QUARANTILES. Archiving expressive digital places from Instagram during the COVID-19 pandemic

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Abstract
During the spring of 2020, COVID-19 limited contact between people and prevented from meeting and aggregating in real places. Many had to stay at home, and others spent time in quarantine facilities. In this context, virtual aggregation has increased at the expense of in-person aggregation. Expressive geo-tagging, namely the practice of creating locations with fictitious names to express an emotional condition, became worthy of attention. Grounded on anecdotal evidence, fictitious digital locations on social media such as "Quarantine" began to proliferate, which, despite not having a name that could be traced back to an existing place, still carried geo-referenced information with them. Starting from this concept, we present the book Quaran.tiles, an archive of 364 expressive digital places collected from Instagram in April 2020 and enriched with information from Google Street View, which aims to give space and dimension to the resulting collection of fictitious and mingling user-generated places.

Authors Keywords
geographic visualization; digital methods; information design; editorial design

Introduction

Expressive geotags

Geolocation technologies embedded in digital devices allow users to geotag themselves in space, making a large amount of geographically referenced data, namely coordinates, available for study and research. Geolocation refers to features able to track the position of connected electronic devices — and consequently, the people who own them —; geotagging is the users' voluntary action to connect personal posts, pictures, or stories to places.

Specifically, the use of social media has increased the popularity of this type of data as they allow people to share content while locating themselves in specific places. For example, users can share a picture on Instagram and register them in a city such as Milan. However, alongside real places such as towns, cities, or streets, it is also possible to find unusual locations that, although they have a pair of coordinates, are not referable to real places but to fictitious places that express states of mind or specific conditions.

2, Pictorials and annotated portfolios.

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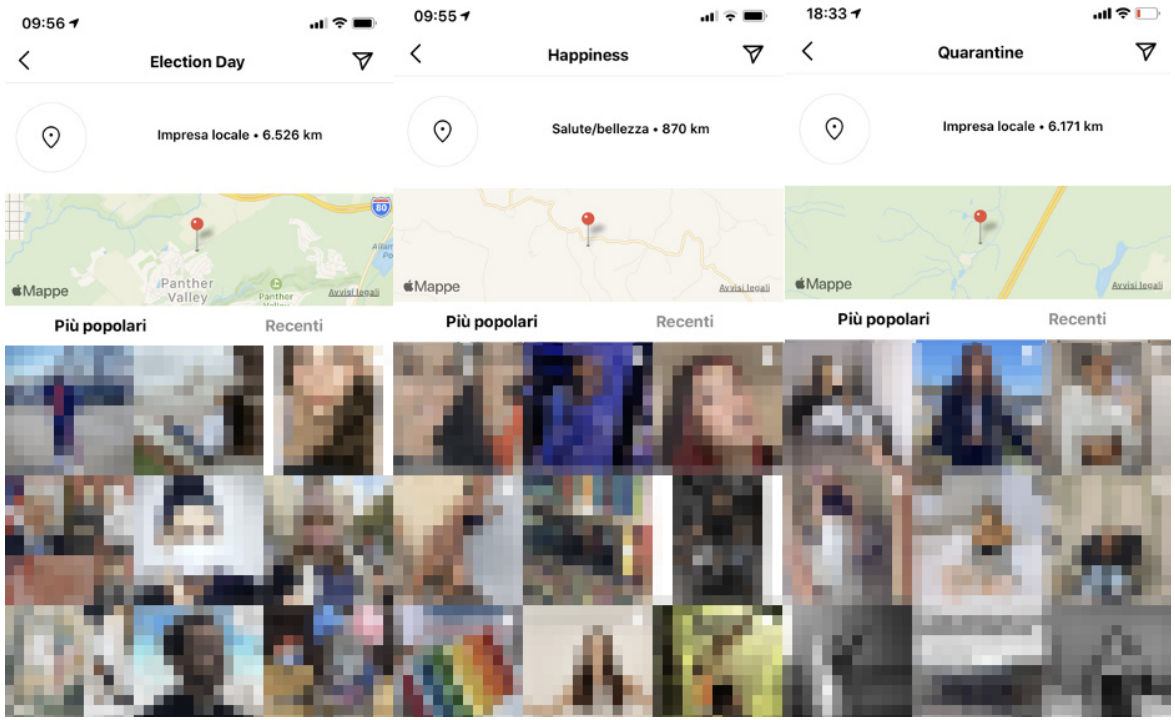


Figure 1: example of expressive geotags from Instagram. Even if they have a real-world counterpart defined by a pair of coordinates, they do not refer to real places such as a town, streets or geographical point of interests. Images have been blurred due to privacy issues.

We call them "expressive geotags" [1], which are:

- generated by social media users;
- traceable to a location in the World through coordinates;
- not necessarily referable to a geographic point of interest;
- expressive instead of descriptive;

During the COVID19 lockdown, the spreading and use of expressive geotags such as "Quarantine" — along with its variations and translations, emerged as an attempt at digital aggregation and sociality, allowing users to find themselves in the same fictitious place expressed by a shared condition instead of a common location.

Related work

Social Media are considered valid proxies for studying and understanding social phenomena, and Digital Methods [2], [3] are techniques for the inquiry of societal change and cultural conditions with online data. Thus, we used Digital Methods to collect, analyze, and repurpose original data from the web. Indeed, Digital Methods have already been used to study and visualize geolocated, geo-tagged data and their metadata (i.e., pictures, timestamps, posts, comments). In this context, purposes ranged from the analysis of urban phaenomena [4], [5] to the study of cultural, social, and physical factors [6]. Moreover, from the activities of hundreds of thousands f people gathered on digital platforms, geolocated data and metadata have been visualized to depict new types of city views designing large-scale interactive visualizations suitable for museum display [7], [8].

Recently, researchers from various domains have tackled the issue of studying and narrating users' behavior on social media during the COVID-19 pandemic. Some focused on mapping the infodemic phenomenon [9] and emerging conspiracy theories [10]. Other artists and designers, instead, depicted the COVID- 19 pandemic by telling 'alternative narratives' [11] by crowdsourcing, gathering, and archiving disparate items from users' daily experiences [12]–[14]. Moreover, others — not necessarily from the academic environment, exploited the native features and affordances of social media to create, repurpose and share collections of objects and conditions related to daily experiences with quarantine. For instance, the @tape_measure account on Instagram crowdsources pictures of signs positioned in public spaces during lockdowns regarding social distancing. Similarly, @quarantine_portaits collects portraits of Italian families in quarantine.

