Geodatification: epistemologies of a metahuman presence

RODRIGUEZ-AMAT, Joan <http://orcid.org/0000-0001-8391-3638>

Geodatification: epistemologies of a metahuman presence

Joan Ramon Rodriguez-Amat (PhD)

0. Introduction: we know where you were (last summer)

Mobile phones in our pockets have made us into reporters of our unique life experience. These phones have contributed to taming us into feeling a permanent need to report our stories, and to return to those devices that trained us into attending, and into taking care of them. The needy pocket machines claim our attention constantly: check, activate, post, text, respond, tweet; with the mobile phone at hand we feel the urge to both make sure the world does not happen without us knowing, that dreaded *FOMO* feeling (Feeling Of Missing Out); and also the urge to report and to capture the world, to immortalise our experiences, and to share them with others in platforms designed to exhibit ourselves, to make ourselves noticed and visible. Checking the phone becomes a mundane thoughtless practice repeated a myriad of times every day by many people, producing gazillions of recorded digital material: a valuable, accessible, and transportable source for data extractivism (Couldry & Mejias, 2020) and what constitutes a very personal geolocated footprint.

In October 2019, the Spanish newspapers El Pais (Maqueda, 28/10/19) published news about a Spanish government funded research project. It linked the public Spanish National Statistics Institute (INE) and the Spanish major private Internet and Mobile Providing Corporations (Movistar, Vodafone, and Orange). The plan consisted of collecting all mobile generated geolocative data in the Spanish Territory during eight days between 2019 and 2020: 18th to 21st and 24th of November, 25th of December of 2019; and the 20th of July, and 15th of August of 2020. The research goal of that project was to capture individuals' mobility as it intended "to assess the opportunity of information about the geolocation of mobile phones as an alternative to the current methods, to provide mobility matrices". The project aimed at "adding this source of data to the regular use in the demographic statistics" (INE, 2019, the document does not appear in the English version of the site).

Of course, the article and official documentation insisted that the collected data would be anonymous; and that the whole project would be well integrated within the current regulation

requirements including the European General Data Protection Regulation (GDPR) and the protection of the privacy of the citizens. But the ethical intricacies of such a vast research project challenge the limits of whatever current regulatory frameworks, and trigger multiple strands of discussion that extend beyond the immediate debates about individual privacy or data ownership.

This case is a good example of how digital data research faces basic ethics principles related to the involuntary generation of data or to the lack of awareness of millions of *citizens-turned-into-data* by telecommunication companies. Asking the involved individuals for permission (this is, the millions of mobile phone users in the Spanish territory) would not yet solve the fundamental ethical issue either: the data has not been generated for the occasion, but it is an already existing recorded material presumably used by the privately owned telecoms firms, already.

This case immediately shows that the individual centred data protection regulations - or research ethics- are not sufficient and that the discussion about data (and the protection against its generation) must move further, deeper, and faster towards the consideration of a whole complex circuitry of devices, infrastructures, platforms, software, and storage spaces of such geodata that clearly merit and respond to their relevance.

As important as are the ethics debates involving data related research, this paper will remain a step before the ethical debates and underlying of the specific publicly funded research project (in the meantime, for ethics on data research, please check franzke, Bechmann, Zimmer &, Ess and AoIR 2020).

Instead, this chapter grows as a necessary antecedent before such research-applied use of geolocation data. The effort is to calibrate and to determine the uncertain weight and epistemological density of this idea of geodata that grows, expands, and sits as a field of knowledge, as material for research, and as tool for methodological exploration, and as source for conceptual heuristic challenges. This exploration must be understood as a starting point from which to further study and discuss the relative value of the digital footprint generated through our undiscussed lives, together with the opportunities and pitfalls of turning socio-humanistic research into a digital data-driven area of knowledge.

1. Mobiles that wire a new spatial regime

The notion of *digital footprint* is handy. The two components of the paraphrasis involve the *digital* prefix and the substance of the *footprint*. The idea of digital seems to nuance the concept of print by stealing its weight and somehow even its materiality; and the word footprint sends immediately to an idea of foot and of land, and of inhabited territory, and of visited place.

