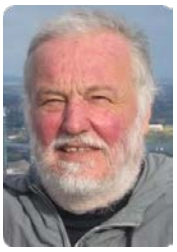

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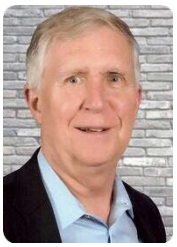

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A4 Augmented Living and Personalized Healthcare	**A5 Secure Systems, Circuits, and Architectures**	**A6 Self-adaptive and Context-aware Systems**
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Track Chair	Ilia Polian, *University of Stuttgart, DE*

T1 Modelling and Mitigation of Defects, Faults, Variability, and Reliability	**T2 Test Generation, Test Architectures, Design for Test, and Diagnosis**	**T3 Dependability and System-Level Test**
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Track Chair	Liliana Cucu, *Inria, FR*

E1 Embedded Software Architecture, Compilers and Tool Chains	**E2 Real-time, dependable and privacy-enhanced systems**	**E3 Machine Learning Solutions for Embedded and Cyber-Physical Systems**
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E4 Design Methodologies for Machine Learning Architectures	**E5 Design Modelling and Verification for Embedded and Cyber-Physical Systems**	
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Keynotes at DATE 2022

Keynote 1	What is beyond AI? Societal Opportunities and Electronic Design Automation
Speaker	**Valeria Bertacco** *University of Michigan Ann Arbor, United States*

Abstract

The success of hardware in enabling AI acceleration and broadening its scope has been nothing short of remarkable. How do we use the power of hardware design and electronic design automation to instead make the world a better place? EDA will be the cornerstone of innovative solutions in ensuring data privacy, sustainable computing and taming the data flood.

Biography

Valeria Bertacco is Thurnau Professor of Computer Science and Engineering at the University of Michigan, and Adjunct Professor of Computer Engineering at the Addis Ababa Institute of Technology. Her research interests are in the area of computer design, with emphasis on specialized architecture solutions and design viability, in particular reliability, validation, and hardware-security assurance. Her research endeavors are supported by the Applications Driving Architectures (ADA) Research Center, which Valeria directs. The ADA Center, sponsored by a consortium of semiconductor companies, has the goal of reigniting computing systems design and innovation for the 2030-2040s decades, through specialized heterogeneity, domain-specific language abstractions, and new silicon devices that show benefit to applications.

Valeria joined the University of Michigan in 2003. She currently serves as the Vice Provost for Engaged Learning at the University of Michigan, supporting all co-curricular engagements and international partnerships for the institution, and facilitating the work of several central units, whose goals range from promoting environmental sustainability, to the promotion of the arts in research universities, and to increasing the participation of gender minorities in the academy.

Keynote 2	Cryo-CMOS Quantum Control: from a Wild Idea to Working Silicon
Speaker	**Edoardo Charbon** *EPFL, Switzerland*

Abstract

The core of a quantum processor is generally an array of qubits that need to be controlled and read out by a classical processor. This processor operates on the qubits with nanosecond latency, several millions of times per second, with tight constraints on noise and power. This is due to the extremely weak signals involved in the process that require highly sensitive circuits and systems, along with very precise timing capability. We advocate the use of CMOS technologies to achieve these goals, whereas the circuits will be operated at deep-cryogenic temperatures. We believe that these circuits, collectively known as cryo-CMOS control, will make future qubit arrays scalable, enabling a faster growth in qubit count. In the lecture, the challenges of designing and operating complex circuits and systems at 4K and below will be outlined, along with preliminary results achieved in the control and read-out of qubits by ad hoc integrated circuits that were optimized to operate at low power in these conditions. The talk will conclude with a perspective on the field and its trends.

Biography

Edoardo Charbon (SM'00 F'17) received the Diploma from ETH Zurich, the M.S. from the University of California at San Diego, and the Ph.D. from the University of California at Berkeley in 1988, 1991, and 1995, respectively, all in electrical engineering and EECS. He has consulted with numerous organizations, including Bosch, X-Fab, Texas Instruments, Maxim, Sony, Agilent, and the Carlyle Group. He was with Cadence Design Systems from 1995 to 2000, where he was the Architect of the company's initiative on information hiding for intellectual property protection. In 2000, he joined Canesta Inc., as the Chief Architect, where he led the development of wireless 3-D CMOS image sensors. Since 2002 he has been a member of the faculty of EPFL. From 2008 to 2016 he was with Delft University of Technology's as full professor and Chair of VLSI design. He has been the driving force behind the creation of deep-submicron CMOS SPAD technology, which is mass-produced since 2015 and is present in telemeters, proximity sensors, and medical diagnostics tools. His interests span from 3-D vision, LiDAR, FLIM, FCS, NIROT to super-resolution microscopy, time-resolved Raman spectroscopy, and cryo-CMOS circuits and systems for quantum computing. He has authored or co-authored over 400 papers and two books, and he holds 23 patents. Dr. Charbon is a distinguished visiting scholar of the W. M. Keck Institute for Space at Caltech, a fellow of the Kavli Institute of Nanoscience Delft, a distinguished lecturer of the IEEE Photonics Society, and a fellow of the IEEE.

Keynote 3	Batteries: Powering up the Next Generations
Speaker	**Silvia Bodoardo** *Politecnico di Torino, Italy*

Abstract

The quest for energy possibly from renewable sources is rapidly increasing, due to new digital technologies that are taking up more and more space in our lives, electric vehicles expected to replace old combustion ones. However, today's battery technology is lagging behind adjacent technological advances, with most devices using lithium-ion batteries, that bring with them some concerns and not the least their availability in Europe. To create a European energy platform for the future, bringing together renewable energy sources, electric transportation and a connected Internet of Things, a new solution for battery technology needs to be found.
This keynote will explore how current challenges can be overcome through the application of advances in new materials, what is Europe doing in the field of batteries, the need of skilled people and how the future of battery technology can contribute to build a better, greener and connected world.

Biography

Silvia Bodoardo is professor at Politecnico di Torino where she is responsible for the task force on batteries and leads the Electrochemistry Group@Polito. Her research activity is mainly focused on the study of materials for Li-ion and post Li-ion batteries. The research is also dealing with cells production and battery testing. She is participating in several EU funded projects (coordinator of STABLE project), as well as national and regional ones. She is leader of WP3 on Education in Battery2030+ initiative and is co-chair in WG3 of BatteRIesEurope. Silvia organized many conferences and workshops on materials with electrochemical application and was Chair woman at the launch of the Horizon Prize on Innovative Batteries.

Keynote 4	AI in the Edge; the Edge of AI
Speaker	**Georges Gielen** *University of Leuven, Belgium*

Abstract

In the world of IoT, both humans and objects are continuously connected, collecting and communicating data, in a rising number of applications including industry 4.0, biomedical, environmental monitoring, smart houses and offices. Local computation in the edge has become a necessity to limit data traffic. Additionally embedding AI processing in the edge adds potentially high levels of smart autonomy to these IoT 2.0 systems. Progress in nanoelectronic technology allows to do this in power- and hardware-efficient architectures and designs. This keynote gives an overview of key solutions, but also describes main limitations and risks, exploring the edge of edge AI.

Biography

Georges G.E. Gielen received the MSc and PhD degrees in Electrical Engineering from the Katholieke Universiteit Leuven (KU Leuven), Belgium, in 1986 and 1990, respectively. He currently is Full Professor in the MICAS research division at the Department of Electrical Engineering (ESAT) at KU Leuven. From August 2013 till July 2017 he was also appointed at KU Leuven as Vice-Rector for the Group of Sciences, Engineering and Technology, and he was also responsible for academic Human Resource Management. He was visiting professor in UC Berkeley and Stanford University. Since 2020 he is Chair of the Department of Electrical Engineering.

His research interests are in the design of analog and mixed-signal integrated circuits, and especially in analog and mixed-signal CAD tools and design automation. He is a frequently invited speaker/lecturer and coordinator/partner of several (industrial) research projects in this area, including several European projects. He has (co-)authored 10 books and more than 600 papers in edited books, international journals and conference proceedings. He is a 1997 Laureate of the Belgian Royal Academy of Sciences, Literature and Arts in the discipline of Engineering. He is Fellow of the IEEE since 2002, and received the IEEE CAS Mac Van Valkenburg award in 2015 and the IEEE CAS Charles Desoer award in 2020. He is an elected member of the Academia Europaea.

Keynote 5	Probabilistic and Deep Learning Techniques for Robot Navigation and Automated Driving
Speaker	**Wolfgang Burgard** *University of Freiburg, Germany*

Abstract

For autonomous robots and automated driving, the capability to robustly perceive environments and execute their actions is the ultimate goal. The key challenge is that no sensors and actuators are perfect, which means that robots and cars need the ability to properly deal with the resulting uncertainty. In this presentation, I will introduce the probabilistic approach to robotics, which provides a rigorous statistical methodology to deal with state estimation problems. I will furthermore discuss how this approach can be extended using state-of-the-art technology from machine learning to deal with complex and changing real-world environments.

Biography

Wolfram Burgard is a Professor of Computer Science at the University of Freiburg where he heads the Laboratory for Autonomous Intelligent Systems. His interests lie in Robotics, Artificial Intelligence, Machine Learning, and Computer Vision. He has published over 400 publications, more than 15 of which received best paper awards. In 2009, he was awarded the Gottfried Wilhelm Leibniz Prize, the most prestigious German research award. In 2010, he received an Advanced Grant from the European Research Council. In 2021, he received the IEEE Technical Field Award for Robotics and Automation. He is a Fellow of the IEEE, the AAAI, the EurAI, and a member of the German Academy of Sciences Leopoldina as well as of the Heidelberg Academy of Sciences and Humanities.

Session Title	**Opening Session**
Date / Time	**Monday, 14 March 2022 / 08:30 - 09:15 CET**
Chair	**Cristiana Bolchini**, *Politecnico di Milano, IT*
Co-Chair	**Ingrid Verbauwhede**, *KU Leuven, BE*

Session Title	**K.1 Opening Keynote**
Date / Time	**Monday, 14 March 2022 / 09:20 - 10:10 CET**
Chair	**Cristiana Bolchini**, *Politecnico di Milano, IT*
K.1.1 **09:20 - 10:00 CET**	What is Beyond AI? Societal Opportunities and Electronic Design Automation **Valeria Bertacco**, *University of Michigan, US*
K.1.2 **10:00 - 10:10 CET**	LIVE Q&A Cristiana Bolchini, *Politecnico di Milano, IT*

Session Title	**K.2 Opening Keynote**
Date / Time	**Monday, 14 March 2022 / 10:10 - 11:00 CET**
Chair	**Giovanni De Micheli**, *EPFL, CH*
K.1.1 **10:10 - 10:50 CET**	Cryo-Cmos Quantum Control: From A Wild Idea To Working Silicon **Edoardo Charbon**, *École Polytechnique Fédérale de Lausanne (EPFL), CH*
K.1.2 **10:50 - 11:00 CET**	LIVE Q&A Cristiana Bolchini, *Politecnico di Milano, IT*

Session Title	**1.1 Scalable Quantum Stacks: Current Status and Future Prospects**
Date / Time	**Monday, 14 March 2022 / 11:00 - 12:30 CET**
Chair	**AdriFabio Sebastiano**, *TU Delft, NL*
Co-Chair	**Giovanni De Micheli**, *EPFL, CH*
1.1.1 **11:00 - 11:30 CET**	Full-Stack Quantum Computing Systems in the NISQ Era: Algorithm-Driven and Hardware-Aware Compilation Techniques *Medina Bandic, Sebastian Feld and Carmen G. Almudever*
1.1.2 **11:30 - 12:00 CET**	Tweedledum: A Compiler Companion for Quantum Computing *Bruno Schmitt and Giovanni De Micheli*
1.1.3 **12:00 - 13:30 CET**	A Cryo-CMOS Transmon Qubit Controller and Verification with FPGA Emulation *Kevin Tien, Ken Inoue, Scott Lekuch, David J. Frank, Sudipto Chakraborty, Pat Rosno, Thomas Fox, Mark Yeck, Joseph A. Glick, Raphael Robertazzi, Ray Richetta, John F. Bulzacchelli, Daniel Ramirez, Dereje Yilma, Andrew Davies, Rajiv V. Joshi, Devin Underwood, Dorothy Wisnieff, Chris Baks, Donald Bethune, John Timmerwilke, Blake R. Johnson, Brian P. Gaucher and Daniel J. Friedman*

Session Title	**K.3 Lunch Keynote: Batteries: powering up the next generations**
Virtual Conference Room	**TBA**
Date / Time	**Monday, 14 March 2022 / 12:30 - 14:00 CET**
Chair	**Marco Casale-Rossi**, *Synopsys, IT*
K.3.1 **10:10 - 10:50 CET**	Batteries: Powering Up The Next Generations **Silvia Bodoardo**, *Politecnico di Torino, IT*
K.3.2 **10:50 - 11:00 CET**	Q&A Marco Casale-Rossi, *Synopsys, IT*

Session Title	**2.1 Energy-autonomous systems for next generation of IoT**
Date / Time	**Monday, 14 March 2022 / 14:30 - 16:00 CET**
Chair	**Gilles Marco Casale-Rossi**, *Synopsys, IT*
Co-Chair	**Giovanni De Micheli**, *EPFL, CH*
2.1.1 **14:30 - 15:00 CET**	Micropower Management Techniques For Energy Harvesting Applications *Aldo Romani*
2.1.2	Fully Self-Powered Wireless Sensors Enabled By Optimized Power Management Modules

15:00 - 15:30 CET *Peter Spies*

2.1.3
15:30 - 16:00 CET Live Joint Q&A
Gilles Sassatelli, Miquel Moreto, David Bol and Marc Duranton

Session Title	**3.1 Panel: Quantum Software Toolchain**
Date / Time	**Monday, 14 March 2022 / 16:30 - 18:00 CET**
Chair	**Arne Aida Todri Sanial**, *LIRMM, FR*
Co-Chair	**Anne Matsuura**, *Intel, US*
Panellists	**Xin-Chuan (Ryan) Wu**, *Intel, US*

Session Title	**4.1 Panel: Quantum Hardware**
Date / Time	**Tuesday, 15 March 2022 / 09:00 - 10:30 CET**
Chair	**Arne Anne Matsuura**, *Intel, US*
Co-Chair	**Aida Todri Sanial**, *LIRMM, FR*
Panellists	**Lieven Vandersypen**, *Delft University of Technology, NL* **Lotte Geck**, *Forschungszentrum Jülich, DE* **Steven Brebels**, *IMEC, BE* **Heike Riel**, *IBM Research, CH*

Session Title	**5.1 Novel Design Techniques for Emerging Technologies in Computing**
Date / Time	**Tuesday, 15 March 2022 / 11:00 - 12:30 CET**
Chair	**Arne Scott Robertson Temple**, *University of Utah, US*

5.1.1
11:00 - 11:20 CET Physically & Algorithmically Secure Logic Locking With Hybrid Cmos/Nanomagnet Logic Circuits
Alexander Edwards, Naimul Hassan, Dhritiman Bhattacharya, Mustafa Shihab, Peng Zhou, Xuan Hu, Jayasimha Atulasimha, Yiorgos Makris and Joseph Friedman

5.1.2
11:20 - 11:40 CET Exploring Standard-Cell Design For Reconfigurable Nanotechnologies: A Formal Approach
Michael Raitza, Steffen Märcker, Shubham Rai and Akash Kumar

5.1.3
11:40 - 12:00 CET Design Enablement of CFET Devices For Sub-2nm Cmos Nodes
Odysseas Zografos, Bilal Chehab, Pieter Schuddinck, Gioele Mirabeli, Naveen Kakarla, Yang Xiang, Pieter Weckx and Julien Ryckaert