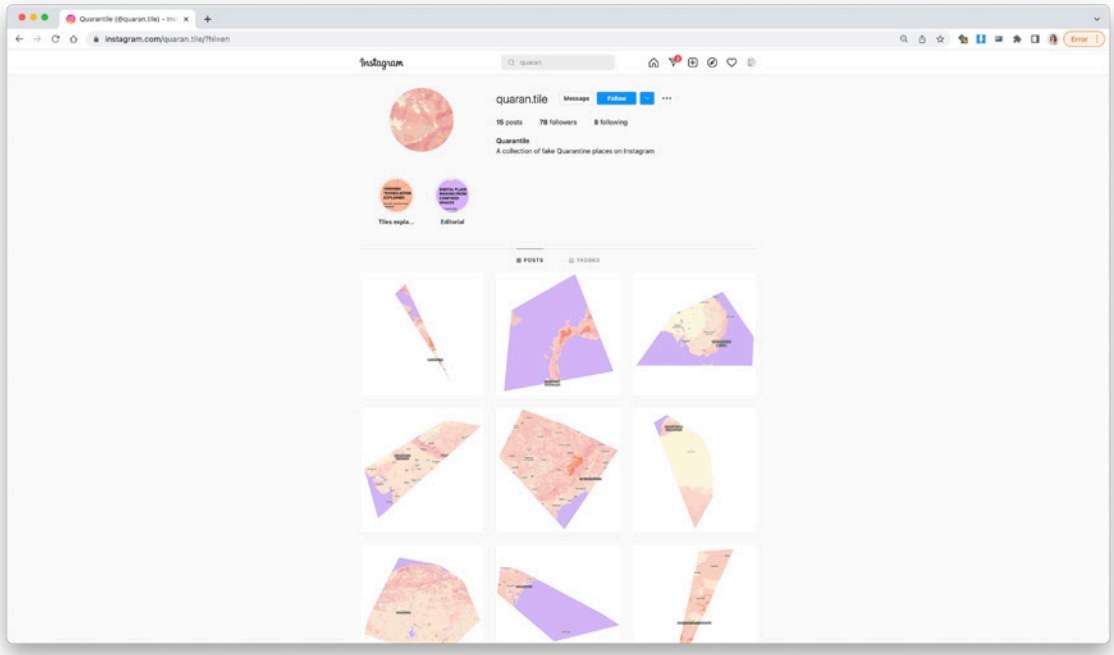


Figure2: a screenshot from the @quaran.tile account on Instagram where we started to archive expressive geotags from the COVID-19 lockdown.

The goal of "Quaran.tiles. Archiving expressive digital places from Instagram during the COVID-19 pandemic" is to tell a large audience which real places were behind the expressive geotags disseminated during the first lockdown. Hence, the project aims at giving dignity to digitally-shared emotional conditions without apparent real-world counterparts, creating a mingling layer where digital aggregations of data and real-world features meet.

After a first mapping that provided a partial archive of these fictitious places directly on Instagram (@quaran.tile) (see Figure 2 and [1]), the ephemeral nature of the content on the platform required a physical archival effort to preserve the constructed dataset. Hence, this pictorial describes the design process we followed for producing a concrete archive of expressive geotags from Instagram during the COVID-19 lockdown.

Design Process

The design process we followed is divided into two main phases. The first phase concerns the dataset design process, which involves the gathering, aggregation, and enrichment of data. The second phase deals with the archive design, namely the layout of the book and the arrangement of its contents. (See the protocol diagram depicted in Figure 3)

Dataset design process

The original data gathering dates back to ˆ.pril 13, 2020, about a month after the start of the COVID-19 health emergency in Italy. Indeed, the initial behavior of tagging pictures with "Quarantine" as a place on Instagram has been observed in Italy, one of the first western countries to experience a nationwide lockdown in March 2020.

Before collecting data, we translated the Italian term "Quarantine" into 53 languages (Catalan, English, Cebuano, Hawaiian, Javanese, Francaise, Dutch, Romanian, Espanol, Albanian, Arabic, Armenian, Azero, Croatian, Basque, Belarusian, Bosnian, Czech, Bulgarian, Estonian, Danish, Esperanto, Filipin, Finnish, Georgian, Galician, Haitian Creole, Hungarian, German, Hmong, Greek, Hebrew, Hausa, Icelandic, Hindi, Igbo, Irish, Indonesian, Kannada, Japanese, Kazakh, Mongolian, Khmer, Kinyarwanda, Korean, Kurdish, Kirgiz, Lao, Lithuanian, Latvian, Luxemburgish, Malagasy, Macedonian, Maori, Malay, Marathi, Malayalam, Nepali, Maltese, Norwegian).

Then, starting from the obtained results, we used Instagram Web Graph API to gather a collection of 853 expressive geo-tags from Instagram mentioning the term — along with its translations — "Quarantine". Figure 4 depicts a snapshot of the scraping