Footprint also connects to the idea of path and of itinerary: an alignment of prints forming threads that can be interpreted, invoking the *Baudelairian* romantic *flaneur* grown in the shadow of the Haussmann urban-architectural developments of the nineteenth-century Paris *(Benjamin, W., 2006).* This early *cosmopolitan and urban* image immediately grows to connect the footprint with the psychogeographic experiences that connected meaning to walks, and with them a remote sense of purpose emerging from banal and disoriented wanderings.

Precisely, these links to psychogeography and to the Flaneur have populated the literature and the early artistic experiences with geolocation data, and the constellation of devices that collect and store it. The myth of the wanderer sketches a basic foundational moment for what is slowly taking the shape of an emerging field of research with an early genealogy on locative media (Zeffiro, 2012) and with a forthcoming special issue about the histories of geomedia currently in compilation by Karen Fast (Karlstadt, Sweden) and Pablo Abend (Siegen, Germany). However, “the conglomerate of texts articulated in digital, collective, and GPS-enabled map productions (...) gives rise to problems of definition both as field of practice and as field of understanding”. (Rodriguez-amat & Brantner, 2016).

This text explores later some of the features of that terminological spread that populate the current research trends in the field; but before that, it is necessary to pay attention to the nature of geodata itself. After all, geodata is a form of data; and as such, it deserves a deconstructive discussion that opens its most intimate features. This chapter is structured around three main areas: first, a discussion about geo-data as a form of data defined at least by three forms of disjunction: three splits that open spaces for reflection and that identify critical assumptions inherent in the geo-data thinking; the second area discusses the terminological spread of concepts that name a growing field of scholarly interest; and the third section brings the debate about geodata towards the research tradition about public sphere and mentions some of the latest works that update the concept by incorporating the possibilities of geodata-related

research and its implications. The conclusions come later to invite further critical explorations and applied research.

1. The fundamental dis-location of (geo)data

It is never enough said: Geo-data is a form of data; and in times of datafication (Van Dijck, 2014; Lycett, 2013) and of myths and metaphors about big data (see Puschmann & Burgess, 2014; and Taffel, 2021). Indeed, the ecosystem of devices and the geographic thinking has increased the presence of data with geographic reference. Lauriault has characterized Spatial data as "any data (quantitative and qualitative) which have a location (e.g. spatially referenced with coordinates) or topology." (2017: 95). The presence of topological reference within the data is increasing to the point that all data are (becoming) geodata; but this does not mean that all geodata are equal: from textual references to locations to numeric metadata, the spatial data can have many different natures, and it is necessary to identify the specific epistemological fundamental condition of (geo)-data, before we explore their conceptual and research possibilities.

Indeed, many debates point at how (big) data seems to expel humans from their role at designing and interpreting it: "'Big data 'is cast as the inevitable consequence of a technological juggernaut with a life of its own entirely outside the social. We are but bystanders. " (Zuboff, 2015: 75). This machinery of excluding human intervention takes multiple shapes. Among others, the obedience and concerns and fears about the power of automated interpretation through algorithms; or the uncertainties related to its technicality and the lack of literacy, its mundanity and its lack of relevance, its evasive nature that makes it difficult to regulate properly. Indeed, the technological discourses that surround the geodata with a constellation of virtual, coded, algorithmic, and invisible or inaccessible traces build a black box of invisibility around the data. This form of technologically formed invisibility has activated an academic discussion according to which some authors prefer to abstain from considering the relevance of geodata as a field for social and cultural analysis as it hides behind the form of pre-discursive event.

This chapter works in the opposite direction. Cracking the nut of the assumptions that forge the ecosystem of geodata helps to open spaces of reflection and to illuminate the gaps of

interpretive room filled by *taken for granted* and culturally constructed patterns. This chapter tries to expand the complex liminal space that emerges from the triple split between the data and the phenomenon (first), between the territory and the experience (second), and between the register and the event third). As it is shown below, the triple liminal space grows as a theoretical opportunity for critical reflection and it allows, ultimately to re-incorporate the human dimension to the notion of geo-data, so that it can be discussed again as an environment in transformation, as a culturally defined practice, and as an interpretively constructed product.