5.1.4
12:00 - 12:30 CET Majority-Based Design Flow for Aqfp Superconducting Family
Giulia Meuli, Vinicius Possani, Rajinder Singh, Siang-Yun Lee, Alessandro Tempia Calvino, Dewmini Marakkalage, Patrick Vuillod, Luca Amarù, Scott Chase, Jamil Kawa and Giovanni De Micheli

Session Title	**K.4 Lunch Keynote: AI in the edge; the edge of AI**
Date / Time	**Tuesday, 15 March 2022 / 13:10 - 14:00 CET**
Chair	**Gi-Joon Nan**, *IBM, US*

K.4.1
13:10 - 13:50 CET
AI In the Edge; The Edge of AI
Silvia Bodoardo, *Politecnico di Torino, IT*

K.4.2
13:50 - 14:00 CET
Q&A
Gi-Joon Nam, *IBM Research, US*

Session Title	**6.1 Alternative design paradigms for sustainable IoT nodes**
Date / Time	**Tuesday, 15 March 2022 / 14:30 - 16:00 CET**
Chair	**David Atienza**, *EPFL, CH*
Co-Chair	**Ayse Coskun**, *Boston University, US*

6.1.1
14:30 - 15:00 CET
BIO-Inspired Energy Efficient All-Spiking Internet of Things Nodes
Adrian Ionescu

6.1.2
15:00 - 15:30 CET
Hybrid Digital-Analog Systems-On-Chip For Efficient Edge AI
Marian Verhelst

6.1.3
15:30 - 16:00 CET
3D Compute Cubes For Edge Intelligence: Nanoelectronic-Enabled Adaptive Systems Based On Junctionless, Ambipolar, And Ferroelectric Vertical Fets
Ian O'Connor, David Atienza, Jens Trommer, Oskar Baumgartner, Guilhem Larrieu and Cristell Maneux

Session Title	**7.1 Panel: Autonomous Systems Design as a Research Challenge**
Date / Time	**Tuesday, 15 March 2022 / 16:30 - 18:00 CET**
Chair	**Selma Saidi**, *TU Dortmund, DE*
Co-Chair	**Rolf Ernst**, *TU Braunschweig, DE*
Panellists	**Karl-Erik Arzen**, *Lund University, SE* **Peter Liggesmeyer**, *Fraunhofer Institute for Experimental Software Engineering IESE, DE* **Axel Jantsch**, *TU Wien, AT*

Session Title	**8.1 Young People Program: Career Fair**
Date / Time	**Wednesday, 16 March 2022 / 16:00 - 17:00 CET**
Chair	**Anton Klotz**, *Cadence, DE*
Co-Chair	**Xavier Salazar**, *Barcelona Supercomputing Center & HiPEAC, ES*

Session Title	**9.1 Young People Program: Sponsorship Fair**

Date / Time	**Wednesday, 16 March 2022 / 17:00 - 18:30 CET**
Chair	**Sara Vinco**, *Politecnico di Torino, IT*
Co-Chair	**Anton Klotz**, *Cadence, DE*

9.1.1
17:00 - 17:10 CET
Dutch Nao Team
Thomas Wiggers

9.1.1
17:10 - 17:20 CET
Squadra Corse Polito
Enrico Salvatore

9.1.1
17:20 - 17:30 CET
Dynamis PRC
Ishac Oursana

9.1.1
17:30 - 17:40 CET
HYPED
Marina Antonogiannaki

9.1.1
17:40 - 17:50 CET
Oneloop AT UC Davis
Zbynka Kekula

9.1.1
17:50 - 18:00 CET
Neurotech Leuven
Jonah Van Assche

9.1.1
18:00 - 18:30 CET
Q&A SESSION
Sara Vinco and Anton Klotz

Session Title	**10.1 PhDForum**
Date / Time	**Wednesday, 16 March 2022 / 18:30 - 20:30 CET**
Chair	**Gabriela Nicolescu**, *école Polytechnique de Montréal, CA*

10.1.01
18:30 CET
Novel Attack and Defense Strategies for Enhanced Logic Locking Security
Lilas Alrahis and Hani Saleh

10.1.02
18:30 CET
Proper Abstractions For Digital Electronic Circuits: A Physically Guided Approach
Jürgen Maier

10.1.03
18:30 CET
Retraining-Free Weight-Sharing For Cnn Compression
Etienne Dupuis, David Novo, Alberto Bosio and Ian O'Connor

10.1.04
18:30 CET
Intelligent Circuit Design And Implementation With Machine Learning In Eda
Zhiyao Xie

10.1.05
18:30 CET
Cross-Layer Techniques For Energy-Efficiency And Resiliency Of Advanced Machine Learning Architectures
Alberto Marchisio and Muhammad Shafique

10.1.06
18:30 CET
Design & Analysis Of An On-Chip Processor For The Autism Spectrum Disorder (Asd) Children Assistance Using Their Emotions
Abdul Rehman Aslam and Muhammad Awais Bin Altaf

10.1.07
18:30 CET
Resilience And Energy-Efficiency For Deep Learning And Spiking Neural Networks For Embedded Systems
Rachmad Vidya Wicaksana Putra and Muhammad Shafique

10.1.08
18:30 CET
Modeling And Optimization Of Emerging Ai Accelerators Under Random Uncertainties
Sanmitra Banerjee

10.1.09
18:30 CET
Logic Synthesis In The Machine Learning Era: Improving Correlation And Heuristics
Walter Lau Neto and Pierre-Emmanuel Gaillardon

10.1.10
18:30 CET
Accelerating Cnn Inference Near To The Memory By Exploiting Parallelism, Sparsity, And Redundancy
Palash Das and Hemangee Kapoor

10.1.11
18:30 CET
Design Automation for Advanced Microfluidic Biochips
Debraj Kundu

10.1.12
18:30 CET
Ultra-Fast Temperature Estimation Methods For Architecture-Level Thermal Modeling
Hameedah Sultan

10.1.13
18:30 CET
Multi-Objective Digital VLSI Design Optimisation
Linan Cao

10.1.14
18:30 CET
TINYDL: Efficient Design of Scalable Deep Neural Networks for Resource-Constrained Edge Devices
Mohammad Loni

10.1.15
18:30 CET
Decision Diagrams in Quantum Design Automation
Stefan Hillmich

10.1.16
18:30 CET
Dependable Reconfigurable Scan Networks
Natalia Lylina and Hans-Joachim Wunderlich

10.1.17
18:30 CET
Breaking The Energy Cage Of Insect-Scale Autonomous Drones: Interplay Of Probabilistic Hardware And Co-Designed Algorithms
Priyesh Shukla and Amit Trivedi

10.1.18 **18:30 CET**	Resilient: Protecting Design IP from Malicious Entities *Nimisha Limaye and Ozgur Sinanoglu*
10.1.19 **18:30 CET**	Algorithm-Architecture Co-Design For Energy-Efficient, Robust, And Privacy-Preserving Machine Learning *Souvik Kundu*
10.1.20 **18:30 CET**	Performance-Aware Design-Space Optimization And Attack Mitigation For Emerging Heterogeneous Architectures *Mitali Sinha*
10.1.21 **18:30 CET**	Practical Side-Channel and Fault Attacks on Lattice-Based Cryptography *Prasanna Ravi, Anupam Chattopadhyay and Shivam Bhasin*
10.1.22 **18:30 CET**	Memory Interference And Mitigations In Reconfigurable Hesocs For Embedded AI *Gianluca Brilli, Alessandro Capotondi, Paolo Burgio, Andrea Marongiu and Marko Bertogna*

Session Title	**IP.1_1 Interactive presentations**
Date / Time	**Thursday, 17 March 2022 / 11:30 - 12:15 CET**
IP.1_1.1	A Software Architecture To Control Service-Oriented Manufacturing Systems *Sebastiano Gaiardelli, Stefano Spellini, Marco Panato, Michele Lora and Franco Fummi*
IP.1_1.2	Comprehensive And Accessible Channel Routing For Microfluidic Devices *Gerold Fink, Philipp Ebner and Robert Wille*
IP.1_1.3	XST: A Crossbar Column-Wise Sparse Training For Efficient Continual Learning *Fan Zhang, Li Yang, Jian Meng, Jae-sun Seo, Yu Cao and Deliang Fan*

Session Title	**IP.1_2 Interactive presentations**
Date / Time	**Thursday, 17 March 2022 / 11:30 - 12:15 CET**
IP.1_2.1	Energy-Efficient Brain-Inspired Hyperdimensional Computing Using Voltage Scaling *Sizhe Zhang, Ruixuan Wang, Dongning Ma, Jeff Zhang, Xunzhao Yin and Xun Jiao*
IP.1_2.2	Error Generation For 3d Nand Flash Memory *Weihua Liu, Fei Wu, Songmiao Meng, Xiang Chen and Changsheng Xie*
IP.1_2.3	Estimating Vulnerability of All Model Parameters in Dnn With A Small Number of Fault Injections *Yangchao Zhang, Hiroaki Itsuji, Takumi Uezono, Tadanobu Toba and Masanori Hashimoto*

Session Title	IP.1_3 Interactive presentations
Date / Time	Thursday, 17 March 2022 / 11:30 - 12:15 CET

IP.1_3.1 Exploiting Arbitrary Paths For The Simulation Of Quantum Circuits With Decision Diagrams
Lukas Burgholzer, Alexander Ploier and Robert Wille

IP.1_3.2 A Novel Neuromorphic Processors Realization Of Spiking Deep Reinforcement Learning For Portfolio Management
Seyyed Amirhossein Saeidi, Forouzan Fallah, Soroush Barmaki and Hamed Farbeh

IP.1_3.3 In-Situ Tuning Of Printed Neural Networks For Variation Tolerance
Michael Hefenbrock, Dennis Weller, Jasmin Aghassi, Michael Beigl and Mehdi Tahoori

Session Title	IP.1_4 Interactive presentations
Date / Time	Thursday, 17 March 2022 / 11:30 - 12:15 CET

IP.1_4.1 Practical Identity Recognition Using Wifi's Channel State Information
Cristian Turetta1, Florenc Demrozi, Philipp H. Kindt, Alejandro Masrur and Graziano Pravadelli

IP.1_4.2 A Rdma Interface for Ultra-Fast Ultrasound Data-Streaming over an Optical Link
Andrea Cossettini, Konstantin Taranov, Christian Vogt, Michele Magno, Torsten Hoefler and Luca Benini

IP.1_4.3 Robust Human Activity Recognition Using Generative Adversarial Imputation Networks
Dina Hussein, Aaryan Jain and Ganapati Bhat

Session Title	IP.1_5 Interactive presentations
Date / Time	Thursday, 17 March 2022 / 11:30 - 12:15 CET

IP.1_5.1 Hyperx: A Hybrid Rram-Sram Partitioned System For Error Recovery In Memristive Xbars
Adarsh Kosta, Efstathia Soufleri, Indranil Chakraborty, Amogh Agrawal, Aayush Ankit and Kaushik Roy

IP.1_5.2 A Resource-Efficient Spiking Neural Network Accelerator Supporting Emerging Neural Encoding
Daniel Gerlinghoff, Zhehui Wang, Xiaozhe Gu, Rick Siow Mong Goh and Tao Luo

IP.1_5.3 Scalable Hardware Acceleration of Non-Maximum Suppression
Chunyun Chen, Tianyi Zhang, Zehui Yu, Adithi Raghuraman, Shwetalaxmi Udayan, Jie Lin and Mohamed Aly

Session Title	IP.1_6 Interactive presentations
Date / Time	Thursday, 17 March 2022 / 11:30 - 12:15 CET

IP.1_6.1	Active Learning of Abstract System Models from Traces Using Model Checking *Natasha Yogananda Jeppu, Tom Melham and Daniel Kroening*
IP.1_6.1	Reducing The Configuration Overhead Of The Distributed Two-Level Control System *Yu Yang, Dimitrios Stathis and Ahmed Hemani*
IP.1_6.3	Batchlens: A Visualization Approach For Analyzing Batch Jobs In Cloud Systems *Shaolun Ruan, Yong Wang, Hailong Jiang, Weijia Xu and Qiang Guan*

Session Title	IP.1_7 Interactive presentations
Date / Time	Thursday, 17 March 2022 / 11:30 - 12:15 CET

IP.1_7.1	Flowacc: Real-Time High-Accuracy Dnn-Based Optical Flow Accelerator In FPGA *Yehua Ling, Yuanxing Yan, Kai Huang and Gang Chen*
IP.1_7.1	On Exploiting Patterns For Robust Fpga-Based Multi-Accelerator Edge Computing Systems *Seyyed Ahmad razavi, Hsin-Yu Ting, Tootiya Giyahchi and Eli Bozorgzadeh*
IP.1_6.3	RLPLACE: Deep Rl Guided Heuristics For Detailed Placement Optimization *Uday Mallappa, Sreedhar Pratty and David Brown*

Session Title	IP.ASD Interactive presentations
Date / Time	Thursday, 17 March 2022 / 11:30 - 12:15 CET
Session chair	**Philipp Mundhenk**, *Bosh, DE*

IP.ASD.1	Deadlock Analysis And Prevention For Intersection Management Based On Colored Timed Petri Nets *Tsung-Lin Tsou, Chung-Wei Lin and Iris Hui-Ru Jiang*
IP.ASD.1	Attack Data Generation Framework For Autonomous Vehicle Sensors *Jan Lauinger, Andreas Finkenzeller, Henrik Lautebach, Mohammad Hamad and Sebastian Steinhorst*
IP.ASD.3	Contract-Based Quality-Of-Service Assurance In Dynamic Distributed Systems *Lea Schönberger, Susanne Graf, Selma Saidi, Dirk Ziegenbein and Arne Hamann*

Session Title	K.5 Lunch Keynote: Probabilistic and Deep Learning Techniques for Robot Navigation and Automated Driving
Date / Time	Thursday, 17 March 2022 / 12:30 - 14:00 CET
Chair	**Marco Rolf Ernst**, *TU Braunschweig, DE*
Co-Chair	**Selma Saidi**, *TU Dortmund, DE*

K.5.1
12:30 - 14:00 CET
Probabilistic And Deep Learning Techniques For Robot Navigation And Automated Driving
Wolfram Burgard, *University of Freiburg, DE*

Session Title	11.1 Analog / mixed-signal EDA from system level to layout level
Date / Time	Thursday, 17 March 2022 / 14:30 - 15:30 CET
Chair	**Manuel Barragan**, *Universite Grenoble Alpes, CNRS, Grenoble INP, TIMA, FR*
Co-Chair	**Lars Hedrich**, *Goethe University of Frankfurt/Main, DE*

11.1.1
14:30 - 14:34 CET
Efficsense: An Architectural Pathfinding Framework For Energy-Constrained Sensor Applications
Jonah Van Assche, Ruben Helsen and Georges Gielen

11.1.2
14:34 - 14:38 CET
Topology Optimizaiton Of Operational Amplifier In Continuous Space Via Graph Embedding
Jialin Lu, Liangbo Lei, Fan Yang, Li Shang and Xuan Zeng

11.1.3
14:38 - 14:42 CET
A Charge Flow Formulation For Guiding Analog/Mixed-Signal Placement
Tonmoy Dhar, Ramprasath S, Jitesh Poojary, Soner Yaldiz, Steven Burns, Ramesh Harjani and Sachin S. Sapatnekar

11.1.4
14:42 - 14:46 CET
Are Analytical Techniques Worthwhile For Analog Ic Placement?
Yishuang Lin, Yaguang Li, Donghao Fang, Meghna Madhusudan, Sachin S. Sapatnekar, Ramesh Harjani and Jiang Hu

11.1.5
14:46 - 14:50 CET
Routability-Aware Placement For Advanced Finfet Mixed-Signal Circuits Using Satisfiability Modulo Theories
Hao Chen, Walker Turner, David Z. Pan and Haoxing Ren

11.1.6
14:50 - 14:54 CET
Constructive Common-Centroid Placement And Routing For Binary-Weighted Capacitor Arrays
Nibedita Karmokar, Arvind Kumar Sharma, Jitesh Poojary, Meghna Madhusudan, Ramesh Harjani and Sachin S. Sapatnekar