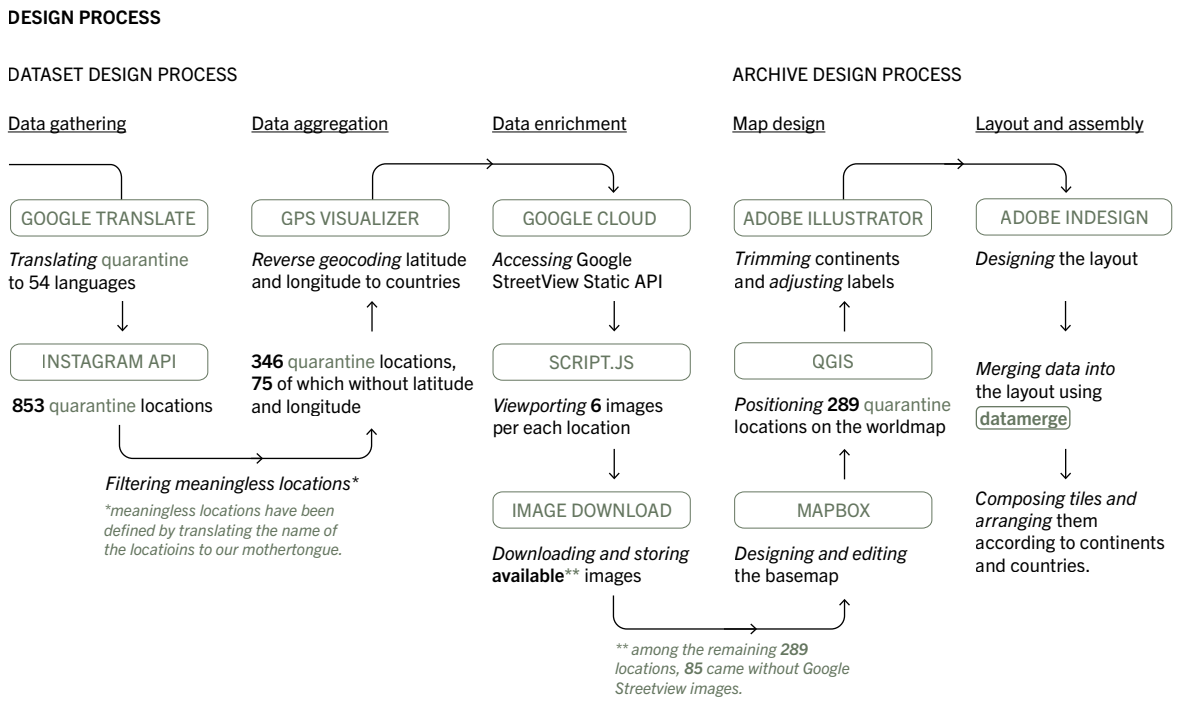


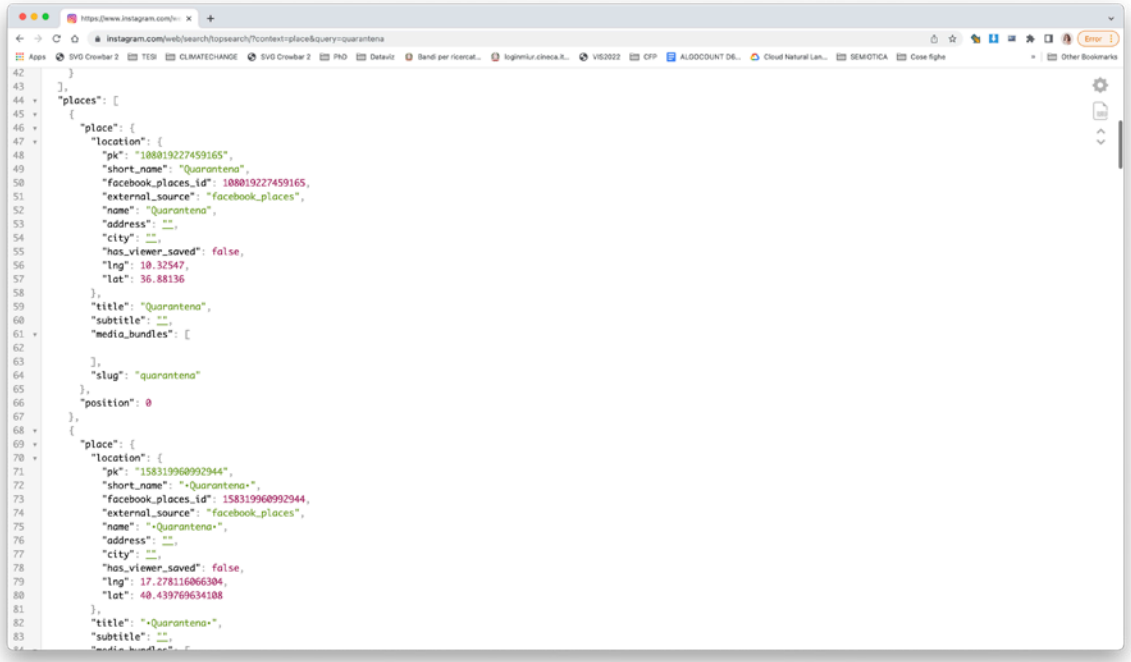
Figure 3: protocol diagram summarzing the design process. On the left, the dataset design process. On the right, the Archive design process. the tools we used are hihglighted with dark-green boxes.

Figure 4: below, the resulting .json file from the scraping of geo-tags metadata through Instagram Web Graph API.

Then, positioning the gathered expressive geo-tags on an interactive map gave us an overview of their collection, located in their corresponding real places.
In order to give dignity to the collection of places, we decided to enrich data with another layer of information: Streetview Static API from Google Cloud Platform allowed us to gather six images representing the 360-degree view around that specific point per each pair of coordinates. (See the snapshot in Figure 5 and visit https://github.com

process, where the Italian term “Quarantena” has been used as a query for gathering related geo-tags. Among this collection of geo-tags, some were the precise translation of the term “Quarantena” such as “Quarantine” or “Cuarantena”, others expressed more specific conditions such as “Papa en quarantaine sans ses enfants” (Dad in Quarantine without children) or “Mamma in quarantena” (Mum in quarantine”), while others were not referring to the idea of Quarantine

To filter out non-relevant items, we checked the meaning of each geo-tag by translating it into our mother tongue. Hence, we collected 364 geo-tags that we aggregated according to countries using a reverse geocoding tool (GPS Visualizer).



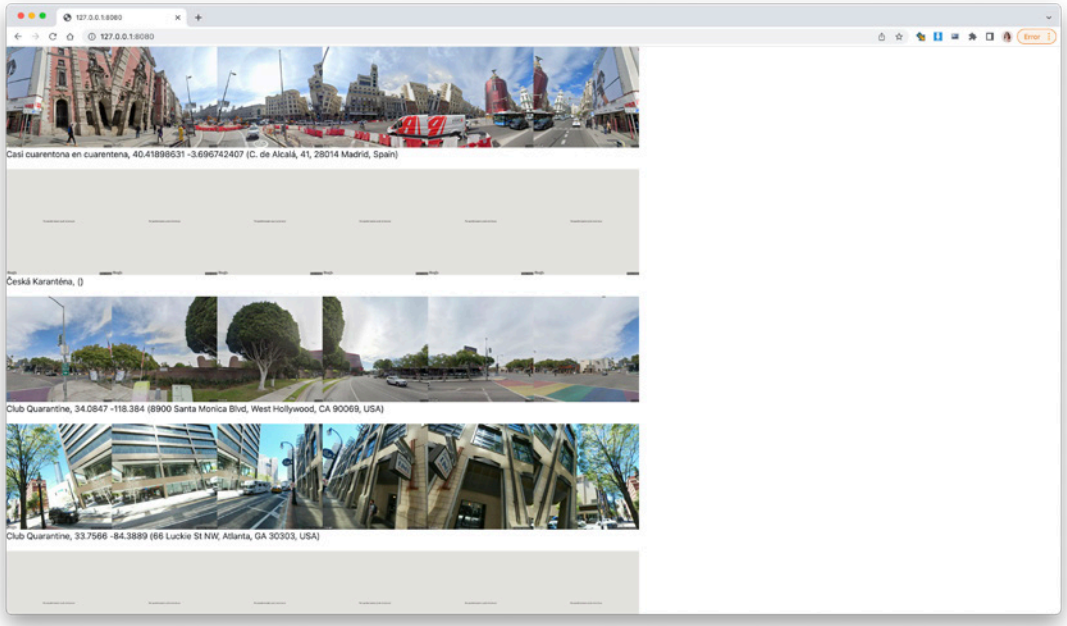


Figure 5: on the left, a snapshot of the process to collect images from Google Streetview for each location. The process involved accessing Google's API and visualizing the images using d3.js.

Figure 6: below, a total of approximately 1600 images was downloaded using Google's API. Google allows fair use of their imagery for creative projects with some limits. More information: https://www.google.com/intl/en-GB_ALL/permissions/geoguidelines/

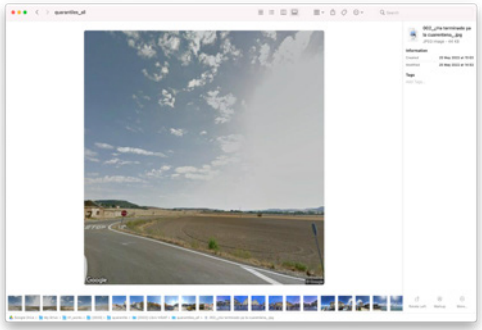


Figure 7: the final dataset to produce the book is below on the left. Each location was reverse geocoded, adding a human-readable address from the coordinates provided by Instagram.