First split: data are not the phenomenon

Like any form of data, digital and geolocation data are the product of at least one split: the one that separates the phenomenon and its registration. It is necessary to remember this fundamental condition because only from this starting point, it is possible to distinguish the features and conditions of the creation of data as something else than the phenomenon; and only from here the features of its interpretation can be discussed.

This first split connects directly to the modern object of scientific exploration described by Bruno Latour as a form of silent witness.

> "We witness the intervention of a new actor recognized by the new Constitution, inert bodies, incapable of will and bias but capable of showing, signing, writing, and scribbling on laboratory instruments before trustworthy witnesses. These nonhumans, lacking souls but endowed with meaning, are even more reliable than ordinary mortals, to whom will is attributed but who lack the capacity to indicate phenomena in a reliable way. According to the Constitution, in case of doubt, humans are better off appealing to nonhumans." (1991)" (Latour, 1993:23)

This split between the phenomenon and the register is a constant across any form of (scientific) data; and it is a fundamental issue that penetrates all scientific knowledge as an inherent condition. In the case of geodata, this happens too: Geodata are hybrids that quantify and connect the frame contextual geographic space with the experience, by substituting the experience; that is what makes the data a silent witnesses, This distinction between the experience and its geolocated register is key to understand that geodata requires at least a level of interpretation that fills the separation between the experience and the register in form of data. The phenomenon is contextualised in space, and registered as a geolocated experience; but it

is not the experience itself.

Second split: the frame and the experience

In the specific case of geodata, there is at least a second split. This is the distinction between a required contextualising geographic frame, and the specific point that identifies the experience: the background and the shape, the landscape and the spot, the map and the location.

To explain such a distinction, the Foucauldian sixth principle of heterotopia is very useful:

> "Heterotopia refers to the organization of terrestrial space. It works between two opposite poles, creating both a space of illusion formed by "real" everyday messy spaces and another other meticulous and perfect space. This is a space of compensation: the second projected order against the messy, ill-constructed, and confused space in which life happens." (1967) (Rodriguez-Amat & Brantner, 2016)

The split between the "real" experiential and the "messy" geography of registered geodata is projected onto the "meticulous and perfect space" of the map. Such distinction is a fundamental condition inherent in geodata. As much as maps are constructed representations (Rodriguez-Amat & Brantner 2016), the register of activity turned geodata needs both to connect and to distinguish from them, generating a tension of interpretive politics: the projective features of the map need to coincide -and compensate- with the geolocation references embedded in the data; and the messy confused context-less line of points registered as data only gain a form of reference if they fit a background of a constructed and projected map. Among the debates that this split illuminates are the so-called "mapping wars" (van Rees, 2013) that a decade ago had the technology giants Apple and Google fighting for the navigational software and maps on the mobile devices. Those corporate owned backgrounds, *obviously* can only be used with the due corporate owned geolocating software: identifying this space between the background -the map- and the experience -the geodata- opens possibilities to critically discuss the features that shape that data such as ownership, compatibility, and consistency; and all of them have to do with human decisions that can be made, and the incorporation of the human -social and political- activity in a process that presents itself as automatic.

The combination of the Latourian witness and the Foucauldian heterotopian conditions inherent

in the geodata, fit the derridean notion of signature. That opens as a third split that defines geodata.

Third split: presence and absence

> "By definition, a written signature implies the actual or empirical non-presence of the signer. But, it will be said, it also marks and retains his having-been present in a past now, which will remain a future now, and therefore in a now in general, in the transcendental form of newness (maintenance). This general maintenance is somehow inscribed, stapled to present punctuality, always evident and always singular, in the form of the signature. This is the enigmatic originality of every paraph. For the attachment to the source to occur, the absolute singularity of an event of the signature and of a form of the signature must be retained: the pure reproducibility of a pure event." (1971)" (Derrida, 1982, p. 328).