11.1.7
14:50 - 15:30 CET
Q&A SESSION
Manuel Barragan and Lars Hedrich

Session Title	**11.2 Approximate Computing Everywhere**
Date / Time	**Thursday, 17 March 2022 / 14:30 - 15:30 CET**
Chair	**Jie Han**, *University of Alberta, CA*
Co-Chair	**Ilaria Scarabottolo**, *Università della Svizzera, CH*

11.2.1
14:30 - 14:34 CET
MUSCAT: Mus-Based Circuit Approximation Technique
Linus Witschen, Tobias Wiersema, Matthias Artmann and Marco Platzner

11.2.2
14:34 - 14:38 CET
OPACT: Optimization of Approximate Compressor Tree for Approximate Multiplier
Weihua Xiao, Cheng Zhuo and Weikang Qian

11.2.3
14:38 - 14:42 CET
Learning To Design Accurate Deep Learning Accelerators With Inaccurate Multipliers
Paras Jain, Safeen Huda, Martin Maas, Joseph Gonzalez, Ion Stoica and Azalia Mirhoseini

11.2.4
14:42 - 14:46 CET
Cross-Layer Approximation For Printed Machine Learning Circuits
Giorgos Armeniakos, Georgios Zervakis, Dimitrios Soudris, Mehdi Tahoori and Joerg Henkel

11.2.5
14:46 - 14:50 CET
A Target-Separable Bwn Inspired Speech Recognition Processor With Low-Power Precision-Adaptive Approximate Computing
Bo Liu, Hao Cai, Xuan Zhang, Haige Wu, Anfeng Xue, Zilong Zhang, Zhen Wang and Jun Yang

11.2.6
14:50 - 14:54 CET
Towards Energy-Efficient Cgras Via Stochastic Computing
Bo Wang, Rong Zhu, Jiaxing Shang and Dajiang Liu

11.2.7
14:50 - 15:30 CET
Q&A SESSION
Jie Han and Ilaria Scarabottolo

Session Title	**11.3 Advanced Mapping and Optimization for Emerging ML Hardware**
Date / Time	**Thursday, 17 March 2022 / 14:30 - 15:30 CET**
Chair	**Jan Moritz Joseph**, *RWTH AACHEN, DE*
Co-Chair	**Elnaz Ansari**, *Meta/Facebook, US*

11.3.1
14:30 - 14:34 CET
Dasc : A Dram Data Mapping Methodology For Sparse Convolutional Neural Networks
Bo-Cheng Lai, Tzu-Chieh Chiang, Po-Shen Kuo, Wan-Ching Wang, Yan-Lin Hung, Hung-Ming Chen, Chien-Nan Liu and Shyh-Jye Jou

11.3.2
14:34 - 14:38 CET
VW-SDK: Efficient Convolutional Weight Mapping Using Variable Windows For Processing-In-Memory Architectures
Johnny Rhe, Sungmin Moon and Jong Hwan Ko

11.3.3
14:38 - 14:42 CET
A Uniform Latency Model For Dnn Accelerators With Diverse Architectures And Dataflows
Linyan Mei, Huichu Liu, Tony Wu, H. Ekin Sumbul, Marian Verhelst and Edith Beigne

11.3.4
14:42 - 14:46 CET
MEDEA: A Multi-Objective Evolutionary Approach To Dnn Hardware Mapping
Enrico Russo, Maurizio Palesi, Salvatore Monteleone, Davide Patti, Giuseppe Ascia and Vincenzo Catania

11.3.5
14:46 - 14:50 CET
DIGAMMA: Domain-Aware Genetic Algorithm For Hw-Mapping Co-Optimization For Dnn Accelerators
Sheng-Chun Kao, Michael Pellauer, Angshuman Parashar and Tushar Krishna

11.3.6
14:50 - 14:54 CET
ANACONGA: Analytical Hw-Cnn Co-Design Using Nested Genetic Algorithms
Nael Fasfous, Manoj Rohit Vemparala, Alexander Frickenstein, Emanuele Valpreda, Driton Salihu, Julian Höfer, Anmol Singh, Naveen-Shankar Nagaraja, Hans-Joerg Voegel, Nguyen Anh Vu Doan, Maurizio Martina, Juergen Becker and Walter Stechele

11.3.6
14:50 - 15:30 CET
Q&A SESSION
Jan Moritz Joseph and Elnaz Ansari

Session Title	**11.4 Reconfigurable Systems**
Date / Time	**Thursday, 17 March 2022 / 14:30 - 15:30 CET**
Chair	**Jan Michaela Blott**, *Xilinx, IE*
Co-Chair	**Shreejith Shanker**, *Trinity College Dublin, IE*

11.4.1
14:30 - 14:34 CET
ADAFLOW: A Framework For Adaptive Dataflow Cnn Acceleration On FPGAS
Guilherme Korol, Michael Jordan, Mateus Beck Rutzig and Antonio Carlos Schneider Beck

11.4.2
14:34 - 14:38 CET
Raw Filtering Of Json Data On FPGAS
Tobias Hahn, Andreas Becher, Stefan Wildermann and Jürgen Teich

11.4.3
14:42 - 14:46 CET
GRAPHWAVE: A Highly-Parallel Compute-At-Memory Graph Processing Accelerator
Jinho Lee, Burin Amornpaisannon, Tulika Mitra and Trevor E. Carlson

11.4.4
14:46 - 14:50 CET
RF-CGRA: A Routing-Friendly Cgra With Hierarchical Register Chains
Rong Zhu, Bo Wang and Dajiang Liu

11.4.5
14:50 - 14:54 CET
PATHSEEKER: A Fast Mapping Algorithm For CGRAS
Mahesh Balasubramanian and Aviral Shrivastava

11.4.6
14:50 - 14:54 CET
Improving Technology Mapping For Aic-Based FPGAS
Martin Thümmler, Shubham Rai and Akash Kumar

11.4.7
14:50 - 15:30 CET
Q&A SESSION
Michaela Blott and Shanker Shreejith

Session Title	11.5 An Industrial Perspective on Autonomous Systems Design
Date / Time	Thursday, 17 March 2022 / 14:30 - 15:30 CET
Chair	**Jan Rolf Ernst**, *TU Braunschweig, DE*
Co-Chair	**Selma Saidi**, *TU Dortmund, DE*

11.5.1
14:30 - 14:45 CET
Symbiotic Safety: Safe And Efficient Human-Machine Collaboration By Utilizing Rules
Tasuku Ishigooka, Hiroyuki Yamada, Satoshi Otsuka, Nobuyasu Kanekawa and Junya Takahashi

11.5.2
14:45 - 15:00 CET
A Middleware Journey From Microcontrollers To Microprocessors
Michael Pöhnl, Alban Tamisier and Tobias Blaß

11.5.3
15:00 - 15:15 CET
Reliable Distributed Systems
Philipp Mundhenk, Arne Hamann, Andreas Heyl and Dirk Ziegenbein

11.5.4
15:15 - 15:30 CET
PAVE 360 - A Paradigm Shift In Autonomous Driving Verification With A Digital Twin
Tapan Vikas

Session Title	12.1 AI as a Driver for Innovative Applications
Date / Time	Thursday, 17 March 2022 / 15:40 - 16:30 CET
Chair	**Jan Xun Jiao**, *University of Villanova, US*
Co-Chair	**Srinivas Katkoori**, *University of South Florida, US*

12.1.1
15:40 - 15:44 CET
Algorithm-Hardware Co-Design for Efficient Brain-Inspired Hyperdimensional Learning On Edge
Yang Ni, Yeseong Kim, Tajana S. Rosing and Mohsen Imani

12.1.2
15:44 - 15:48 CET
POISONHD: Poison Attack On Brain-Inspired Hyperdimensional Computing
Ruixuan Wang and Xun Jiao

12.1.3
15:48 - 15:52 CET
AIME: Watermarking AI Models by Leveraging Errors
Philipp Mundhenk, Arne Hamann, Andreas Heyl and Dirk Ziegenbein

12.1.4
15:52 - 15:56 CET
THINGNET: A Lightweight Real-Time Mirai Iot Variants Hunter Through Cpu Power Fingerprinting
Zhuoran Li and Danella Zhao

12.1.5
15:56 - 16:00 CET
M2M-ROUTING: Environmental Adaptive Multi-Agent Reinforcement Learning Based Multi-Hop Routing Policy For Self-Powered Iot Systems
Wen Zhang, Jun Zhang, Mimi Xie, Tao Liu, Wenlu Wang and Chen Pan

12.1.6
15:56 - 16:00 CET
Q&A SESSION
Saraju Mohanty and Srinivas Katkoori

Session Title	**12.2 Applications of optimized quantum and probabilistic circuits in emergent computing systems**
Date / Time	**Thursday, 17 March 2022 / 15:40 - 16:30 CET**
Chair	**Jan Xun Jiao**, *University of Villanova, US*
Co-Chair	**Srinivas Katkoori**, *University of South Florida, US*

12.2.1
15:40 - 15:44 CET
Muzzle The Shuttle: Efficient Compilation For Multi-Trap Trapped-Ion Quantum Computers
Abdullah Ash-Saki, Rasit Onur Topaloglu and Swaroop Ghosh

12.2.2
15:44 - 15:48 CET
Circuits For Measurement Based Quantum State Preparation
Niels Gleinig and Torsten Hoefler

12.2.3
15:48 - 15:52 CET
Optic: A Practical Quantum Binary Classifier For Near-Term Quantum Computers
Tirthak Patel, Daniel Silver and Devesh Tiwari

12.2.4
15:52 - 15:56 CET
Scalable Variational Quantum Circuits For Autoencoder-Based Drug Discovery
Junde Li and Swaroop Ghosh

12.2.5
15:56 - 16:00 CET
Towards Low-Cost High-Accuracy Stochastic Computing Architecture For Univariate Functions: Design And Design Space Exploration
Kuncai Zhong, Zexi Li and Weikang Qian

12.2.6
16:00 - 16:30 CET
Q&A SESSION
Giulia Meuli and Yvain Thonnart

Session Title	**12.3 Reliable safe and approximate systems**
Date / Time	**Thursday, 17 March 2022 / 15:40 - 16:30 CET**
Chair	**Angeliki Kritikakou**, *IRISA, FR*
Co-Chair	**Marcello Traiola**, *INRIA, FR*

12.3.1
15:40 - 15:44 CET
Do Temperature And Humidity Exposures Hurt Or Benefit Your SSDS?
Adnan Maruf, Sashri Brahmakshatriya, Baolin Li, Devesh Tiwari, Gang Quan and Janki Bhimani

12.3.2
15:44 - 15:48 CET
SAFEDM: A Hardware Diversity Monitor For Redundant Execution On Non-Lockstepped Cores
Francisco Bas, Pedro Benedicte, Sergi Alcaide, Guillem Cabo, Fabio Mazzocchetti and Jaume Abella

12.3.3
Is Approximation Universally Defensive Against Adversarial Attacks In Deep Neural

15:48 - 15:52 CET	Networks? *Ayesha Siddique and Khaza Anuarul Hoque*
12.3.4 **15:52 - 15:56 CET**	Reliability Analysis Of A Spiking Neural Network Hardware Accelerator *Theofilos Spyrou, Sarah A. Elsayed, Engin Afacan, Luis A. Camuñas Mesa, Barnabé Linares-Barranco and Haralampos-G. Stratigopoulos*
12.3.5 **15:56 - 16:00 CET**	Reliability Of Google's Tensor Processing Units For Embedded Applications *Rubens Luiz Rech Junior and Paolo Rech*
12.3.6 **16:00 - 16:30 CET**	Q&A SESSION *Angeliki Kritikakou and Marcello Traiola*

Session Title	**12.4 Raising Performance and Reliability of the Memory Subsystem**
Date / Time	**Thursday, 17 March 2022 / 15:40 - 16:30 CET**
Chair	**Leonidas Kosmidis**, *Barcelona Supercomputing Center, ES*
Co-Chair	**Thaleia Dimitra Doudali**, *IMDEA Software Institute, ES*

12.4.1 **15:40 - 15:44 CET**	STEALTH ECC: A Data-Width Aware Adaptive Ecc Scheme For Dram Error Resilience *Young Seo Lee, Gunjae Koo, Young-Ho Gong and Sung Woo Chung*
12.4.2 **15:44 - 15:48 CET**	Accelerate Hardware Logging To Efficiently Guarantee Pm Crash Consistency *Zhiyuan Lu, Jianhui Yue, Yifu Deng and Yifeng Zhu*
12.4.3 **15:48 - 15:52 CET**	MEMPOOL-3D: Boosting Performance And Efficiency Of Shared-L1 Memory Many-Core Clusters With 3D Integration *Matheus Cavalcante, Anthony Agnesina, Samuel Riedel, Moritz Brunion, Alberto Garcia-Ortiz, Dragomir Milojevic, Francky Catthoor, Sung Kyu Lim and Luca Benini*
12.4.4 **15:52 - 15:56 CET**	REPAIR: A Reram-Based Processing-In-Memory Accelerator For Indel Realignment *Ting Wu, Chin-Fu Nien, Kuang-Chao Chou and Hsiang-Yun Cheng*
12.4.5 **15:56 - 16:00 CET**	SIC Processors For Extreme High-Temperature Venus Surface Exploration *Heewoo Kim, Javad Bagherzadeh and Ronald Dreslinski*
12.4.6 **16:00 - 16:30 CET**	Q&A SESSION *Leonidas Kosmidis and Thaleia Dimitra Doudali*

Session Title	12.5 Bringing Robust Deep Learning to the Autonomous Edge: New Challenges and Algorithm-Hardware Solutions
Date / Time	Thursday, 17 March 2022 / 15:40 - 16:30 CET
Chair	**Dirk Ziegenbein**, *Robert Bosch GmbH, DE*
Co-Chair	**Chung-Wei Lin**, *National Taiwan University, TW*

12.5.1
15:40 - 15:50 CET
Unsupervised Test-Time Adaptation Of Deep Neural Networks At The Edge: A Case Study
Kshitij Bhardwaj, James Diffenderfer, Bhavya Kailkhura and Maya Gokhale

12.5.2
15:50 - 16:00 CET
Super-Efficient Super Resolution For Fast Adversarial Defense At The Edge
Kartikeya Bhardwaj, Dibakar Gope, James Ward, Paul Whatmough and Danny Loh

12.5.3
16:00 - 16:10 CET
Fault-Tolerant Deep Neural Networks For Processing-In-Memory Based Autonomous Edge Systems
Siyue Wang, Geng Yuan, Xiaolong Ma, Yanyu Li, Xue Lin and Bhavya Kailkhura

12.5.4
16:10 - 16:20 CET
FRL-FI: Transient Fault Analysis For Federated Reinforcement Learning-Based Navigation Systems
Zishen Wan, Aqeel Anwar, Abdulrahman Mahmoud, Tianyu Jia, Yu-Shun Hsiao, Vijay Reddi and Arijit Raychowdhury

12.5.5
16:20 - 16:40 CET
Q&A SESSION
Maya Gokhale and Kshitij Bhardwaj

Session Title	13.1 New Perspectives in Test and Diagnosis
Date / Time	Thursday, 17 March 2022 / 16:40 - 17:20 CET
Chair	**Melanie Schillinsky**, *NXP Semiconductors Germany GmbH, DE*
Co-Chair	**Riccardo Cantoro**, *Politecnico di Torino, IT*

13.1.1
16:40 - 16:44 CET
Improving Cell-Aware Test for Intra-Cell Short Defects
Dong-Zhen Li, Ying-Yen Chen, Kai-Chiang Wu and Chia-Tso Chao

13.1.2
16:44 - 16:48 CET
APUF Faults: Impact, Testing, and Diagnosis
Natasha Devroye, Vincent Dumoulin, Tim Fox, Wenjing Rao and Yeqi Wei