/andreabenedetti/portview/tree/quarantiles).

Among the 364 geo tags we collected initially, 75 came without coordinates — thus, we could not locate them on the geographical representation —while 85 out of 364 came without Google StreetView Images.
The remaining 204 geo-tags were correlated with a pair of coordinates and a strip of 6 images from Google StreetView, compliant with Google's attribution policy of "fair use".

This information was used as descriptors for each geo-tag in the dataset, which was, in the end, comprised of geographic coordinates, name, unique ID, and pictures from Google Streetview. (Figure 7)

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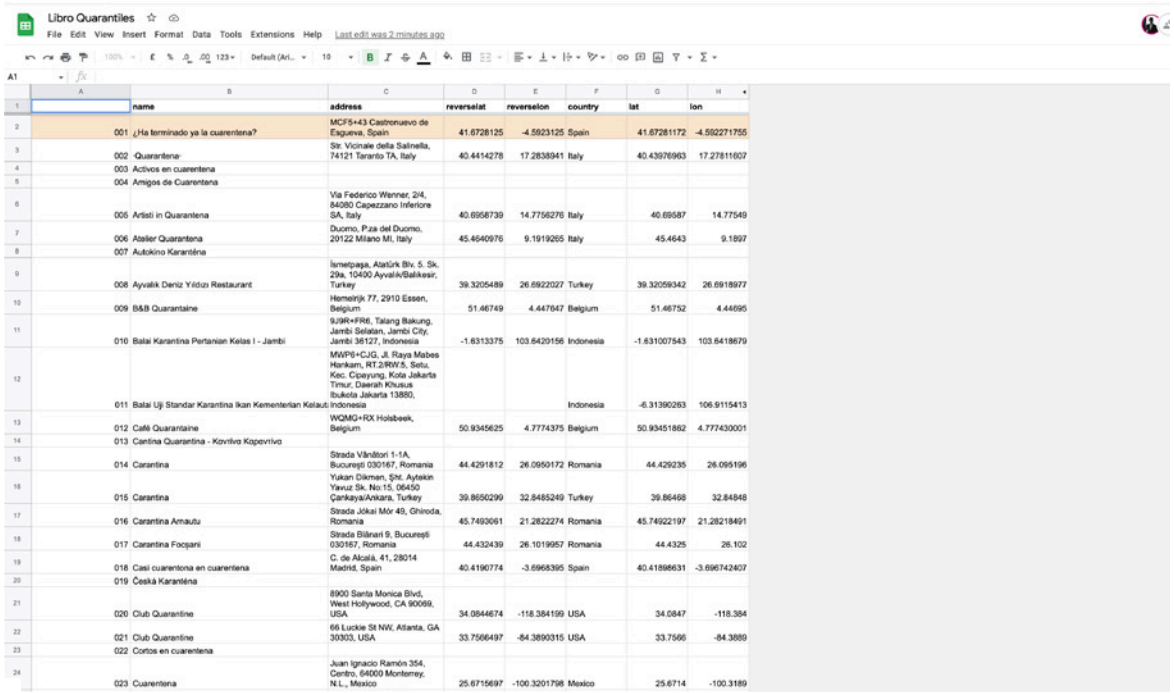


	name	address	reverselat	reverselon	country	lat	lon
001	¿Ha terminado ya la cuarentena?	MCF5+43 Castronuevo de Esgueva, Spain	41.6728125	-4.5923125	Spain	41.67281172	-4.592271755
002	Quarantena	Str. Vicinale della Salinella, 74121 Taranto TA, Italy	40.4414278	17.2838941	Italy	40.43976963	17.27811607
003	Activos en cuarentena						
004	Amigos de Cuarentena						
005	Artisti in Quarantena	Via Federico Wenner, 2/4, 84080 Capezzano Inferiore SA, Italy	40.6958739	14.7756276	Italy	40.69587	14.77549
006	Atelier Quarantena	Duomo, P.za del Duomo, 20122 Milano MI, Italy	45.4640976	9.1919265	Italy	45.4643	9.1897
007	Autokino Karanténa						
008	Ayvalık Deniz Yıldızı Restaurant	İsmetpaşa, Atatürk Blv. 5. Sk. 29a, 10400 Ayvalık/Balıkesir, Turkey	39.3205489	26.6922027	Turkey	39.32059342	26.6918977
009	B&B Quarantaine	Hemelrijk 77, 2910 Essen, Belgium	51.46749	4.447647	Belgium	51.46752	4.44695
010	Balai Karantina Pertanian Kelas I - Jambi	9J9R+FR6, Talang Bakung, Jambi Selatan, Jambi City, Jambi 36127, Indonesia	-1.6313375	103.6420156	Indonesia	-1.631007543	103.6418679
011	Balai Uji Standar Karantina Ikan Kementerian Kelauti	MMP8+CJG, Jl. Raya Mabes Hankam, RT.2/RW.5, Setu, Kec. Cipayung, Kota Jakarta Timur, Daerah Khusus Ibukota Jakarta 13880, Indonesia			Indonesia	-6.31390263	106.9115413
012	Café Quarantaine	WQMG+RX Holsbeek, Belgium	50.9345625	4.7774375	Belgium	50.93451862	4.777430001
013	Cantina Quarantina - Kovrivo Kopovrivo						
014	Carantina	Strada Vânători 1-1A, București 030167, Romania	44.4291812	26.0950172	Romania	44.429235	26.095196
015	Carantina	Yukarı Dikmen, Şht. Aytekin Yavuz Sk. No:15, 06450 Çankaya/Ankara, Turkey	39.8650299	32.8485249	Turkey	39.86468	32.84848
016	Carantina Arnautu	Strada Jókai Mór 49, Ghiroda, Romania	45.7493061	21.2822274	Romania	45.74922197	21.28218491
017	Carantina Focșani	Strada Bălnari 9, București 030167, Romania	44.432439	26.1019957	Romania	44.4325	26.102
018	Casi cuarentona en cuarentena	C. de Alcalá, 41, 28014 Madrid, Spain	40.4190774	-3.6968395	Spain	40.41898631	-3.696742407
019	Česká Karanténa						
020	Club Quarantine	8900 Santa Monica Blvd, West Hollywood, CA 90069, USA	34.0844674	-118.384199	USA	34.0847	-118.384
021	Club Quarantine	66 Luckie St NW, Atlanta, GA 30303, USA	33.7566497	-84.3893315	USA	33.7566	-84.3889
022	Cortos en cuarentena						
023	Cuarentena	Juan Ignacio Ramón 354, Centro, 64000 Monterrey, N.L., Mexico	25.6715697	-100.3201798	Mexico	25.6714	-100.3189