The combination of the silent witness of data against an established landscape of a map works as a signature: geodata certifies a "having-been" in that spot that remains in a future now. These forms of non-presence and certification crossing the fundamental condition of geodata opens the next split for interpretation and for dislocation that -following Derrida's analogy- becomes a form of writing: geodata is a form of "writing" space.

This triple split does two things: 1) it opens a series of intersectional, liminal spaces between them as forms that assimilate to Homi Bhabha's notion of *third space*. The several forms of in-betweenness that emerge from critically considering the data as an interstitial space that opens as a series of splits acknowledges a series of void-spaces that can only be filled with interpretation. In-between the phenomenon and the register, in-between the map and the experience, and in-between the timeline connecting the having been there and the not-being there anymore, there is a space that needs filling. Those fillings are provided by cultural meanings that are taken for granted. These spaces in between work as untold culturally imposed and as politically intended operations.

The writings by Homi Bhabha can bring some light here to explain how the tensions opening in those uncertain spaces of *dis*-location (of culture) work:

> "What is theoretically innovative, and politically crucial, is the need to think beyond

> narratives of originary and initial subjectivities and to focus on those moments or processes that are produced in the articulation of cultural differences. These 'inbetween' spaces provide the terrain for elaborating strategies of selfhood – singular or communal – that initiate new signs of identity, and innovative sites of collaboration, and contestation, in the act of defining the idea of society itself." (H. Bhabha., 2012, 2).

The third space, for Bhabha, refers to the interstices between colliding cultures, a liminal space "which gives rise to something different, something new and unrecognizable, a new area of negotiation of meaning and representation." (Bhabha, 2012, 211). In this "in-between" space, new cultural identities are formed, reformed, and constantly in a state of becoming. Artists at work in "the third space" speak of a creative edge that derives from the condition of being in a place that simultaneously is and is not one's home. Historically the work by Bhabha has been considered to explain the dislocation of identity for human migrants; but the idea of *third-space* has also been used for education and for locative mobile data (Kearney, M., Schuck, S., & Burden, K. 2010).

It is still possible to critically explore how the culturally driven filling of the in-between spaces of these described splits, can be understood as a political gesture: maps are culturally defined and very political, and so are the machineries that generate, register, store, and analytically attribute meaning to the geolocation data: sensors, software, devices, infrastructures, satellites.

Here is where this triple split does a second thing. 2) the split bares the spaces open to interpretation (not their existence, but the invisible effort to fill them with meaning, as an operation of significance that differs from the initially assumed one-to-one vision as a fixed form of meaning that is usually embedded in the notion of code (Veron, 2004, 22-38).

Far from it, Veron suggested the notion of circulation to explain the revealed non-unique nature of the meaning. He adapted the Marxian categories of production-circulation-consumption. (Cingolani, 2020) to show that circulation is what enables something to be interpreted in one way in its production, and in another way in its (or their) instances of reception or subsequent uses. "This difference is what, in his theory, Verón ([1979] 2004, pp. 39-59) calls the *meaning lag*: to the extent that the meaning produced for a message is not replicated under the same conditions in its reception ("Recognition"), there is a gap that is not alien but constitutive of what we call communication".(Gindin, Cingolani, Rodriguez-Amat, in press).

Indeed, the Veronian notion of *meaning lag* takes the shape of the three splits described above, and builds on a fundamental epistemological but also convenient distinction between two moments: the moment of the data generation -as a form of intended production or of registration- and the moments of interpretation of data as forms of recognition that require the circumstantial connections the phenomenon (witness), to the frame (maps), and to the moment (having been). In that sense, the three splits describe the space that helps dismantling -a la Veron- the ternary and dynamic process by pointing out that there is a need for an interpreter to articulate the geodata with whatever it may represent.

Even if the Veronian gaze has been displaced to the south of the international academic circuits (Scolari & Rodriguez-Amat, 2018; Averbeck-Lietz, 2015); his conceptual contribution is useful here to rescue and uplift the old debates about the situation of the text, or about the identification of the traces of its production. Geo-data, thus, needs to be considered against the conditions of its own creation: the conditions of production (including the map, the register, and the signature…), and the conditions of its recognition (including the witness, and the interstitial space -or the subsequent condition of space emerging from the exploration of the data).