13.1.3
16:48 - 16:52 CET
Graph Neural Network-Based Delay-Fault Localization For Monolithic 3D ICS
Shao-Chun Hung, Sanmitra Banerjee, Arjun Chaudhuri and Krishnendu Chakrabarty

13.1.4
16:52 - 16:56 CET
A Compaction Method For STLS For Gpu In-Field Test
Juan Guerrero Balaguera, Josie Rodriguez Condia and Matteo Sonza Reorda

13.1.5 **16:56 - 17:30 CET**	Q&A SESSION *Melanie Schillinsky and Riccardo Cantoro*

Session Title	**13.2 From system-level specification to RTL and back**
Date / Time	**Thursday, 17 March 2022 / 16:40 - 17:20 CET**
Chair	**Andy Pimentel**, *University of Amsterdam, NL*
Co-Chair	**Matthias Jung**, *Fraunhofer IESE, DE*

13.2.1 **16:40 - 16:44 CET**	Automatic Generation Of Architecture-Level Models From Rtl Designs For Processors And Accelerators *Yu Zeng, Aarti Gupta and Sharad Malik*
13.2.2 **16:44 - 16:48 CET**	TWINE: A Chisel Extension For Component-Level Heterogeneous Design *Shibo Chen, Yonathan Fisseha, Jean-Baptiste Jeannin and Todd Austin*
13.2.3 **16:48 - 16:52 CET**	Towards Implementing RTL Microprocessor Agile Design Using Feature Oriented Programming *Hongji Zou, Mingchuan Shi, Tun Li and Wanxia Qu*
13.2.4 **16:52 - 16:56 CET**	CSLE: A Cost-Sensitive Learning Engine for Disk Failure Prediction In Large Data Centers *Xinyan Zhang, Kai Shan, Zhipeng Tan and Dan Feng*
13.2.5 **16:56 - 17:30 CET**	Q&A SESSION *Andy Pimentel and Matthias Jung*

Session Title	**13.3 Advances in permanent storage efficiency and NN-in-memory**
Virtual Conference Room	**TBA**
Date / Time	**Thursday, 17 March 2022 / 16:40 - 17:20 CET**
Chair	**Yi Wang**, *Shenzhen University, CN*
Co-Chair	**Zili Shao**, *The Chinese University of Hong Kong, HK*

13.3.1 **16:40 - 16:44 CET**	Robust Binary Neural Network Against Noisy Analog Computation *Zong-Han Lee, Fu-Cheng Tsai and Shih-Chieh Chang*
13.3.2 **16:44 - 16:48 CET**	MU-RMW: Minimizing Unnecessary Rmw Operations In The Embedded Flash With SMR Disk *Chenlin Ma, Zhuokai Zhou, Yingping Wang, Yi Wang and Rui Mao*
13.3.3 **16:48 - 16:52 CET**	Optimizing Cow-Based File Systems On Open-Channel Ssds With Persistent Memory *Runyu Zhang, Duo Liu, Chaoshu Yang, Xianzhang Chen, Lei Qiao and Yujuan Tan*

13.3.4
16:52 - 16:56 CET
MCMQ: Simulation Framework For Scalable Multi-Core Flash Firmware Of Multi-Queue SSDS
Xinyan Zhang, Kai Shan, Zhipeng Tan and Dan Feng

13.3.5
16:56 - 17:30 CET
Q&A SESSION
Yi Wang and Zili Shao

Session Title	**13.4 System-level security**
Date / Time	**Thursday, 17 March 2022 / 16:40 - 17:20 CET**
Chair	**Pascal Benoit**, *University of Montpellier, FR*
Co-Chair	**Mike Hamburg**, *Cryptography Research, US*

13.4.1
16:40 - 16:44 CET
Cr-Spectre: Defense-Aware Rop Injected Code-Reuse Based Dynamic Spectre
Abhijitt Dhavlle, Setareh Rafatirad, Houman Homayoun and Sai Manoj Pudukotai Dinakarrao

13.4.2
16:44 - 16:48 CET
Cacherewinder: Revoking Speculative Cache Updates Exploiting Write-Back Buffer
Jongmin Lee, Junyeon Lee, Taeweon Suh and Gunjae Koo

13.4.3
16:48 - 16:52 CET
SAFETEE: Combining Safety And Security On Arm-Based Microcontrollers
Martin Schönstedt, Ferdinand Brasser, Patrick Jauernig, Emmanuel Stapf and Ahmad-Reza Sadeghi

13.4.4
16:52 - 16:56 CET
MCMQ: Simulation Framework For Scalable Multi-Core Flash Firmware Of Multi-Queue SSDS
Xinyan Zhang, Kai Shan, Zhipeng Tan and Dan Feng

13.4.5
16:56 - 17:30 CET
Q&A SESSION
Pascal Benoit and Mike Hamburg

Session Title	**13.5 Safe and Efficient Engineering of Autonomous Systems**
Date / Time	**Thursday, 17 March 2022 / 16:40 - 17:20 CET**
Chair	**Sebastian Steinhorst**, *TU Munich, DE*
Co-Chair	**Sharon Hu**, *University of Notre Dame, US*

13.4.1
16:40 - 16:44 CET
Using Ontologies For Dataset Engineering In Automotive Ai Applications
Martin Herrmann, Christian Witt, Laureen Lake, Stefani Guneshka, Christian Heinzemann, Frank Bonarens, Patrick Feifel and Simon Funke

13.4.2
16:44 - 16:48 CET
Using Formal Conformance Testing To Generate Scenarios For Autonomous Vehicles
Jean-Baptiste Horel, Christian Laugier, Lina Marsso, Radu Mateescu, Lucie Muller, Anshul Paigwar, Alessandro Renzaglia and Wendelin Serwe

13.4.3
16:48 - 16:52 CET
SAFETEE: Combining Safety And Security On Arm-Based Microcontrollers
Martin Schönstedt, Ferdinand Brasser, Patrick Jauernig, Emmanuel Stapf and Ahmad-Reza Sadeghi

13.4.4
16:52 - 16:56 CET
Remote Sensing With Uav And Mobile Recharging Vehicle Rendezvous
Michael Ostertag, Jason Ma and Tajana S. Rosing

Session Title	**A.1 Panel on Quantum and Neuromorphic Computing: Designing Brain-Inspired Chips**
Date / Time	**Thursday, 17 March 2022 / 17:30 - 19:00 CET**
Chair	**Aida Todri Sanial**, *LIRMM, FR*
Co-Chair	**Anne Matsuura**, *Intel, US*
Panellists	**Bhavin J. Shastri**, *Queen's University, CA* **Giacomo Indiveri**, *ETH Zürich, CH* **Mike Davies**, *INTEL, US*

Session Title	**14.1 University Fair**
Date / Time	**Thursday, 17 March 2022 / 19:00 - 20:30 CET**
Chair	**Aida Ioannis Sourdis**, *Chalmers, SE*
Co-Chair	**Nele Mentens**, *KU Leuven, BE*

14.1.1
19:00 - 19:10 CET
Chalmers Activities In Eurohpc Ju
Per Stenstrom

14.1.2
19:10 - 19:20 CET
Hardware Designs For High Performance And Reliable Space Processors
Leonidas Kosmidis

14.1.3
19:20 - 19:30 CET
New Position In The Ssh Team Of Télécom Paris
Jean Luc Danger

14.1.4
19:30 - 19:40 CET
Designing Embedded Systems For The Automotive World
Paolo Burgio

14.1.5
19:40 - 19:50 CET
Cosmos:A Combined System Of Optical Phase Change Memory And Optical Links
Ayse Coskun and Ajay Joshi

14.1.6
19:50 - 20:00 CET
A Toolchain For Library Cell Characterization For Rfet Technologies
Steffen Märcker, Akash Kumar, Michael Raitza and Shubham Rai

14.1.7
20:00 - 20:10 CET
Safety-Related Open Source Hardware Modules
Jaume Abella1, Sergi Alcaide2 and Pedro Benedicte

14.1.8
20:10 - 20:20 CET
Research @Necstlab In A Nutshell Aka Research Activities And Opportunities For Prospective Phd Students
Marco D. Santambrogio

14.1.9
20:20 - 20:30 CET
Power-Off Laser Attacks On Security Primitives
Giorgio Di Natale

Session Title	**15.1 Young People Program: BarCamp**
Date / Time	**Friday, 18 March 2022 / 09:00 - 17:30 CET**
Chair	**Anton Klotz**, *Cadence, DE*
Co-Chair	**Georg Glaeser**, *Institut für Mikroelektronik- und Mechatronik-Systeme, DE*

Session Title	**15.2 Panel: Forum on Advancing Diversity in EDA (DivEDA)**
Date / Time	**Friday, 18 March 2022 / 18:30 - 20:30 CET**
Chair	**Ayse K Coskun**, *Boston University, US*
Co-Chair	**Nele Mentens**, *KU Leuven, BE*

Session Title	**A.2 Disruptive and Nanoelectronics-based edge AI computing systems**
Date / Time	**Monday, 21 March 2022 / 17:30 - 19:00 CET**
Chair	**David Atienza**, *EPFL, CH*
Co-Chair	**Ayse Coskun**, *Boston University, US*

A.2.1
17:30 - 18:00 CET
Tiny Machine Learning for IOT 2.0
Vijay Janapa Reddi

A.2.2
18:00 - 18:30 CET
HD Computing With Applications
Tajana S. Rosing

A.2.3
18:00 - 18:30 CET
Improving Weight Perturbation Robustness For Memristor-Based Hardware Deployment
Yiran Chen, Huanrui Yang and Xiaoxuan Yang

Session Title	**16.1 Young People Program Keynote: Engineering skills that will advance quantum computing**
Date / Time	**Monday, 21 March 2022 / 19:00 - 19:45 CET**
Chair	**Sara Vinco**, *Politecnico di Torino, IT*
Co-Chair	**Anton Klotz**, *Cadence Design Systems, DE*

16.1.1
19:00 - 19:45 CET
Engineering Skills That Will Advance Quantum Computing
Elena Blokhina and Robert Staszewski

Session Title	**16.2 Young People Program Panel**
Date / Time	**Monday, 21 March 2022 / 19:45 - 20:30 CET**
Chair	**Anton Klotz**, *Cadence, DE*
Co-Chair	**Xavier Salazar**, *Barcelona Supercomputing Center & HiPEAC, ES*
Panellists	**Antonia Schmalz**, *SPRIN D.org, DE* **Ari Kulmala**, *Tampere University, FI* **Anna Puig-Centelles**, *HADEA, ES* **Alba Cervera**, *Barcelona Supercomputing Center, ES*

Session Title	**IP.2_1 Interactive Presentations**
Date / Time	**Tuesday, 22 March 2022 / 11:30 - 12:15 CET**

IP.2_1.1 G-GPU: A Fully-Automated Generator Of GPU-Like Asic Accelerators
Tiago Diadami Perez, Márcio Gonçalves, José Rodrigo Azambuja, Leonardo Gobatto, Marcelo Brandalero and Samuel Pagliarini

IP.2_1.2 Efficient Traveling Salesman Problem Solvers Using The Ising Model With Simulated Bifurcation
Tingting Zhang and Jie Han

IP.2_1.3 Providing Response Times Guarantees For Mixed-Criticality Network Slicing In 5G
Andrea Nota, Selma Saidi, Dennis Overbeck, Fabian Kurtz and Christian Wietfeld

Session Title	**IP.2_2 Interactive presentations**
Date / Time	**Tuesday, 22 March 2022 / 11:30 - 12:15 CET**

IP.2_2.1 SCI-FI: Control Signal, Code, And Control Flow Integrity Against Fault Injection Attacks
Thomas Chamelot, Damien Couroussé and Karine Heydemann

IP.2_2.2 XTENSTORE: Fast Shielded In-Memory Key-Value Store On A Hybrid X86-Fpga System
Hyunyoung Oh, Dongil Hwang, Maja Malenko, Myunghyun Cho, Hyungon Moon, Marcel Baunach and Yunheung Paek

IP.2_2.3 Learning To Mitigate Rowhammer Attacks
Biresh Kumar Joardar, Tyler Bletsch and Krishnendu Chakrabarty

Session Title	IP.2_3 Interactive presentations
Date / Time	Tuesday, 22 March 2022 / 11:30 - 12:15 CET

IP.2_3.1 Once For All Skip: Efficient Adaptive Deep Neural Networks
Yu Yang, Di Liu, Hui Fang, Yi-Xiong Huang, Ying Sun and Zhi-Yuan Zhang

IP.2_3.2 Self-Aware Mimo Beamforming Systems: Dynamic Adaptation To Channel Conditions And Manufacturing Variability
Suhasini Komarraju and Abhijit Chatterjee

IP.2_3.3 Salvaging Runtime Bad Blocks By Skipping Bad Pages For Improving SSD Performance
Junoh Moon, Mincheol Kang, Wonyoung Lee and Soontae Kim

Session Title	IP.2_4 Interactive Presentations
Date / Time	Tuesday, 22 March 2022 / 11:30 - 12:15 CET

IP.2_4.1 SACC: Split And Combine Approach To Reduce The Off-Chip Memory Accesses Of Lstm Accelerators
Saurabh Tewari, Anshul Kumar and Kolin Paul

IP.2_4.2 Npu-Accelerated Imitation Learning For Thermal- And Qos-Aware Optimization Of Heterogeneous Multi-Cores
Martin Rapp, Nikita Krohmer, Heba Khdr and Joerg Henke

IP.2_4.3 BMPQ: Bit-Gradient Sensitivity Driven Mixed-Precision Quantization Of DNNS From Scratch
Souvik Kundu, Shikai Wang, Qirui Sun, Peter Beerel and Massoud Pedram

Session Title	IP.2_5 Interactive presentations
Date / Time	Tuesday, 22 March 2022 / 11:30 - 12:15 CET

IP.2_5.1 EM SCA & FI Self-Awareness And Resilience With Single On-Chip Loop & ML Classifiers
Saurabh Tewari, Anshul Kumar and Kolin Paul

IP.2_5.1 RTSEC: Automated RTL Code Augmentation For Hardware Security Enhancement
Orlando Arias, Zhaoxiang Liu, Xiaolong Guo, Yier Jin and Shuo Wang

IP.2_5.1 INTER-IP Malicious Modification Detection Through Static Information Flow Tracking
Zhaoxiang Liu, Orlando Arias, Weimin Fu, Yier Jin and Xiaolong Guo

Session Title	IP.2_6 Interactive presentations
Date / Time	Tuesday, 22 March 2022 / 11:30 - 12:15 CET

IP.2_6.1 Many-Layer Hotspot Detection By Layer-Attentioned Visual Question Answering
Yen-Shuo Chen and Iris Hui-Ru Jiang

IP.2_6.1 RESTORE: Real-Time Task Scheduling On A Temperature Aware Finfet Based Multicore
Yanshul Sharma, Sanjay Moulik and Shounak Chakraborty

IP.2_6.1 Online Performance And Power Prediction For Edge Tpu Via Comprehensive Characterization
Yang Ni, Yeseong Kim, Tajana S. Rosing and Mohsen Imani

Session Title	IP.2_7 Interactive presentations
Date / Time	Tuesday, 22 March 2022 / 11:30 - 12:15 CET

IP.2_7.1 Proactive Run-Time Mitigation For Time-Critical Applications Using Dynamic Scenario Methodology
Ji-Yung Lin, Pieter Weckx, Subrat Mishra, Alessio Spessot and Francky Catthoor

IP.2_7.2 Analyzing Can's Timing Under Periodically Authenticated Encryption
Mingqing Zhang, Philip Parsch, Henry Hoffmann and Alejandro Masrur

IP.2_7.3 Towards Adc-Less Compute-In-Memory Accelerators For Energy Efficient Deep Learning
Utkarsh Saxena, Indranil Chakraborty and Kaushik Roy