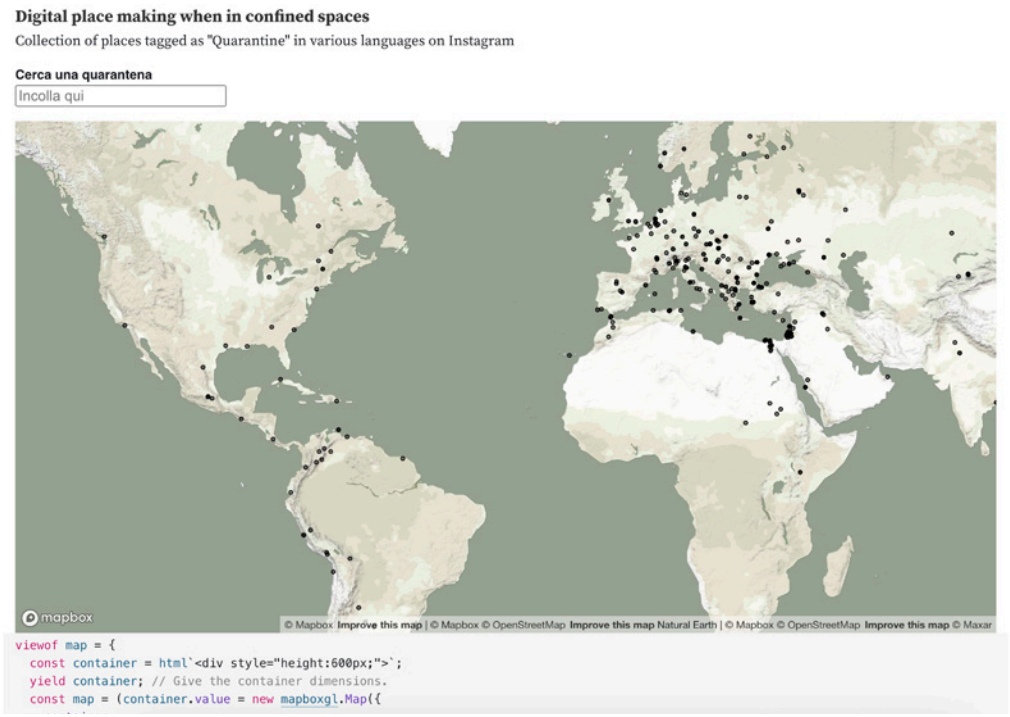
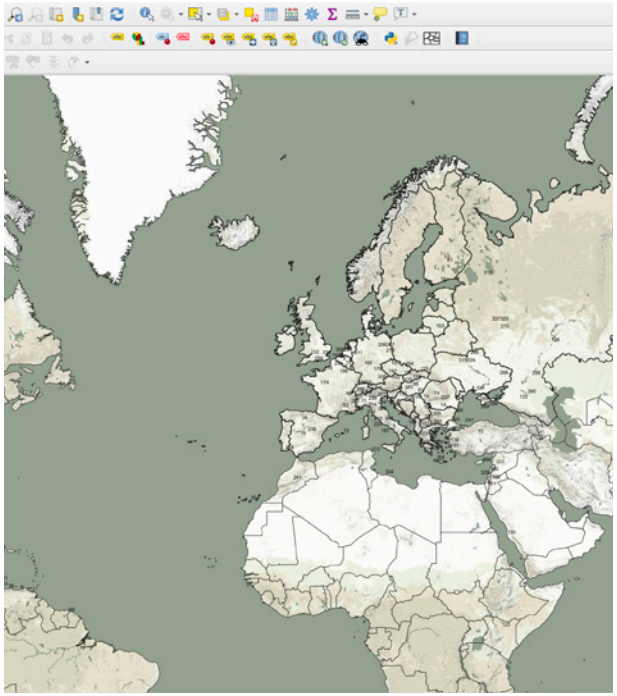


Figure 8: on the left, all geo-tags are plotted as an overview of their location on a cartographic map. The tile created in Mapbox was later imported into QGIS.

Figure 9: at the bottom, geo-tags are plotted in QGIS for better flexibility in rendering and customization. Additionally, QGIS allows the export of maps.

Figure 10: below, the five continents with geotags plotted inside their boundaries are cut out using a vector-based shapefile of the main landmasses to produce isolated maps for each continent.



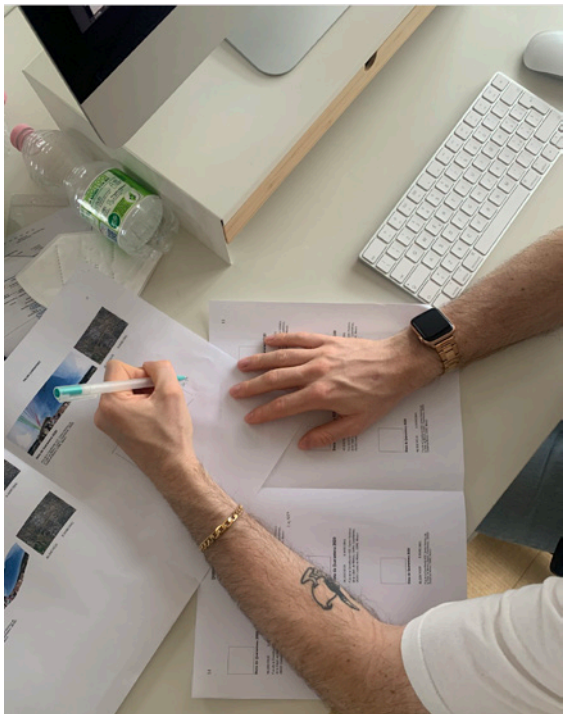
posts tagged on these places for two main reasons. First, including images of Instagram users would have meant dealing with privacy and ownership issues. Second, since the production of the artifact was later than the actual lockdown, some images could have been deleted, archived, or replaced by users. For these reasons, we chose to prioritize the fictitious nature of locations and emphasize their mingled dimension.

Archive design process

As previously described, the dataset design process allowed us to obtain: (1) a spreadsheet describing each expressive geotags by metadata; (2) a folder containing all the pictures gathered from Google Street View, (3) a spreadsheet connecting coordinates and pictures. To present the results, we decided to visualize them as points on a map and as single items enriched with the available metadata.

Map design

We crafted a custom tile map with Mapbox that we used as a base map on QGIS (Figures 8-10) when positioning items.