These three splits and the two interpretive opportunities that they generate help to effectively liberate the geodata from any form of objective determinism raising the relevance of the conditions within which that data is generated, combined, or interpreted. Somewhere in the in-betweenness of Bhabha's liminality, the Veronian conditions of production, the Derridean signature, the Latourian witness, and the Foucaultian heterotopy, geodata (a type of metadata), certifies, translates, mediates, and dislocates the human presence on the world with a game of truth, and appearance, of substance, and trace.

2. Data with a geo flavour

Beyond these fundamental conditions that inform geodata, the vast constellation of media related devices with geographical inscriptions has activated the intellectual attention of researchers from multiple disciplines. The disciplinary mess, too often built and growing away from critically splitting the conditions of geodata, has arrived with an unsolved terminological chaos. The academic exploration forms a dispersion of discipline-siloed conversations that

have simultaneously taken place in the last two (and a half) decades. This section maps, broadly, the most relevant available approaches.

Some of the newly formed concepts that approach the constellation of devices and mediated geodata point towards the methodological opportunities. Examples of these are notions like *digital geolocation methods* (with engineering approaches such as (Li, Pahlavan, Latva-aho & Ylianttila, 2000, September) distinguishing *indoor geolocation methods* or more socio-discursive methods that identify location from text or platform-based data (Luo, Qiao, Li, Ma & Liu, 2020). Merging both but still on the methods front, there are some successful experiences of research creatively merging digital data and (n)ethnographic methods (Voilmy, Smoreda & Ziemlicki, 2008). Moving beyond the human led interaction and focusing more on the softwarized new forms of spatialities, Dodge and Kitchin write about *Code/space* (2004) or about *spatial media* (Kitchin, Lauriault & Wilson, 2017); with very interesting applications involving epistemological changes in the understandings of space and knowledge politics as described by Elwood and Leszczynski (2013).

The flourishing of new concepts is also related to a series of paradigmatic and epistemological "turns" that insist upon the relevance of the disciplinary connections between geography, spatial mobility, and communication. Some scholars explored the notion of *Neogeography* (Goodchild, 2009). Others have written about the new mobility paradigm, or "mobility turn" (Sheller & Urry, 2006). And about the spatial turn (for instance in the case of Withers, 2009) but also mentioned within the field of communication research by Jansson and Falkheimer (2006). Classically, too, Eric Gordon and Adriana de Souza e Silva talked about Net-Locality and *Why Location Matters in a Networked World (2011).* All those turns and new field openings are closely related to the development of mobile devices and mobile media communication.

The intention of this section is far from mapping the full extension of these concepts, or even further from trying to claim rights from wrongs, appropriate from inappropriate, emerging from fading. Instead, it is useful to identify some of the factors and actors that intervene in the understanding of the relevance of the "geo" in the data. In this case, the section dedicates itself to the notions of *Geoweb*, of *locative media* and of *geomedia* as the most consolidated concepts. While this lexicon is elaborated, it is also worth to lift the flag to show that this is yet another swampy territory of what Waisbord could call an interdisciplinary trading zone (2019).

Geoweb

Despite the space-less myths that have insistently populated the digital networks since the early beginnings with the adoption of the sci-fi concept "cyberspace" (Gibson, 2017) and its own declaration of independence (Barlow, 1996), the internet has grown as a strongly geolocated environment. It has been written that it was the very early work by Herring (1994) for the USA Department of Defence, where he recommended an index that worked as a cyber-spatial reference. This index would combine both Internet Addressing and Hierarchical Spatial Addressing to solve the problem of defining the physical location in a computer or cyber-infrastructure, providing appropriate fidelity and real time.