Session Title	IP.MPP Multi-Partner Projects–Interactive Presentations
Date / Time	Tuesday, 22 March 2022 / 11:30 - 12:15 CET

IP.MPP.1 Towards Reconfigurable Accelerators In HPC: Designing A Multipurpose EFPGA Tile For Heterogeneous Socs
Tim Hotfilter, Juan Miguel de Haro Ruiz, Fabian Kreß, Carlos Alvarez, Fabian Kempf, Daniel Jimenez-Gonzalez, Miquel Moreto, imen baili, Jesus Labarta and Juergen Becker

IP.MPP.2 Towards Approximate Computing For Achieving Energy Vs. Accuracy Trade-Offs
Jari Nurmi and Aleksandr Ometo

IP.MPP.3 The Selene Deep Learning Acceleration Framework For Safety-Relevant Applications
Laura Medina, Salvador Carrión, Pablo Cerezo, Tomás Picornell, Josè Flich, Carles Hernandez, Markel Sainz, Michael Sandoval, Charles-Alexis Lefebvre, Martin Ronnback, Martin Matschnig, Matthias Wess and Herber Taucher

Session Title	**L.1 Panel on Quantum and Neuromorphic Computing: What's it like to be an Engineer for Emerging Computing Technologies?**
Date / Time	**Tuesday, 22 March 2022 / 12:30 - 14:00 CET**
chair	**Anne Matsuura,** *Intel, US*
co-chair	**Aida Todri Sanial,** *LIRMM, FR*
Panellists	**Fernando Gonzalez Zalba,** *Quantum Motion Technologies, GB* **Théophile Gonos,** *A.I. Mergence, FR* **Robert Wille,** *Johannes Kepler University Linz, AT*

Session Title	**17.1 Brain- and Bio-inspired Architectures and Applications**
Date / Time	**Tuesday, 22 March 2022 / 14:30 - 15:30 CET**
chair	**Michael Niemier,** *Notre Dame University, US*
co-chair	**François Rummens,** *CEA, FR*

17.1.1
14:30 - 14:34 CET

Adaptive Droplet Routing For Meda Biochips Via Deep Reinforcement Learning
Mahmoud Elfar, Tung-Che Liang, Krishnendu Chakrabarty and Miroslav Pajic

17.1.2
14:34 - 14:38 CET

Contamination-Free Switch Design And Synthesis For Microfluidic Large-Scale Integration
Duan Shen, Yushen Zhang, Mengchu Li, Tsun-Ming Tseng and Ulf Schlichtmann

17.1.3
14:38 - 14:42 CET

Exploiting Parallelism With Vertex-Clustering In Processing-In-Memory-Based Gcn Accelerators
Yu Zhu, Zhenhua Zhu, Guohao Dai, Kai Zhong, Huazhong Yang and Yu Wang

17.1.4
14:42 - 14:46 CET

Accelerating Spatiotemporal Supervised Training Of Large-Scale Spiking Neural Networks on GPU
LING LIANG, Zhaodong Chen, Lei Deng, Fengbin Tu, Guoqi Li and Yuan Xie

17.1.5
14:46 - 14:50 CET

HYPERSPIKE: Hyperdimensional Computing For More Efficient And Robust Spiking Neural Networks
Justin Morris, Hin Wai Lui, Kenneth Stewart, Behnam Khaleghi, Anthony Thomas, Thiago Marback, Baris Aksanli, Emre Neftci and Tajana S. Rosing

17.1.6
14:50 - 15:30 CET

Q&A Session
Michael Niemier and François Rummens

Session Title	**17.2 Attacks on Secure and Trustworthy Systems**
Date / Time	**Tuesday, 22 March 2022 / 14:30 - 15:30 CET**
chair	**Emanuele Valea,** *CEA LIST, FR*
co-chair	**Francesco Regazzoni,** *University of Amsterdam and Università della Svizzera italiana, CH*

17.2.1
14:30 - 14:34 CET

A Deep-Learning Approach To Side-Channel Based Cpu Disassembly At Design Time
Hedi Fendri, Marco Macchetti, Jerome Perrine and Mirjana Stojilovic

17.2.2
14:34 - 14:38 CET

A Cross-Platform Cache Timing Attack Framework Via Deep Learning
Ruyi Ding, Ziyue Zhang, Xiang Zhang, Cheng Gongye, Yunsi Fei and A. Adam Ding

17.2.3
14:38 - 14:42 CET

Design Of Ai Trojans For Evading Machine Learning-Based Detection Of Hardware Trojans
Zhixin Pan and Prabhat Mishra

17.2.4
14:42 - 14:46 CET

Dip Learning On Cas-Lock: Using Distinguishing Input Patterns For Attacking Logic Locking
Akashdeep Saha, Urbi Chatterjee, Debdeep Mukhopadhyay and Rajat Subhra Chakraborty

17.2.5
14:46 - 14:50 CET

MUXLINK: Circumventing Learning-Resilient Mux-Locking Using Graph Neural Network-Based Link Prediction
Lilas Alrahis, Satwik Patnaik, Muhammad Shafique and Ozgur Sinanoglu

17.2.6
14:50 - 15:30 CET

Q&A Session
Emanuele Valea1 and Francesco Regazzoni

Session Title	**17.3 Algorithmic techniques for efficient and robust ML hardware**
Virtual Conference Room	**TBA**
Date / Time	**Tuesday, 22 March 2022 / 14:30 - 15:30 CET**
chair	**Giulio Gambardella,** *Synopsys, IR*
co-chair	**Tony Wu,** *Meta/Facebook, US*

17.3.1
14:30 - 14:34 CET

Dtqatten: Leveraging Dynamic Token-Based Quantization For Efficient Attention Architecture
Tao Yang, Dongyue Li, Zhuoran Song, Yilong Zhao, Fangxin Liu, Zongwu Wang, Zhezhi He and Li Jiang

17.3.2
14:34 - 14:38 CET

Mind The Scaling Factors: Resilience Analysis Of Quantized Adversarially Robust Cnns
Nael Fasfous, Lukas Frickenstein, Michael Neumeier, Manoj Rohit Vemparala, Alexander Frickenstein, Emanuele Valpreda, Maurizio Martina and Walter Stechele

17.3.3
14:38 - 14:42 CET
Variability-Aware Training And Self-Tuning Of Highly Quantized Dnns For Analog PIM
Zihao Deng and Michael Orshansky

17.3.4
14:42 - 14:46 CET
Can Deep Neural Networks Be Converted To Ultra Low-Latency Spiking Neural Networks?
Gourav Datta and Peter Beerel

17.3.5
14:46 - 14:50 CET
Value-Aware Parity Insertion Ecc For Fault-Tolerant Deep Neural Network
Seo-Seok Lee and Joon-Sung Yang

17.3.6
14:50 - 15:30 CET
Q&A Session
Giulio Gambardella and Tony Wu

Session Title	**17.4 Energy Efficiency with Emerging Technologies for the Edge and the Cloud**
Date / Time	**Tuesday, 22 March 2022 / 14:30 - 15:30 CET**
chair	**Qinru Qiu,** *Syracuse University, US*
co-chair	**Iraklis Anagnostopoulos,** *SIU, US*

17.4.1
14:30 - 14:34 CET
A Precision-Scalable Energy-Efficient Bit-Split-And-Combination Vector Systolic Accelerator For Nas-Optimized DNNS
Kai Li, Junzhuo Zhou, Yuhang Wang, Junyi Luo, Zhengke Yang, Shuxin Yang, Wei Mao, Mingqiang Huang and Hao Yu

17.4.2
14:34 - 14:38 CET
Ternarized Tcn For µj/Inference Gesture Recognition From Dvs Event Frames
Georg Rutishauser, Moritz Scherer, Tim Fischer and Luca Benini

17.4.3
14:38 - 14:42 CET
REH: Redesigning Extendible Hashing For Commercial Non-Volatile Memory
Zhengtao Li, Zhipeng Tan and Jianxi Chen

17.4.4
14:42 - 14:46 CET
Memory Management Methodology For Application Data Structure Refinement And Placement On Heterogeneous DRAM/NVM Systems
Manolis Katsaragakis, Lazaros Papadopoulos, Christos Baloukas and Dimitrios Soudris

17.4.5
14:46 - 14:50 CET
Microfaas: Energy-Efficient Serverless On Bare-Metal Single-Board Computers
Anthony Byrne, Yanni Pang, Allen Zou, Shripad Nadgowda and Ayse Coskun

17.4.6
14:50 - 15:30 CET
Q&A Session
Qinru Qiu and Iraklis Anagnostopoulos

Session Title	**17.5 Putting Place and Route research on the right track**
Date / Time	**Tuesday, 22 March 2022 / 14:30 - 15:30 CET**
chair	**Behjat Laleh,** *University of Calgary, CA*
co-chair	**Jens Lienig,** *TU Dresden, DE*

17.5.1 **14:30 - 14:34 CET**	FASTGR : Global Routing On Cpu-Gpu With Heterogeneous Task Graph Scheduler *Siting Liu, Peiyu Liao, Rui Zhang, Zhitang Chen, Wenlong Lv, Yibo Lin and Bei Yu*
17.5.2 **14:34 - 14:38 CET**	TRADER: A Practical Track-Assignment-Based Detailed Router *Zhen Zhuang, Genggeng Liu, Tsung-Yi Ho, Bei Yu and Wenzhong Guo*
17.5.3 **14:38 - 14:42 CET**	CR&P: An Efficient Co-Operation Between Routing And Placement *Erfan Aghaeekiasaraee, Aysa Fakheri Tabrizi, Tiago Fontana, Renan Netto, Sheiny Almeida, Upma Gandhi, Jose Guntzel, David Westwick and Laleh Behjat*
17.5.4 **14:42 - 14:46 CET**	Pin Accessibility-Driven Placement Optimization With Accurate And Comprehensive Prediction Model *Suwan Kim and Taewhan Kim*
17.5.5 **14:46 - 14:50 CET**	Mixed-Cell-Height Legalization On Cpu-Gpu Heterogeneous Systems *Haoyu Yang, Kit Fung, Yuxuan Zhao, Yibo Lin and Bei Yu*
17.5.6 **14:50 - 15:30 CET**	Q&A Session *Laleh Behjat and Jens Lienig*

Session Title	**17.6 Multi-Partner Projects – Session 1**
Virtual Conference Room	**TBA**
Date / Time	**Tuesday, 22 March 2022 / 14:30 - 15:30 CET**
chair	**Leticia Maria Bolzani Poehls,** *RWTH Aachen University, DE*
co-chair	**Maksim Jenihhin,** *Tallinn UT, EE*

17.6.1 **14:30 - 14:34 CET**	A Comprehensive Solution For Securing Connected And Autonomous Vehicles *Mohsin Kamal, Christos Kyrkou, Nikos Piperigkos, Andreas Papandreou, Andreas Kloukiniotis, Jordi Casademont, Natalia Mateu, Daniel Castillo, Rodrigo Rodriguez, Nicola Durante, Peter Hofmann, Petros Kapsalas, Aris Lalos, Konstantinos Moustakas, Christos Laoudias, Theocharis Theocharides and Georgios Ellinas*
17.6.2 **14:34 - 14:38 CET**	Physical And Functional Reverse Engineering Challenges For Advanced Semiconductor Solutions *Bernhard Lippmann, Matthias Ludwig, Johannes Mutter, Ann-Christin Bette, Alexander Hepp, Johanna Baehr, Martin Rasche, Oliver Kellermann, Horst Gieser, Tobias Zweifel and Nicola Kovac*

17.6.3
14:38 - 14:42 CET

DE-RISC: A Complete Risc-V Based Space-Grade Platform
Nils-Johan Wessman, Fabio Malatesta, Stefano Ribes, Jan Andersson, Antonio Garcia-Vilanova, Miguel Masmano, Vicente Nicolau, Paco Gomez, Jimmy Le Rhun, Sergi Alcaide, Guillem Cabo, Francisco Bas, Pedro Benedicte, Fabio Mazzocchetti and Jaume Abella

17.6.4
14:42 - 14:46 CET

The Scale4edge Risc-V Ecosystem
Wolfgang Ecker, Milos Krstic, Andreas Mauderer, Eyck Jentzsch, Andreas Koch, Wolfgang Müller, Vladimir Herdt, Daniel Mueller-Gritschneder, Rafael Stahl, Kim Grüttner, Jörg Bormann, Wolfgang Kunz1, Reinhold Heckmann, Ralf Wimmer, Bernd Becker, Philipp Scholl, Oliver Bringmann, Johannes Partzsch and Christian Mayr

17.6.5
14:46 - 14:50 CET

XANDAR: Exploiting The X-By-Construction Paradigm In Model-Based Development Of Safety-Critical Systems
Leonard Masing, Tobias Dörr, Florian Schade, Juergen Becker, Georgios Keramidas, Christos Antonopoulos, Michail Mavropoulos, Efstratios Tiganourias, Vasilios Kelefouras, Konstantinos Antonopoulos, Nikolaos Voros, Umut Durak, Alexander Ahlbrecht, Wanja Zaeske, Christos Panagiotou, Dimitris Karadimas, Nico Adler, Andreas Sailer, Raphael Weber, Thomas Wilhelm, Geza Nemeth, Fahad Siddiqui, Rafiullah Khan, Vahid Garousi, Sakir Sezer and Victor Morales

17.6.6
14:46 - 14:50 CET

FLODAM: CRoss-Layer Reliability Analysis Flow For Complex Hardware Designs
Angeliki Kritikakou, Olivier Sentieys, Guillaume Hubert, Youri Helen, Jean-francois Coulon and Patrice Deroux-Dauphin

17.6.6
14:50 - 15:30 CET

Q&A Session
Leticia Maria Bolzani Poehls and Maksim Jenihhin

Session Title	**18.1 Domain-specific co-design: From sensors to graph analytics**
Date / Time	**Tuesday, 22 March 2022 / 15:40 - 16:30 CET**
chair	**Jeronimo Castrillon,** *TU Dresden, DE*
co-chair	**Paula Herber,** *WWU Munster, DE*

18.1.1
15:40 - 15:44 CET

SNE: An Energy-Proportional Digital Accelerator For Sparse Event-Based Convolutions
Alfio Di Mauro, Arpan Prasad, Zhikai Huang, Matteo Spallanzani, Francesco Conti and Luca Benini

18.1.2
15:44 - 15:48 CET

LRP: Predictive Output Activation Based On Svd Approach For Cnns Acceleration
Xinxin Wu, Zhihua Fan, Tianyu Liu, Wenming Li, Xiaochun Ye And Dongrui Fan

18.1.3
15:48 - 15:52 CET

Exploiting Architecture Advances For Sparse Solvers In Circuit Simulation
Zhiyuan Yan, Biwei Xie, Xingquan Li and Yungang Bao

18.1.4
15:52 - 15:56 CET

Data-Aware Cache Management For Graph Analytics
Neelam Sharma, Varun Venkitaraman, Newton Singh, Vikash Kumar, Shubham Singhania and Chandan Kumar Jha

18.1.5
15:52 - 15:56 CET
Agape: Anomaly Detection With Generative Adversarial Network For Improved Performance, Energy, And Security In Manycore Systems
Ke Wang, Hao Zheng, Yuan Li, Jiajun Li and Ahmed Louri

18.1.6
15:56 - 16:00 CET
Q&A SESSION
Jeronimo Castrillon and Paula Herber

Session Title	**18.2 Memory-centric and neural network systems: architectures, tools, and profilers**
Date / Time	**Tuesday, 22 March 2022 / 15:40 - 16:30 CET**
chair	**Mohamed M. Sabry Aly,***Nanyang Technological University, SG*
co-chair	**Huichu Liu,***Meta, Inc., US*

18.2.1
15:40 - 15:44 CET
PIMPROF: An Automated Program Profiler For Processing-In-Memory Offloading Decisions
Yizhou Wei, Minxuan Zhou, Sihang Liu, Korakit Seemakhupt, Tajana S. Rosing and Samira Khan