Tiles design

After a series of attempts to test the most effective photographic treatment for the montages of the six images from Google Street View (Figure 11), we preferred to position pictures most coarsely and sincerely possible to avoid distortions that would have altered the original images. (Figure 12)

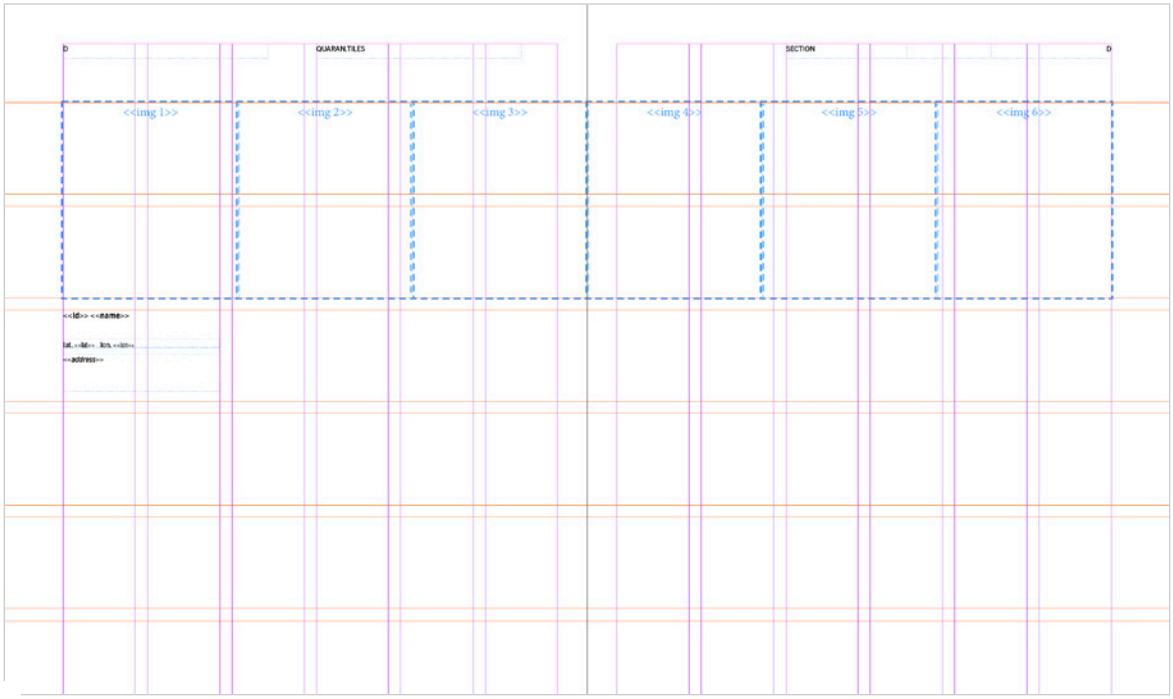


Figure 11: above, some examples of discarded photographic treatments. While the raw material extracted from Google Streetview was preferred, we also experimented with automated stitching of panoramic images with Photoshop and Python.

Figure 12: to the right, the five continents with geo-tags plotted inside their boundaries are cut out using a vector-based shapefile of the main land masses to produce isolated maps for each continent.

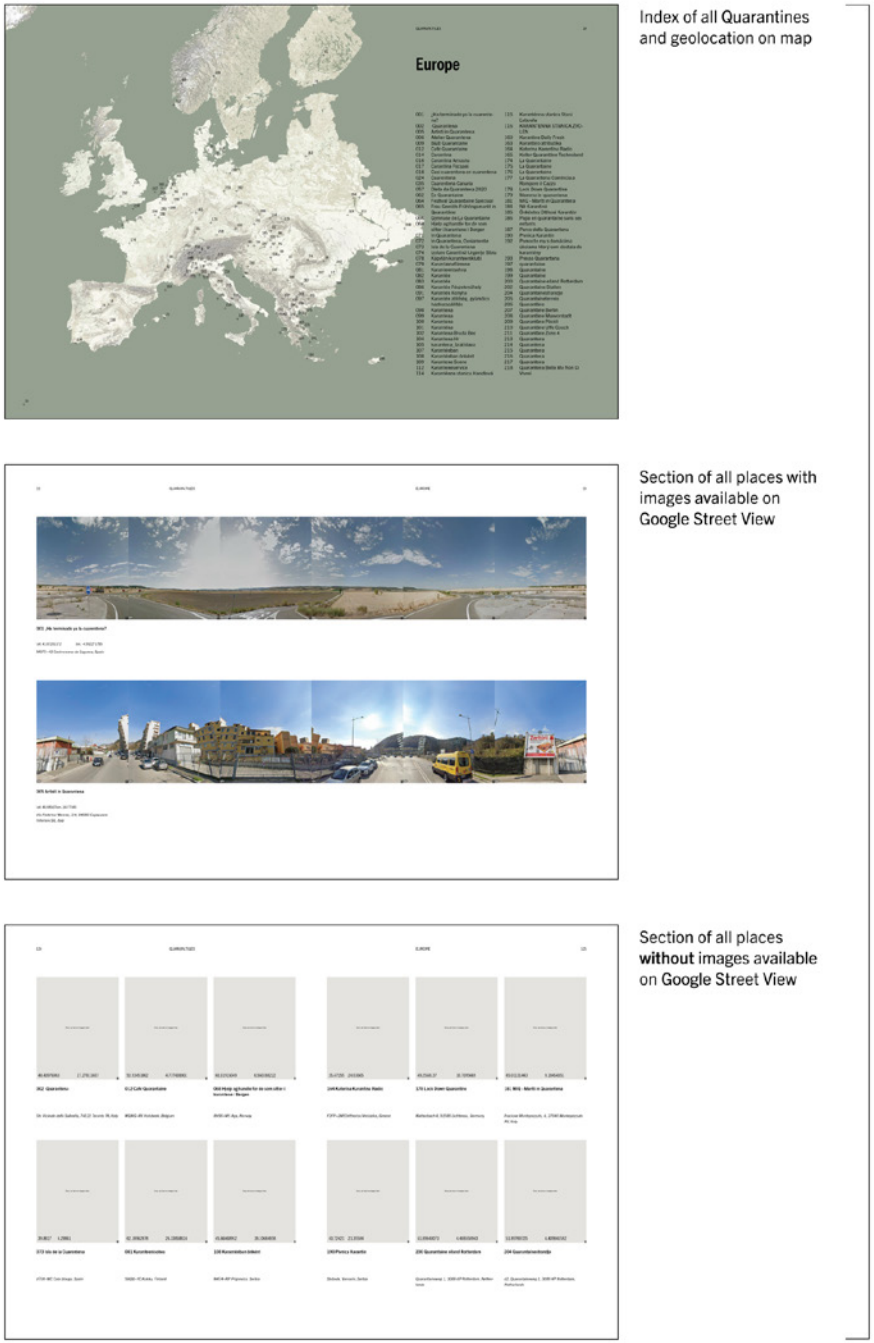


Figure 13: on the left the structure of each chapter. All chapters, dedicated to continents, are organized similarly to perform comparisons. The amount of data available for each continent defines the length of the related chapter.

Finally, a data-merge process in Adobe Indesign allowed us to populate pages according to data collected in the previous phase. The final layout of the book "Quaran. tiles" (Figure 13) is composed of two types of content: maps which serve as an index to observe the location of geotags (Figure 13, top left), and lists of expressive geotags in three different versions depending on the available metadata. In figure 13, the right side of the first spread is the index of expressive geotags featured in the chapter. The spread in the middle shows two examples of expressive geotags correlated with a pair of coordinates and six images from Google Street View. The spread at the bottom shows examples of expressive geotags without correlated images.

Output

The output of the design process is a one-of-a-kind book produced in a unique unit. (Figure 14)
The book is not currently designed for large-scale printing. Instead, it is intended as an object book where the "performative dimension" is one of its core aspects [15].