Not long after, in May 2000, the Clinton executive implemented the measure to discontinue the GPS selective availability (GPS, 2000) that introduced a 'safety error' to the GPS data. That measure increased dramatically the quality of the satellite geolocation data and made it more accessible to all. The increase in precision combined with the launch of a new generation of satellites GPS III, already incapable of selective availability (September 2007), liberated once and for all the access to the exact satellite driven location coordinates. These political measures coincided with the explosion of mobile phone devices capable of accessing the internet (notably, the first iPhone was released in June 2007) spined a process that made the internet both ubiquitous and very precisely geolocated.

Papadimitriou (2010) draws a very precise picture of the emerging ecosystem:

> "The rapid expansion of new geospatial technologies (global navigational satellite systems, or GNSS, such as the global positioning system or GPS, geographical information systems or GIS and satellite imagery combined) over the last two years and the ubiquitous information and communication technologies or ICTs (such as mobile telephony and the Internet) have revolutionised the way people interact with available geographical data. (...) From these interactions has stemmed what is now termed the "Geospatial Web", this being the spatially enabled World Wide Web, allowing, inter alia, for new forms of geographical education to develop".
>
> (Papadimitriou, F. 2010).

The double condition of the original internet consisting of free availability and of geospatially

tagged data, made some valuable resource for the development of geographic studies as, for instance, the valuable work described by Abernarthy (2011, and more recently 2016; or Papadimitriou, 2010).

Locative Media

What has typically been considered the ur-text on locative media is Russell's 1999 "Headmap Manifesto": "The headmap manifesto is a sequence of text fragments dealing with the social and cultural implications of location aware devices" (1999, 5). The text described a new world composed of

> "location aware, networked mobile devices make possible invisible notes attached to spaces, places, people and things… computer games move outside and get subversive. Sex and even love are easier to find. Real space can be marked and demarcated invisibly (1999, 3).

This cultural approach to the new technological capacities was understood to be seminal to some consensual understanding: the first use of the term locative media was in an artistic exhibition in an abandoned Soviet era military base in Karosta, Latvia from July 16th to 26th, 2003 by Karlis Kalnins. The event was called 'Locative Media Workshop: Mapping the Zone'.

According to McGarrigle, C. "Locative media"

> "was originally employed to distinguish between the questioning artistic uses of location-aware technologies from their instrumentalized commercial and military uses. The proposition was that locative technologies, which had at this point only recently become widely available for civilian use, represented a fundamental, perhaps even paradigmatic, shift in the perception and understanding of geographic location. A central concept of *Locative Media* was a recognition that the artistic uses of these technologies had an important role to play in the opening up of the possibilities of these media to everyone". (2014 178).

In this sense, this concept embodied "a response to the decorporealized, screen-based experience of net art, claiming the world beyond either gallery or computer screen as its territory." (Tuters & Varnelis, 2006, 357).

McCullough (2006) also used locative media to open the discussion about the tension between

the placeless assumption of "cyberspace" and the situatedness of the media activity and the implications for culture and for the sense of place; and did this by showing some concern about the methodologies and implications for privacy, surveillance and control.

> Nevertheless, we can, and must, temper universal information technology design with more helpful attitudes about place. The contextual design of information technologies must now reach beyond the scale of individual tasks to embrace architecture, urbanism, and cultural geography. No methodology exists for this difficult role, but this has already become a problem that is costly to ignore. Since place and culture are intertwined, it follows that more place-centred interaction design becomes a more culturally valuable endeavour. There is no escaping the fact that the world around us is being layered with digital systems. There is no denying our dismay at surveillance, saturation marketing, autonomous annoyances, and relentless entertainment. Whatever our desire for a "sense of place," we seem destined to get "places with sense." (McCullough, 2006, 29)

More recently, locative media has grown within the writings among others of Jason Farman, who have incorporated some materiality and the awareness of the role of infrastructures and interfaces to build a "mobile interface theory" (Farman, 2012 and its second edition and update from 2020).