18.2.2
15:44 - 15:48 CET
Analysis Of Power-Oriented Fault Injection Attacks On Spiking Neural Networks
Karthikeyan Nagarajan, Junde Li, Sina Sayyah Ensan, Mohammad Nasim Imtiaz Khan, Sachhidh Kannan and Swaroop Ghosh

18.2.3
15:48 - 15:52 CET
GIBBON: Efficient Co-Exploration Of Nn Model And Processing-In-Memory Architecture
Hanbo Sun, Chenyu Wang, Zhenhua Zhu, Xuefei Ning, Guohao Dai, Huazhong Yang and Yu Wang

18.2.4
15:52 - 15:56 CET
AID: Accuracy Improvement Of Analog Discharge-Based In-Sram Multiplication Accelerator
Saeed Seyedfaraji, Baset Mesgari and Semeen Rehman

18.2.5
15:56 - 16:00 CET
Q&A SESSION
Mohamed M. Sabry Aly and Huichu Liu

Session Title	**18.3 Persistent Memory**
Date / Time	**Tuesday, 22 March 2022 / 15:40 - 16:30 CET**
chair	**Joseph Friedman,***UT Dallas, US*
co-chair	**Chengmo Yang,***University of Delaware, US*

18.3.1
15:40 - 15:44 CET
Characterizing And Optimizing Hybrid Dram-Pm Main Memory System With Application Awareness
Yongfeng Wang, Yinjin Fu, Yubo Liu, Zhiguang Chen and Nong Xiao

18.3.2
15:44 - 15:48 CET
PATS: Taming Bandwidth Contention Between Persistent And Dynamic Memories
Shu Cheng Wang, Qiang Cao, Hong Jiang and Yuanyuan Dong

18.3.3
15:48 - 15:52 CET
Unifying Temporal And Spatial Locality For Cache Management Inside SSDS
Zhibing Sha, Zhigang Cai, Dong Yin, Jianwei Liao and Francois Trahay

18.3.4
15:52 - 15:56 CET
DWR: Differential Wearing For Read Performance Optimization On High-Density Nand Flash Memory
Yunpeng Song, Qiao Li, Yina Lv, Changlong Li and Liang Shi

18.3.5
15:52 - 15:56 CET
GATLB: A Granularity-Aware Tlb To Support Multi-Granularity Pages In Hybrid Memory System
Yujuan Tan, Yujie Xie, Zhulin Ma, Zhichao Yan, Zhichao Zhang, Duo Liu and Xianzhang Chen

18.3.6
15:56 - 16:00 CET
Q&A SESSION
Joseph Friedman and Chengmo Yang

Session Title	**18.4 Energy Efficient Platforms: from Autonomous Vehicles to Intermittent Computing**
Date / Time	**Tuesday, 22 March 2022 / 15:40 - 16:30 CET**
chair	**Domenico Balsamo,***Newcastle University, GB*
co-chair	**Bart Vermeulen,***NXP Semiconductors, NL*

18.4.1
15:40 - 15:44 CET
OMU: A Probabilistic 3d Occupancy Mapping Accelerator For Real-Time Octomap At The Edge
Tianyu Jia, En-Yu Yang, Yu-Shun Hsiao, Jonathan Cruz, David Brooks, Gu-Yeon Wei and Vijay Janapa Reddi

18.4.2
15:44 - 15:48 CET
An FPGA Overlay For Efficient Real-Time Localization In 1/10th Scale Autonomous Vehicles
Andrea Bernardi, Gianluca Brilli, Alessandro Capotondi, Andrea Marongiu4 and Paolo Burgio

18.4.3
15:52 - 15:56 CET
Enabling Fast Deep Learning On Tiny Energy-Harvesting Iot Devices
Sahidul Islam, Jieren Deng, Shanglin Zhou, Chen Pan, Caiwen Ding and Mimi Xie

18.4.4
15:52 - 15:56 CET
Emulation Of Non-Volatile Digital Logic For Batteryless Intermittent Computing
Simone Ruffini, Kasim Sinan Yildirim and Davide Brunelli

18.4.5
15:56 - 16:00 CET
Q&A SESSION
Domenico Balsamo and Bart Vermeulen

Session Title	18.5 Circuit Optimization and Analysis: No Time to Lose
Date / Time	Tuesday, 22 March 2022 / 15:40 - 16:30 CET
chair	**Eleonora Testa,** *Synopsys Inc., CH*
co-chair	**Ibrahim Elfadel,** *Khalifa University, AE*

18.5.1
15:40 - 15:44 CET

A Systematic Removal Of Minimum Implant Area Violations Under Timing Constraint
Eunsol Jeong, Heechun Park and Taewhan Kim

18.5.2
15:44 - 15:48 CET

DREAMPLACE 4.0: Timing-Driven Global Placement With Momentum-Based Net Weighting
Peiyu Liao, Siting Liu, Zhitang Chen, Wenlong Lv, Yibo Lin and Bei Yu

18.5.3
15:48 - 15:52 CET

EEVENTTIMER: Fast And Accurate Event-Based Dynamic Timing Analysis
Zuodong Zhang, Zizheng Guo, Yibo Lin, Runsheng Wang and Ru Huang

18.5.4
15:52 - 15:56 CET

Practical Substrate Design Considering Symmetrical And Shielding Routes
Hao-Yu Chi, Yi-Hung Chen, Hung-Ming Chen, Chien-Nan Liu, Yun-Chih Kuo, Ya-Hsin Chang and Kuan-Hsien Ho

18.5.5
15:56 - 16:00 CET

Q&A SESSION
Eleonora Testa and Ibrahim (Abe) Elfadel

Session Title	18.6 Multi-Partner Projects – Session 2
Date / Time	Tuesday, 22 March 2022 / 15:40 - 16:30 CET
chair	**Ernesto Sanchez,** *Politecnico di Torino, IT*
co-chair	**Maksim Jenihhin,** *Tallinn UT, EE*

18.6.1
15:40 - 15:44 CET

NEUROTEC I: Neuro-Inspired Artificial Intelligence Technologies For The Electronics Of The Future
Melvin Galicia, Stephan Menzel, Farhad Merchant, Maximilian Müller, Hsin-Yu Chen, Qing-Tai Zhao, Felix Cüppers, Abdur R. Jalil, Qi Shu, Peter Schüffelgen, Gregor Mussler, Carsten Funck, Christian Lanius, Stefan Wiefels, Moritz von Witzleben, Christopher Bengel, Nils Kopperberg, Tobias Ziegler, Rana Ahmad, Alexander Krüger, Leticia Pöhls, Regina Dittmann, Susanne Hoffmann-Eifert, Vikas Rana, Detlev Grützmacher, Matthias Wuttig, Dirk Wouters, Andrei Vescan, Tobias Gemmeke, Joachim Knoch, Max Lemme, Rainer Leupers and Rainer Waser

18.6.2
15:44 - 15:48 CET

VEDLIOT: Very Efficient Deep Learning In IOT
Martin Kaiser, Rene Griessl, Nils Kucza, Carola Haumann, Lennart Tigges, Kevin Mika, Jens Hagemeyer, Florian Porrmann, Ulrich Rückert, Micha vor dem Berge, Stefan Krupop, Mario Porrmann, Marco Tassemeier, Pedro Trancoso, Fareed Qararyah, Stavroula Zouzoula,

Antonio Casimiro, Alysson Bessani, José Cecilio, Stefan Andersson, Oliver Brunnegard, Olof Eriksson, Roland Weiss, Franz Meierhöfer, Hans Salomonsson, Elaheh Malekzadeh, Daniel ödman, Anum Khurshid, Pascal Felber, Marcelo Pasin, Valerio Schiavoni, James Menetrey, Karol Gugula, Piotr Zierhoffer, Eric Knauss and Hans-Martin Heyn

18.6.3
15:52 - 15:56 CET

Intelligent Methods For Test And Reliability
Hussam Amrouch, Jens Anders, Steffen Becker, Maik Betka, Gerd Bleher, Peter Domanski, Nourhan Elhamawy, Thomas Ertl, Athanasios Gatzastras, Paul R. Genssler, Sebastian Hasler, Martin Heinrich, Andre van Hoorn, Hanieh Jafarzadeh, Ingmar Kallfass, Florian Klemme, Steffen Koch, Ralf Küsters, Andrés Lalama, Raphael Latty, Yiwen Liao, Natalia Lylina, Zahra Paria Najafi-Haghi, Dirk Pflüger, Ilia Polian, Jochen Rivoir, Matthias Sauer, Denis Schwachhofer, Steffen Templin, Christian Volmer, Stefan Wagner, Daniel Weiskopf, Hans-Joachim Wunderlich, Bin Yang and Martin Zimmermann

18.6.4
15:52 - 15:56 CET

EVOLVE: Towards Converging Big-Data, High-Performance And Cloud-Computing Worlds
Achilleas Tzenetopoulos, Dimosthenis Masouros, Konstantina Koliogeorgi, Sotirios Xydis, Dimitrios Soudris, Antony Chazapis, Christos Kozanitis, Angelos Bilas, Christian Pinto, Huy-Nam Nguyen, Stelios Louloudakis, Georgios Gardikis, George Vamvakas, Michelle Aubrun, Christy Symeonidou, Vassilis Spitadakis, Konstantinos Xylogiannopoulos, Bernhard Peischl, Tahir Kalayci, Alexander Stocker and Jean-Thomas Acquaviva

18.6.5
15:56 - 16:00 CET

SDK4ED: One-Click Platform For Energy-Aware, Maintainable And Dependable Applications
Charalampos Marantos, Miltiadis Siavvas, Dimitrios Tsoukalas, Christos Lamprakos, Lazaros Papadopoulos, Paweł Boryszko, Katarzyna Filus, Joanna Domańska, Apostolos Ampatzoglou, Alexander Chatzigeorgiou, Erol Gelenbe, Dionysios Kehagias and Dimitrios Soudris

18.6.6
16:00 - 16:30 CET

Q&A SESSION
Ernesto Sanchez and Maksim Jenihhin

Session Title	**19.1 Hardware Security Primitives and Attacks**
Date / Time	**Tuesday, 22 March 2022 / 16:40 - 17:20 CET**
chair	**Johanna Sepulveda,** *Airbus Defense and Space, DE*
co-chair	**Jorge Guajardo,** *Bosch, US*

19.1.1
16:40 - 16:44 CET

Add-Based Spectral Analysis Of Probing Security
Maria Chiara Molteni, Vittorio Zaccaria and Valentina Ciriani

19.1.2
16:44 - 16:48 CET

GUaranteed Activation Of Capacitive Trojan Triggers During Post Production Test Via Supply Pulsing
Bora Bilgic and Sule Ozev

19.1.3
16:48 - 16:52 CET

FPGA-TO-CPU Undervolting Attacks
Dina Mahmoud, Samah Hussein, Vincent Lenders and Mirjana Stojilovic

19.1.4 **16:52 - 16:56 CET**	Beware Of The Bias - Statistical Performance Evaluation Of Higher-Order Alphabet PUFS *Christoph Frisch and Michael Pehl*
19.1.5 **16:56 - 17:20 CET**	Q&A SESSION *Johanna Sepúlveda1 and Jorge Guajardo*

Session Title	**19.2 Hardware components and architectures for Machine Learning**
Date / Time	**Tuesday, 22 March 2022 / 16:40 - 17:20 CET**
chair	**Charles Mackin,***IBM, US*
co-chair	**Mladen Berekovic,***University of Lübeck, DE*

19.2.1 **16:40 - 16:44 CET**	Design Of Many-Core Big Little Mbrains For Energy-Efficient Embedded Neuromorphic Computing *M. Lakshmi Varshika, Adarsha Balaji, Federico Corradi, Anup Das, Jan Stuijt and Francky Catthoor*
19.2.2 **16:44 - 16:48 CET**	HYDRA: A Near Hybrid Memory Accelerator For Cnn Inference *Palash Das, Ajay Joshi and Hemangee Kapoor*
19.2.3 **16:48 - 16:52 CET**	TCX: A Programmable Tensor Processor *Tailin Liang, Lei Wang, Shaobo Shi, John Glossner and Xiaotong Zhang*
19.2.4 **16:52 - 16:56 CET**	A Flash-Based Current-Mode Ic To Realize Quantized Neural Networks *Kyler Scott, Cheng-Yen Lee, Sunil Khatri and Sarma Vrudhula*
19.2.5 **16:56 - 17:20 CET**	Q&A SESSION *Charles Mackin and Mladen Berekovic*

Session Title	**19.3 NoC Optimization with Emerging Technologies**
Date / Time	**Tuesday, 22 March 2022 / 16:40 - 17:20 CET**
chair	**Romain Lemaire,***CEA, FR*
co-chair	**Sebastien Le Beux,***Concordia University, CA*

19.3.1 **16:40 - 16:44 CET**	NOCEPTION: A Fast Ppa Prediction Framework For Network-On-Chips Using Graph Neural Network *Fuping Li, Ying Wang, Cheng Liu, Huawei Li and Xiaowei Li*
19.3.2 **16:44 - 16:48 CET**	An Easy-To-Implement And Efficient Flow Control For Deadlock-Free Adaptive Routing *Yi Dai, Kai Lu, Sheng Ma and Junsheng Chang*
19.3.3 **16:48 - 16:52 CET**	DEFT: A Deadlock-Free And Fault-Tolerant Routing Algorithm for 2.5d Chiplet Networks *Ebadollah Taheri, Sudeep Pasricha and Mahdi Nikdast*

19.3.4
16:52 - 16:56 CET
Non-Volatile Phase Change Material Based Nanophotonic Interconnect
Parya Zolfaghari, Joel Ortiz, Cedric Killian and Sébastien Le Beux

19.3.5
16:56 - 17:20 CET
Q&A SESSION
Romain Lemaire and Sébastien Le Beux

Session Title	**19.4 Emerging devices for new computing paradigms**
Date / Time	**Tuesday, 22 March 2022 / 16:40 - 17:20 CET**
chair	**Georgiev Vihar,***University of Glasgow, GB*
co-chair	**Gabriele Boschetto,***CNRS-LIRMM, FR*

19.4.1
16:40 - 16:44 CET
A Reliability Concern On Photonic Neural Networks
Yinyi LIU, Jiaxu Zhang, Jun Feng, Shixi Chen and Jiang Xu

19.4.2
16:44 - 16:48 CET
How Parallel Circuit Execution Can Be Useful For Nisq Computing?
Siyuan Niu and Aida Todri-Sanial

19.4.3
16:48 - 16:52 CET
Space and Power Reduction In Bdd-Based Optical Logic Circuits Exploiting Dual Ports
Ryosuke Matsuo and Shin-ichi Minato

19.4.4
16:52 - 16:56 CET
Design And Evaluation Frameworks For Advanced Risc-Based Ternary Processor
Dongyun Kam, Jung Gyu Min, Jongho Yoon, Sunmean Kim, Seokhyeong Kang and Youngjoo Lee

19.4.5
16:56 - 17:20 CET
Q&A SESSION
Vihar Georgiev1 and Gabriele Boschetto

Session Title	**19.5 Dealing with Correct Design and Robustness analysis for Complex Systems, MPSoCs and Circuits**
Date / Time	**Tuesday, 22 March 2022 / 16:40 - 17:20 CET**
chair	**Chung-Wei Lin,***National Taiwan University, TW*
co-chair	**Dionisios N. Pnevmatikatos,***NTUA, GR*

19.5.1
16:40 - 16:44 CET
Revisiting Pass-Transistor Logic Styles In A 12nm Finfet Technology Node
Jan Lappas, André Chinazzo, Christian Weis, Chenyang Xia, Zhihang Wu, Leibin Ni and Norbert Wehn

19.5.2
16:44 - 16:48 CET
SAFESU-2: A Safe Statistics Unit For Space Mpsocs
Guillem Cabo, Sergi Alcaide, Carles Hernandez, Pedro Benedicte1, Francisco Bas, Fabio Mazzocchetti1 and Jaume Abella