It consists of 5 chapters, each corresponding

to a continent. Chapters are organized from the densest continent of geotags, Europe (Figure 15), to the least dense, Oceania.

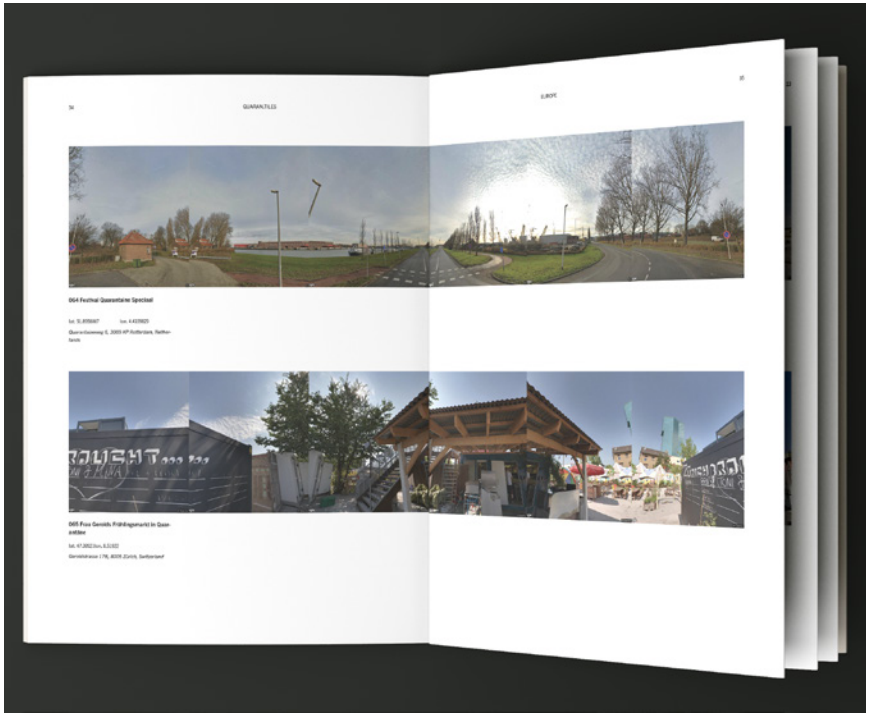
After the five chapters, an appendix contains all places without geolocations in the final dataset. Inside each chapter, all geotags present inside the boundaries of the related continent are reported, clustering continents using lists compiled by the online community.

Each geo-tag is described by three text boxes, one for each of the following information: ID and name, latitude and longitude, address, and, when available, the six images from Google Streetview are arranged on top of them in a horizontal strip, to maintain the landscape nature of the montage.

The book is both browsable as an online PDF and a tangible artifact 20 cm wide by 27 cm tall, consisting of 272 pages with thread binding. High-quality paper to preserve the quality of the imagery used in the book is used in the printing process.

The book is designed to be browsed either by itself or in an exhibition accompanied by a brief overview of the design process (from data collection to assembling the book).

Figure14a, 14b: a rendition of the final result of the book when printed and binded.



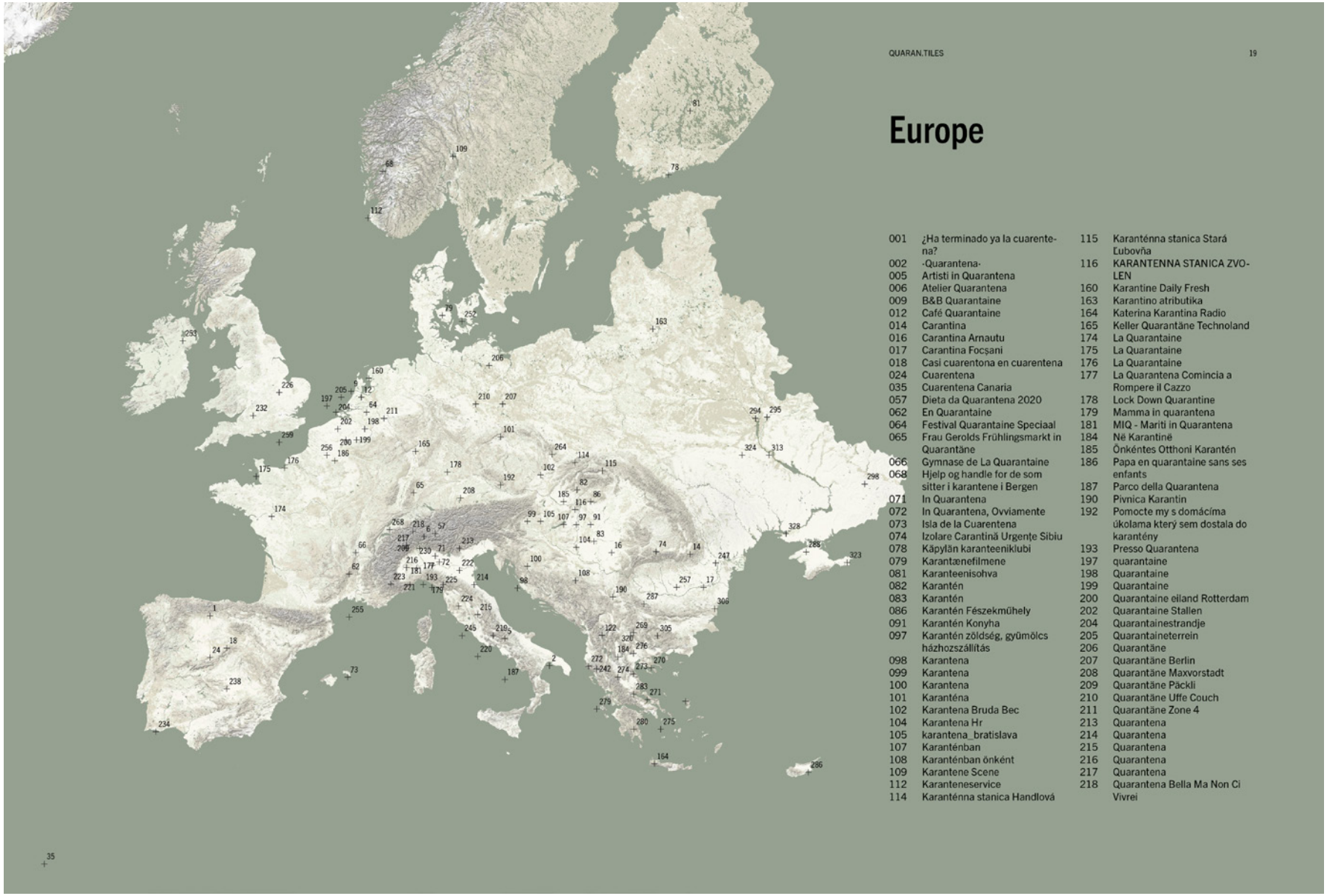


Figure 15: the first element in each continent cluster is the stylized map using Mapbox and QGIS. For better legibility of all geo-tags, each data point is marked on the map with a crosshair that reports the precise location (except the overlapping points, which are displaced around the same coordinates they share) and a label that identifies the unique ID assigned to each geo-tag. Next to the map is a list of all o-tags with the same unique IDs. The list is in alphabetical order, and the following geo-tags are organized in the same order to maintain the consistency and traceability of geo-tags in each section.

001 ¿Ha terminado ya la cuarentena?

lat. 41.67281172 lon. -4.592271755
MCF5+43 Castronuevo de Esgueva, Spain

005 Artisti in Quarantena

lat. 40.69587lon. 14.77549
Via Federico Wenner, 2/4, 84080 Capezzano Inferiore SA, Italy

Figure 16: each geo-tag with images from Google Streetview occupies the entire spread of the book with six images that offer a 360° view of the coordinates used on Instagram. On each spread, two geo-tags share the two pages.

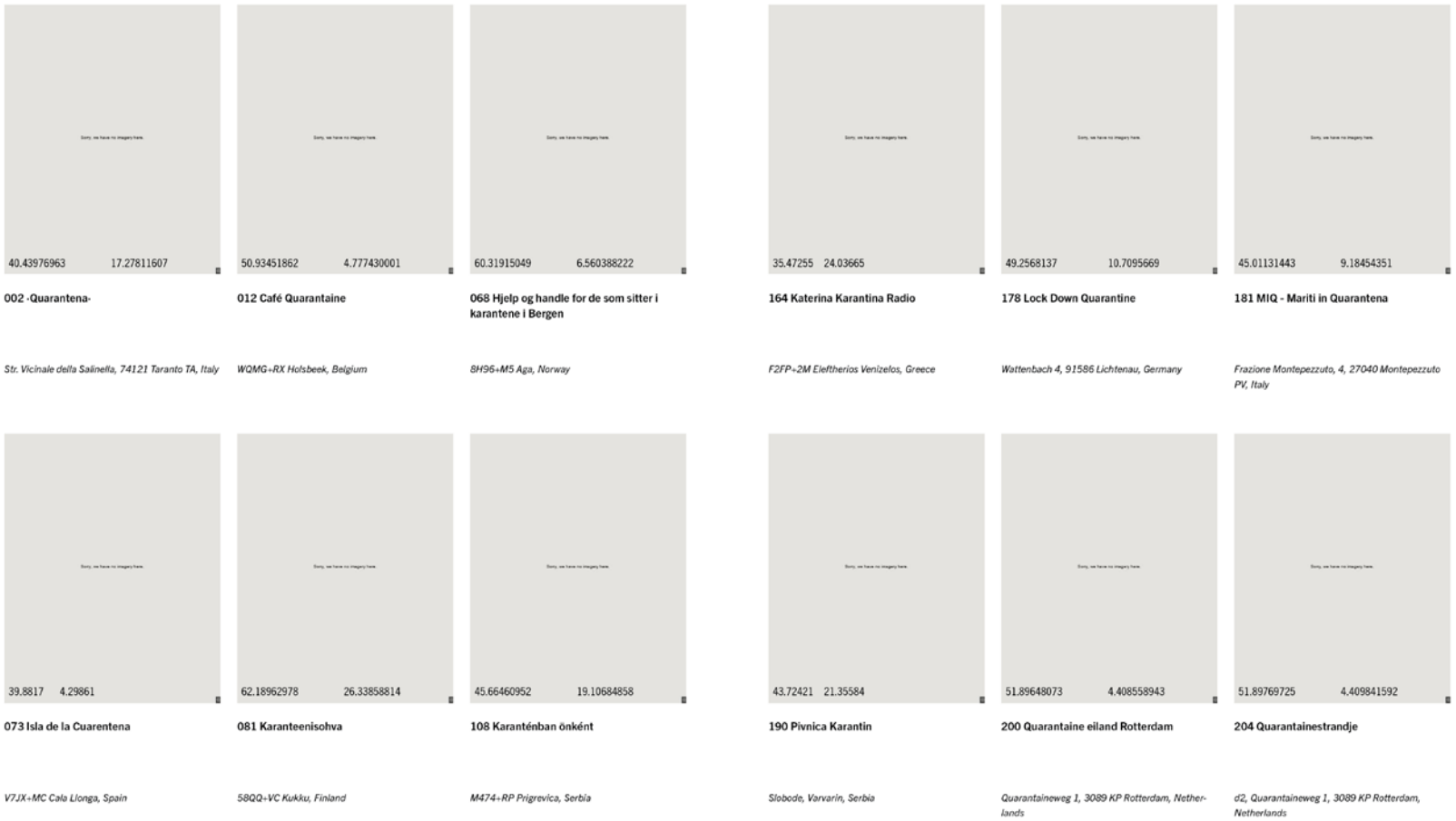


Figure 17: if a geo-tag does not have images available on Streetview, just one placeholder image is used. The placeholder is the same for every geo-tag. Since we do not have available information about these tags, we are able to fit up to 12 elements onto each book spread..

Discussion

Reflecting on the process

The design process promotes reflections on three different levels. First, a substantial part of the design process was devoted to the dataset design process that allowed us to build the foundation of the artifact by exploiting a combined use of Digital Methods tools. Indeed, building the dataset — and recording its steps through a diagrammatic protocol (Figure 3) — is a pivotal part of the design process, which entails design choices that will influence the final product. [16]

Moreover, the choice of tools to represent the data is crucial, and it may be that the most effective solution is found in the adaptation of a tool or software not created for the desired functions. In this regard, another consideration we can make concerns the exaptation of a publishing software — which is not considered a data visualization tool — to produce a visualization in an automated way. Thanks to the data-merge feature, multiple data sources can be linked and repurposed in an editorial format.

Finally, the book structure, which sees geotags divided into continents and organized by alphabetical order, stresses the repetition of words and places. The proliferation of homonymous places gives an idea of the need for expression beyond the means predetermined on a specific platform. On the other hand, the frequency of different places in a single location may signal how a real-world place is affected more than others.

Reflecting on the artefact

The book "Quaran.tiles" presents a means of archiving digital behaviours in a physical environment by producing an assemblage of data collected from social networks and enriched with a procedural protocol by combining information from various sources. Unlike the project's previous iteration, which created an almost-in-real-time archive, the recontextualization of the same data from its initial environment enables the preservation of a peculiar moment in which the construction of user interfaces was not in line with how people were interacting with the real world. The result is a design artefact that lets us reflect on the interaction between the physical and digital worlds and how they contaminate each other. The book results from the interaction between a physical and digital layer: a catalogue of expressive places that refer to states of mind that still require a position on a map because of a data structure constructed by the platform developers. The book promotes reflection on two different levels.

First, re-contextualizing the existing data into a format that it was not intended for highlights how users of a platform can appropriate UI affordances. This behaviour is impossible to predict and outside of the designer's control. Second, assembling information from various sources accentuates the interaction between physical and digital, giving an identity to each expressive geotag related to its real-world counterpart. Data points become concrete instead of remaining abstract and are described with homogeneous photographic material instead of a purely cartographic manner.

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