19.5.3
16:48 - 16:52 CET
Efficient Global Robustness Certification Of Neural Networks Via Interleaving Twin-Network Encoding
Zhilu Wang, Chao Huang and Qi Zhu

19.5.4
16:52 - 16:56 CET
Opportunistic Communication With Latency Guarantees For Intermittently-Powered Devices
Kacper Wardega, Wenchao Li, Hyoseung Kim, Yawen Wu, Zhenge Jia and Jingtong Hu

19.5.5
16:56 - 17:20 CET
Q&A SESSION
Chung-Wei Lin and Dionisios Pnevmatikatos

Session Title	**20.1 Panel: The Good, the Bad and the Trendy of Multi-Partner Research Projects in Europe**
Date / Time	**Tuesday, 22 March 2022 / 18:00 - 20:30 CET**
chair	**Lorena Anghel,** *Grenoble INP, FR*
co-chair	**Maksim Jenihhin,** *Tallinn University of Technology, EE*

Session Title	**IP.3_1 Interactive Presentations**
Date / Time	**Wednesday, 23 March 2022 / 11:30 - 12:15 CET**

IP.3_1.1
REDMULE: A Compact Fp16 Matrix-Multiplication Accelerator For Adaptive Deep Learning On Risc-V-Based Ultra-Low-Power
Yvan Tortorella, Luca Bertaccini, Davide Rossi, Luca Benini and Francesco Conti

IP.3_1.2
Increasing Cellular Network Energy Efficiency For Railway Corridors
Adrian Schumacher, Ruben Merz and Andreas Burg

IP.3_1.3
Health Monitoring Of Milling Tools Under Distinct Operating Conditions By A Deep Convolutional Neural Network Model
Priscile Suawa and Michael Hübner

Session Title	**IP.3_2 Interactive presentations**
Date / Time	**Wednesday, 23 March 2022 / 11:30 - 12:15 CET**

IP.3_2.1
Gradient-Based Bit Encoding Optimization For Noise-Robust Binary Memristive Crossbar
Youngeun Kim, Hyunsoo Kim, Seijoon Kim, Sang Joon Kim and Priyadarshini Panda

IP.3_2.2
TAS: Ternarized Neural Architecture Search For Resource-Constrained Edge Devices
Mohammad Loni, Hamid Mousavi, Mohammad Riazati, Masoud Daneshtalab and Mikael Sjodin

IP.3_2.3
Examining And Mitigating The Impact Of Crossbar Non-Idealities For Accurate Implementation Of Sparse Deep Neural
Abhiroop Bhattacharjee, Lakshya Bhatnagar and Priyadarshini Panda

Session Title	IP.3_3 Interactive presentations
Date / Time	Wednesday, 23 March 2022 / 11:30 - 12:15 CET

IP.3_3.1 Cross-Level Processor Verification Via Endless Randomized Instruction Stream Generation With Coverage-Guided Aging
Niklas Bruns, Vladimir Herdt, Eyck Jentzsch and Rolf Drechsler

IP.3_3.2 Hardware Acceleration Of Explainable Machine Learning
Zhixin Pan and Prabhat Mishra

IP.3_3.3 Fast Simulation Of Future 128-Bit Architectures
Fabien Portas and Frédéric Pétrot

Session Title	IP.3_4 Interactive presentations
Date / Time	Wednesday, 23 March 2022 / 11:30 - 12:15 CET

IP.3_4.1 A Generative Ai For Heterogeneous Network-On-Chip Design Space Pruning
Maxime Mirka, Maxime France-Pillois, Gilles Sassatelli and Abdoulaye Gamatie

IP.3_4.2 SPARROW: A Low-Cost Hardware/Software Co-Designed Simd Microarchitecture For Ai Operations In Space Processors
Marc Solé Bonet and Leonidas Kosmidis

IP.3_4.3 A Pluggable Vector Unit For RISC-V Vector Extension
Vincenzo Maisto1 and Alessandro Cilardo

Session Title	IP.3_5 Interactive presentations
Date / Time	Wednesday, 23 March 2022 / 11:30 - 12:15 CET

IP.3_5.1 Robust Reconfigurable Scan Networks
Natalia Lylina, Chih-Hao Wang and Hans-Joachim Wunderlich

IP.3_5.2 SYNCLOCK: RF Transceiver Security Using Synchronization Locking
Alan Rodrigo Díaz Rizo, Hassan Aboushady and Haralampos-G. Stratigopoulos

IP.3_5.3 Deep Reinforcement Learning For Analog Circuit Structure Synthesis
Zhenxin Zhao and Lihong Zhang

Session Title	IP.3_6 Interactive presentations
Date / Time	Wednesday, 23 March 2022 / 11:30 - 12:15 CET

IP.3_6.1 Compatibility Checking For Autonomous Lane-Changing Assistance Systems
Po-Yu Huang, Kai-Wei Liu, Zong-Lun Li, Sanggu Park, Edward Andert, Chung-Wei Lin and Aviral Shrivastava

IP.3_6.2 PAXC: A Probabilistic-Oriented Approximate Computing Methodology For ANN Learning
Pengfei Huang, Chenghua Wang, Ke Chen and Weiqiang Liu

IP.3_6.3 LAC: Learned Approximate Computing
Vaibhav Gupta, Tianmu Li and Puneet Gupta

Session Title	**IP.3_7 Interactive presentations**
Date / Time	**Wednesday, 23 March 2022 / 11:30 - 12:15 CET**

IP.3_7.1 EVA-CAM: A Circuit/Architecture-Level Evaluation Tool For General Content Addressable Memories
Liu Liu, Mohammad Mehdi Sharifi, Ramin Rajaei, Arman Kazemi, Kai Ni, Xunzhao Yin, Michael Niemier and X. Sharon Hu

IP.3_7.2 Hybrid Digital-Digital In-Memory Computing
Muhammad Rashedul Haq Rashed, Sumit Kumar Jha, Fan Yao and Rickard Ewetz

IP.3_7.3 NEUROHAMMER: INducing Bit-Flips In Memristive Crossbar Memories
Felix Staudigl, Hazem al Indari, Daniel Schön, Dominik Sisejkovic, Farhad Merchant, Jan Moritz Joseph, Vikas Rana, Stephan Menzel and Rainer Leupers

Session Title	**IP.3_8 Interactive presentations**
Date / Time	**Wednesday, 23 March 2022 / 11:30 - 12:15 CET**

IP.3_8.1 A Low-Cost Methodology For EM Fault Emulation On FPGA
Paolo Maistri and Jiayun Po

IP.3_8.2 Reliability Analysis Of Finfet-Based Sram Pufs For 16nm, 14nm, And 7nm Technology Nodes
Shayesteh Masoumian, Georgios Selimis, Rui Wang, Geert-Jan Schrijen, Said Hamdioui and Mottaqiallah Taouil

IP.3_8.3 BOILS: Bayesian Optimisation For Logic Synthesis
Antoine Grosnit, Cedric Malherbe, Xingchen Wan, Rasul Tutunov, Jun Wang and Haitham Bou Ammar

Session Title	**L.2 Panel: The future of conferences - what will DATE and the others be like?**
Date / Time	**Wednesday, 23 March 2022 / 13:00 - 14:00 CET**
chair	**Ian O'Connor**, *Lyon Institute of Nanotechnology, FR*
Panellists	**David Atienza**, *école Polytechnique Fédérale de Lausanne (EPFL), CH* **Enrico Macii**, *Politecnico di Torino, IT* **Yiran Chen**, *Duke University, US*
Session Title	**21.1 Self-adaptive and Dynamic Resource Management, Learning at the Edge and**

	Applications
Date / Time	**Wednesday, 23 March 2022 / 4:30 - 15:30 CET**
chair	**Heba Khdr**, *Karlsruhe Institute of Technology, DE*
co-chair	**Federico Corradi**, *iMEC, NL*

21.1.1
14:30 - 14:34 CET
Accurate Probabilistic Miss Ratio Curve Approximation For Adaptive Cache Allocation In Block Storage Systems
Rongshang Li, Yingtian Tang, QIQUAN SHI, Hui Mao, Lei Chen, Jikun Jin, Peng Lu and Zhuo Cheng

21.1.2
14:34 - 14:38 CET
SGRM: Stackelberg Game-Based Resource Management For Edge Computing Systems
Antonios Karteris, Manolis Katsaragakis, Dimosthenis Masouros and Dimitrios Soudris

21.1.3
14:38 - 14:42 CET
Runtime Energy Minimization Of Distributed Many-Core Systems Using Transfer Learning
Dainius Jenkus, Fei Xia, Rishad Shafik and Alex Yakovlev

21.1.4
14:42 - 14:46 CET
Siamese Neural Encoders For Long-Term Indoor Localization With Mobile Devices
Saideep Tiku and Sudeep Pasricha

21.1.5
14:46 - 14:50 CET
Discrete Samplers For Approximate Inference In Probabilistic Machine Learning
Shirui Zhao, Nimish Shah, Wannes Meert and Marian Verhelst

21.1.6
14:50 - 14:54 CET
HELCFL: High-Efficiency And Low-Cost Federated Learning In Heterogeneous Mobile-Edge Computing
Yangguang Cui, Kun Cao, Junlong Zhou and Tongquan Wei

21.1.7
14:54 - 15:30 CET
Q&A SESSION
Heba Khdr and Federico Corradi

Session Title	**21.2 Advances in defect detection and dependability**
Date / Time	**Wednesday, 23 March 2022 / 4:30 - 15:30 CET**
chair	**Leticia Maria Bolzani Poehls**, *RWTH Aachen University, DE*
co-chair	**Ernesto Sanchez**, *Politecnico di Torino, IT*

21.2.1
14:30 - 14:34 CET
Efficient Hotspot Detection via Graph Neural Network
Shuyuan Sun, Yiyang Jiang, Fan Yang, Bei Yu and Xuan Zeng

21.2.2
14:34 - 14:38 CET
FITACT: Error Resilient Deep Neural Networks Via Fine-Grained Post-Trainable Activation Functions
Behnam Ghavami, Mani Sadati, Zhenman Fang and Lesley Shannon

21.2.3
WRAP: Weight Remapping And Processing In Rram-Based Neural Network Accelerators Considering Thermal Effect

14:38 - 14:42 CET *Po-Yuan Chen, Fang-Yi Gu, Yu-Hong Huang and Ing-Chao Lin*

21.2.4
14:42 - 14:46 CET
Self-Terminated Write Of Multi-Level Cell Reram For Efficient Neuromorphic Computing
Zongwu Wang, Zhezhi He, Rui Yang, Shiquan Fan, Jie Lin, Fangxin Liu, Yueyang Jia, Chenxi Yuan, Qidong Tang and Li Jiang

21.2.5
14:46 - 14:50 CET
Sclcrl: Shuttling C-Elements Based Low-Cost And Robust Latch Design Protected Against Triple Node Upsets In Harsh Radiation Environments
Aibin Yan1, Zhixing Li, Shiwei Huang, Zijie Zhai, Xiangyu Cheng, Jie Cui, Tianming Ni, Xiaoqing Wen and Patrick Girard

21.2.6
14:50 - 14:54 CET
Leakage Power Analysis In Different S-Box Masking Protection Schemes
Javad Bahrami, Mohammad Ebrahimabadi, Jean Luc Danger, Sylvain Guilley and Naghmeh Karimi

21.2.7
14:54 - 15:30 CET
Q&A SESSION
Leticia Maria Bolzani Poehls and Ernesto Sanchez

Session Title	**21.3 Real-Time Systems and Technology**
Date / Time	**Wednesday, 23 March 2022 / 4:30 - 15:30 CET**
chair	**Renato Mancuso**, *Boston University, US*
co-chair	**Yasmina Abdeddaim**, *UGE, FR*

21.3.1
14:30 - 14:34 CET
Cache-Aware Schedulability Analysis Of Prem Compliant Tasks
Syed Aftab Rashid, Muhammad Ali Awan, Pedro Souto, Konstantinos Bletsas and Eduardo Tovar

21.3.2
14:34 - 14:38 CET
Reconciling Qos And Concurrency In Nvidia Gpus Via Warp-Level Scheduling
Jayati Singh, Ignacio Sañudo Olmedo, Nicola Capodieci, Andrea Marongiu and Marco Caccamo

21.3.3
14:38 - 14:42 CET
Counting Priority Inversions: Computing Maximum Additional Core Requests Of Dag Tasks
Morteza Mohaqeqi, Gaoyang Dai and Wang Yi

21.3.4
14:42 - 14:46 CET
SHYPER: An Embedded Hypervisor Applying Hierarchical Resource Isolation Strategies For Mixed-Criticality Systems
YiCong Shen, Lei Wang, YuanZhi Liang, SiRan Li and Bo Jiang

21.3.5
14:46 - 14:50 CET
Response Time Analysis For Energy-Harvesting Mixed-Criticality Systems
Kankan Wang, Yuhan Lin and Qingxu Deng

21.3.6
14:50 - 14:54 CET
Latency Analysis Of Self-Suspending Task Chains
Tomasz Kloda, Jiyang Chen, Antoine Bertout, Lui Sha and Marco Caccamo

21.3.7
14:54 - 15:30 CET
Q&A SESSION
Renato Mancuso and Yasmina Abdeddaïm

Session Title	**21.4 Defense Techniques for Secure and Trustworthy Systems**
Date / Time	**Wednesday, 23 March 2022 / 4:30 - 15:30 CET**
chair	**Sophie Dupuis**, *LIRMM, University of Montpellier, FR*
co-chair	**Elif Bilge Kavun**, *Univ Passau, DE*

21.4.1
14:30 - 14:34 CET
Counteract Side-Channel Analysis Of Neural Networks By Shuffling
Manuel Brosch, Matthias Probst and Georg Sigl

21.4.2
14:34 - 14:38 CET
GNN4GATE: A Bi-Directional Graph Neural Network For Gate-Level Hardware Trojan Detection
Dong Cheng, Chen Dong, Wenwu He, Zhenyi Chen and Yi Xu

21.4.3
14:38 - 14:42 CET
Golden Model-Free Hardware Trojan Detection By Classification Of Netlist Module Graphs
Alexander Hepp, Johanna Baehr and Georg Sigl

21.4.4
14:42 - 14:46 CET
Janus-Hd: Exploiting Fsm Sequentiality And Synthesis Flexibility In Logic Obfuscation To Thwart Sat Attack While Offering Strong Corruption
Leon Li and Alex Orailoglu

21.4.5
14:46 - 14:50 CET
TRILOCK: IC Protection With Tunable Corruptibility And Resilience To Sat And Removal Attacks
Yuke Zhang, Yinghua Hu, Pierluigi Nuzzo and Peter Beerel

21.4.6
14:50 - 15:30 CET
Q&A SESSION
Sophie Dupuis and Elif Bilge Kavun

Session Title	**22.1 Heterogeneous system-on-chip design methods**
Date / Time	**Wednesday, 23 March 2022 / 15:40 - 16:30 CET**
chair	**Lana Josipovic**, *ETH Zurich, CH*
co-chair	**John Wickerson**, *Imperial College, GB*

22.1.1
15:40 - 15:44 CET
Understanding And Mitigating Memory Interference In Fpga-Based Hesocs
Gianluca Brilli, Alessandro Capotondi, Paolo Burgio and Andrea Marongiu

22.1.2
15:44 - 15:48 CET
POWERGEAR: Early-Stage Power Estimation In Fpga Hls Via Heterogeneous Edge-Centric GNNS
Zhe Lin, Zike Yuan, Jieru Zhao, Wei Zhang, Hui Wang and Yonghong Tian

22.1.3
Energy Efficient, Real-Time And Reliable Task Deployment On Noc-Based Multicores With DVFS

15:48 - 15:52 CET *Lei Mo, Qi Zhou, Angeliki Kritikakou and Ji Liu*

22.1.4
15:52 - 15:56 CET
COXHE: A Software-Hardware Co-Design Framework For Fpga Acceleration Of Homomorphic Computation
Mingqin Han, Yilan Zhu, Qian Lou, Zimeng Zhou, Shanqing Guo and Lei Ju

22.1.5
15:56 - 16:00 CET
A Composable Design Space Exploration Framework To Optimize Behavioral Locking
Luca Collini, Ramesh Karri and Christian Pilato

22.1.6
16:00 - 16:30 CET
Q&A SESSION
Lana Josipovic and John Wickerson

Session Title	**22.2 Power, Thermal and Performance Management for Advanced Computing Systems**
Date / Time	**Wednesday, 23 March 2022 / 15:40 - 16:30 CET**
chair	**Pascal Vivet**, *CEA-LIST, FR*
co-chair	**Andrea Bartolini**, *Bologna University, IT*

22.2.1
15:40 - 15:44 CET
DIET: A Dynamic Energy Management Approach For Wearable Health Monitoring Devices
Nuzhat Yamin, Ganapati Bhat and Jana Doppa

22.2.2
15:44 - 15:48 CET
Improve The Stability And Robustness Of Power Management Through Model-Free Deep Reinforcement Learning
Lin Chen, Xiao Li and Jiang Xu

22.2.3
15:48 - 15:52 CET
Corememdtm: Integrated Processor Core And 3d Memory Dynamic Thermal Management For Improved Performance
Lokesh Siddhu, Rajesh Kedia and Preeti Ranjan Panda

22.2.4
15:52 - 15:56 CET
Thermal- And Cache-Aware Resource Management Based On Ml-Driven Cache Contention Prediction
Mohammed Bakr Sikal, Heba Khdr, Martin Rapp and Joerg Henkel

22.2.5
15:56 - 16:00 CET
T-Skid: Predicting When To Prefetch Separately From Address Prediction
Toru Koizumi, Tomoki Nakamura, Yuya Degawa, Hidetsugu Irie, Shuichi Sakai and Ryota Shioya

22.1.6
16:00 - 16:30 CET
Q&A SESSION
Pascal Vivet and Andrea Bartolini

Session Title	**22.3 Compute in- and Near- Memory**
Date / Time	**Wednesday, 23 March 2022 / 15:40 - 16:30 CET**
chair	**Jean-Phillipe Noel**, *CEA, FR*
co-chair	**Pierre-Emmanuel Gaillardon**, *University of Utah, US*

22.3.1
15:40 - 15:44 CET
Lim-Hdl: Hdl-Based Synthesis For In-Memory Computing
Saman Froehlich and Rolf Drechsler

22.3.2
15:44 - 15:48 CET
Triple-Skipping Near-Mram Computing Framework For AIOT ERA
Juntong Chen, Hao Cai, Bo Liu and Jun Yang

22.3.3
15:48 - 15:52 CET
Achieving Crash Consistency By Employing Persistent L1 Cache
Akshay Krishna Ramanathan, Sara Mahdizadeh Shahri, Yi Xiao and Vijaykrishnan Narayanan

22.3.4
15:52 - 15:56 CET
Referencing-In-Array Scheme For Rram-Based Cim Architecture
Abhairaj Singh, Rajendra Bishnoi and Said Hamdioui

22.3.5
15:56 - 16:30 CET
Q&A SESSION
Jean-Philippe Noel and Pierre-Emmanuel Gaillardon

Session Title	**22.4 Formal Methods in Design and Verification of Software and Hardware Systems**
Date / Time	**Wednesday, 23 March 2022 / 15:40 - 16:30 CET**
chair	**Stefano Quer**, *Politecnico di Torino, IT*
co-chair	**Christoph Scholl**, *University Freiburg, DE*

22.4.1
15:40 - 15:44 CET
BMC+FUZZ : Efficient And Effective Test Generation
Ravindra Metta, Raveendra Medicherla and Samarjit Chakraborty

22.4.2
15:44 - 15:48 CET
DOLMEN: FPGA Swarm For Safety And Liveness Verification
Emilien Fournier, Ciprian Teodorov and Loïc Lagadec

22.4.3
15:48 - 15:52 CET
Adding Dual Variables To Algebraic Reasoning For Gate-Level Multiplier Verification
Daniela Kaufmann, Paul Beame, Armin Biere and Jakob Nordström

22.4.4
15:52 - 15:56 CET
On The Optimal Obdd Representation Of 2-Xor Boolean Affine Spaces
Anna Bernasconi, Valentina Ciriani and Marco Longhi

22.4.6
15:56 - 16:30 CET
Q&A SESSION
Stefano Quer1 and Christoph Scholl

Session Title	**23.1 Artificial Intelligence for embedded systems in healthcare**
Date / Time	**Wednesday, 23 March 2022 / 16:40 - 17:20 CET**
chair	**Marina Zapater**, *University of Applied Sciences Western Switzerland, CH*
co-chair	**Daniele Pagliari**, *Politecnico di Torino, IT*

23.1.1
16:40 - 16:44 CET

BIOFORMERS: Embedding Transformers For Ultra-Low Power Semg-Based Gesture Recognition
Alessio Burrello, Francesco Bianco Morghet, Moritz Scherer, Simone Benatti, Luca Benini, Enrico Macii, Massimo Poncino and Daniele Jahier Pagliari

23.1.2
16:44 - 16:48 CET

INCLASS: Incremental Classification Strategy For Self-Aware Epileptic Seizure Detection
Lorenzo Ferretti, Giovanni Ansaloni, Renaud Marquis, Tomas Teijeiro, Philippe Ryvlin, David Atienza and Laura Pozzi

23.1.3
16:48 - 16:52 CET

AMSER: Adaptive Multi-Modal Sensing For Energy Efficient And Resilient Ehealth Systems
Emad Kasaeyan Naeini, Sina Shahhosseini, Anil Kanduri, Pasi Liljeberg, Amir M. Rahmani and Nikil Dutt

23.1.4
16:52 - 17:20 CET

Q&A SESSION
Marina Zapater and Daniele Jahier Pagliari

Session Title	**23.2 Performance Evaluation & Optimization using Modeling, Simulation & Benchmarking**
Date / Time	**Wednesday, 23 March 2022 / 16:40 - 17:20 CET**
chair	**Avi Ziv**, *IBM, IL*
co-chair	**Daniel Grosse**, *Johannes Kepler University, AT*

23.2.1
16:40 - 16:44 CET

A Simple Hybrid Model For Accurate Delay Modeling Of A Multi-Input Gate
Arman Ferdowsi, Juergen Maier, Daniel Oehlinger and Ulrich Schmid

23.2.2
16:44 - 16:48 CET

SYSCIM: Systemc-Ams Simulation Of Memristive Computation In Memory
Seyed Hossein Hashemi Shadmehri, Ali BanaGozar, Mehdi Kamal, Sander Stuijk, Ali Afzali-Kusha, Massoud Pedram and Henk Corporaal

23.2.3
16:48 - 16:52 CET

PIMULATOR: A Fast And Flexible Processing-In-Memory Emulation Platform
Sergiu Mosanu, Mohammad Nazmus Sakib, Tommy Tracy II, Ersin Cukurtas, Alif Ahmed, Preslav Ivanov, Samira Khan, Kevin Skadron and Mircea Stan

23.2.3
16:48 - 16:52 CET

BENQ: Benchmarking Automated Quantization On Deep Neural Network Accelerators
Zheng Wei, Xingjun Zhang, Jingbo Li, Zeyu Ji and Jia Wei

23.2.4

Q&A SESSION
Avi Ziv and Daniel Grosse

16:52 - 17:20 CET

Session Title	**23.3 New Methods and Tools using Machine Learning**
Date / Time	**Wednesday, 23 March 2022 / 16:40 - 17:20 CET**
chair	**Shafique Muhammad**, *NYU Abu Dhabi, AE*
co-chair	**Niar Smail**, *Université Polytechnique Hauts-de-France, FR*

23.3.1
16:40 - 16:44 CET
GRAPHHD: Efficient Graph Classification Using Hyperdimensional Computing
Igor Nunes, Mike Heddes, Tony Givargis, Alex Nicolau and Alex Veidenbaum

23.3.2
16:44 - 16:48 CET
DEEPPM: Transformer-Based Power And Performance Prediction For Energy-Aware Software
Jun S. Shim, Bogyeong Han, Yeseong Kim and Jihong Kim

23.3.3
16:48 - 16:52 CET
QUANTIZATION-AWARE In-Situ Training For Reliable And Accurate Edge AI
Joao Paulo Lima and Luigi Carro

23.3.3
16:48 - 16:52 CET
ENCORE COMPRESSION: Exploiting Narrow-Width Values For Quantized Deep Neural Networks
Myeongjae Jang, Jinkwon Kim, Jesung Kim and Soontae Kim

23.3.4
16:52 - 17:20 CET
Q&A SESSION
Muhammad Shafique1 and Smail Niar

Session Title	**23.4 Side-channel attacks and beyond**
Date / Time	**Wednesday, 23 March 2022 / 16:40 - 17:20 CET**
chair	**Begül Bilgin**, *RAMBUS Cryptography Research, NL*
co-chair	**Maria Mushtaq**, *Telecom Paristech, FR*

23.4.1
16:40 - 16:44 CET
PREFENDER: A Prefetching Defender Against Cache Side Channel Attacks As A Pretender
Luyi Li, Jiayi Huang, Lang Feng and Zhongfeng Wang

23.4.2
16:44 - 16:48 CET
Stealthy Inference Attack On Dnn Via Cache-Based Side-Channel Attacks
Han Wang, Syed Mahbub Hafiz, Kartik Patwari, Chen-Nee Chuah, Zubair Shafiq and Houman Homayoun

23.4.3
16:48 - 16:52 CET
Know Your Neighbor: Physically Locating Xeon Processor Cores On The Core Tile Grid
Hyungmin Cho

23.4.3
16:48 - 16:52 CET
REVEAL: Single-Trace Side-Channel Leakage Of The Seal Homomorphic Encryption Library
Furkan Aydin, Emre Karabulut, Seetal Potluri, Erdem Alkim and Aydin Aysu

23.4.4
16:52 - 17:20 CET

Q&A SESSION
Begul Bilgin and Maria Mushtaq

Session Title	**C.1 Closing**
Date / Time	**Wednesday, 23 March 2022 / 18:00 - 19:00 CET**
chair	**Cristiana Bolchini**, *Politecnico di Milano, IT*
co-chair	**Ingrid Verbauwhede**, *KU Leuven, BE*

DATE PhD Forum 2022

Date: Wednesday, 16 March 2022
Time: 18:30 - 20:3

Session chair: Gabriela Nicolescu, *École Polytechnique de Montréal, CA*

The PhD Forum is an online poster session hosted by EDAA, ACM-SIGDA, and IEEE CEDA for PhD students who have completed their PhD thesis within the last 12 months or who are close to complete their thesis work. It represents an excellent opportunity for them to get feedback on their research and for the industry to get a glance of state-of-the-art in system design and design automation.

Admitted Presentations

- **FM01.1.1 Novel Attack And Defense Strategies For Enhanced Logic Locking Security**
  Lilas Alrahis, New York University Abu Dhabi, AE
- **FM01.1.2 Proper Abstractions For Digital Electronic Circuits: A Physically Guided Approach**
  Jurgen Maier, TU Wien, AT
- **FM01.1.3 Retraining-Free Weight-Sharing For Cnn Compression**
  Etienne Dupuis, Lyon Institute of Nanotechnology, FR
- **FM01.1.4 Intelligent Circuit Design And Implementation With Machine Learning In EDA**
  Zhiyao Xie, Duke University, US
- **FM01.1.5 Cross-Layer Techniques For Energy-Efficiency And Resiliency Of Advanced Machine Learning Architectures**
  Alberto Marchisio, TU Wien, AT
- **FM01.1.6 Design & Analysis Of An On-Chip Processor For The Autism Spectrum Disorder (Asd) Children Assistance Using Their Emotions**
  Abdul Rehman Aslam, Lahore University of Management Sciences, PK
- **FM01.1.7 Resilience And Energy-Efficiency For Deep Learning And Spiking Neural Networks For Embedded Systems**
  Rachmad Vidya Wicaksana Putra, TU Wien, AT
- **FM01.1.8 Modeling And Optimization Of Emerging Ai Accelerators Under Random Uncertainties**
  Sanmitra Banerjee, Duke University, US
- **FM01.1.9 Logic Synthesis In The Machine Learning Era: Improving Correlation And Heuristics**
  Walter Lau Neto, University of Utah, US
- **FM01.1.10 Accelerating Cnn Inference Near To The Memory By Exploiting Parallelism, Sparsity, And Redundancy**
  Palash Das, Indian Institute of Technology, Guwahati, IN
- **FM01.1.11 Design Automation For Advanced Microfluidic Biochips**
  Debraj Kundu, IITR, IN
- **FM01.1.12 Ultra-Fast Temperature Estimation Methods For Architecture-Level Thermal Modeling**
  Hameedah Sultan, Indian Institute of Technology Delhi, IN

- **FM01.1.13 Multi-Objective Digital Vlsi Design Optimisation**
  Linan Cao, University of York, GB
- **FM01.1.14 Tinydl: Efficient Design Of Scalable Deep Neural Networks For Resource-Constrained Edge Devices**
  Mohammad Loni, Mälardalen University, SE
- **FM01.1.15 Decision Diagrams In Quantum Design Automation**
  Stefan Hillmich, Johannes Kepler University Linz, AT
- **FM01.1.16 Dependable Reconfigurable Scan Networks**
  Natalia Lylina, University of Stuttgart, DE
- **FM01.1.17 Breaking The Energy Cage Of Insect-Scale Autonomous Drones: Interplay Of Probabilistic Hardware And Co-Designed Algorithms**
  Priyesh Shukla, University of Illinois at Chicago, US
- **FM01.1.18 Resilient: Protecting Design Ip From Malicious Entities**
  Nimisha Limaye, New Yor University, US
- **FM01.1.19 Algorithm-Architecture Co-Design For Energy-Efficient, Robust, And Privacy-Preserving Machine Learning**
  Souvik Kundu, USC, US
- **FM01.1.20 Performance-Aware Design-Space Optimization And Attack Mitigation For Emerging Heterogeneous Architectures**
  Mitali Sinha, IIIT Delhi, IN
- **FM01.1.21 Practical Side-Channel And Fault Attacks On Lattice-Based Cryptography**
  Prasanna Ravi, Nanyang Technological University, SG
- **FM01.1.22 Memory Interference And Mitigations In Reconfigurable Hesocs For Embedded AI**
  Gialuca Brilli, University of Modena and Reggio Emilia, IT

About DATE

DATE is a leading international event providing unique networking opportunities, bringing together designers and design automation users, researchers and vendors, as well as specialists in hardware and software design, test and manufacturing of electronic circuits and systems.

In 2022, the conference will take place as a virtual conference online. The 25th DATE conference will be held from 14 to 23 March and is chaired by Professor Cristiana Bolchini, Politecnico di Milano, Italy.

DATE 2022 was intended to have a special format, aiming at bringing back the community together after two editions online, trying to balance the uncertainty of the situation and the desire to be partially back in presence. A special program has been organized to start the conference with two days in presence in Antwerp, Belgium, full of outstanding talks and moments to meet and chat.

However, the current situation of the COVID-19 infections across Europe and the consequent travelling/quarantine restrictions adopted by governments, companies and institutions have a strong impact on our health concerns and travelling opportunities, for speakers as well as attendees.

The "in presence" experience remains a fundamental aspect of any conference and of DATE in the specific, for its many networking moments, as well as for the social activities, however the safety of the community is once more a priority. Therefore, the DATE Organizing Committees opted to move DATE 2022 to a completely virtual event, moving the program of the first two days online also.

Updated information about the conference is always available online at: https://www.date-conference.com/

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