Geomedia

Geomedia is a concept also used in geochemistry (Jenne, 1998); but in the media and communication field, the notion is growing in use and in adoption. One of the initial media-related uses of the concept was in a paper about visual studies authored by Francesco Lapenta:

> "It is my argument that new geomedia imaging technologies are responsible for a new epistemological shift that is redefining the perceptual and symbolic relation between mediated representations and the real objects of reference (Lapenta, 2009)". (Lapenta, 2011)

In the last decade, the concept of geomedia has seen a fundamental boost with a network of growing activity: an edited Routledge book by Fast, Jansson, Tesfahuney, Bengtsson and Lindell (2017); a significant monograph by Scott McQuire (2017) that aligned a decade of work consisting of revisiting the culture and politics of a technologically wired and redefined

urban space. And the regular organisation since 2018, of the Geomedia Conference by the Graduate School Locating Media and the CRC Media of Cooperation at the Department of Media Research, University of Siegen, Germany (Geomedia, 2021). The event counts now with the participation of the Geomedia Group at Karlstadt University, Sweden (active since 2012) (Geomedia group, 2021).

3. Conquering the geolocated space: geodata is political

As it has been insinuated in the references all along this text, the dispersion, fascination and efforts to "tame" the geolocation data academic fields are not independent from the political efforts to control and own the geodata. Indeed, there is a strong homogenizing drive, that intends to extenuate the "market competition for digital mapping and the control of GPS-enabled devices, triggering debates in the political economy of locative media" (Barreneche, 2012)" (Brantner, Rodriguez-Amat & Belinskaya, 2021). These factors alter the nature of the politicized space.

Precisely the progressive "enclosure" of the Internet (already described by Andrejevic, 2007 under the forms of the surveillance regime) connects with the dynamics of platformization Van Dijck, Poell, & De Waal, 2018) and with the effort of appropriation in private hands of the mapping and geolocation features: Zook and Graham among others, have described some of these aspects while talking about Digiplace (2007 + 2007b); Leszczynski (2012) also explored the political economy of the geoweb.

The initial idea of a foot-imprinted (digital) space has been studied as a source for social inequalities. Geodata is about power. Their features are defined by power-based relationships and generate trajectories of influence and of interactive action. Furthermore, geodata alters the notion of space itself not only affecting the shapes of space, or its perceptions; but also the practices that are enabled within that space. Saskia Sassen (2018) has shown this by critically approaching and describing the power of geographies and how frontier areas work as mechanisms of geographic exclusion. Also, Sassen's understanding of space revolves around it as a practice of power (not only as the stage for other power struggles but as power in itself). Such an approach is echoed also in the work by Tonkiss (2005) and her review of Lefebvre's writings. Space exists in relation to power, not as its aprioristic objective condition: space is a social construct. The symbolic value of space imposes meanings onto the practices; space and

place matter for the social practices (Brantner & Rodriguez-Amat, 2016). This is also how any spatial transgression such as occupying the streets for protests becomes a particularly relevant power challenge.

The public sphere is still a useful notion, but it comes with a caveat. Lost in translation, the idea in German of *Öffentlichkeit* (used extensively by Hannah Arendt already in 1950 - compiled in Arendt & Ludz, 1993), and then adopted and popularized by Habermas originally in German published in 1962 (1971) refers to the condition of publicness. That notion was fittingly translated into Spanish, as *publicidad* in 1981 (2006); but the later translation in English particularly in the compiled volume by Craig Calhoun (1992), the concept adopted and consolidated the idea of public *sphere*.

The geometric metaphor of a "sphere" has typically projected a problematic idea of a *space* that drags the mathematical features as an homogeneous, continuous, neutral, and objective environment that embeds a rational (fair and idealised) negotiation among equal speakers or participants not conditioned by the spatial context. Similarly, the new space sewn with the activity of ubiquitous geolocated devices with access to networks that have led to an unprecedented amount of location-based data has emerged as an objectively articulated environment that assumed that aspects such as access, skills, literacy, and availability were the same for all the *netizens* participating in it.

But the public sphere is not a neutral sphere; and the new form of space developed thanks and in combination with the geodata is not neutral either. Instead, the participatory "projects [that] amalgamate media content, data overlays and real-time location data with the aim of re-politicizing urban space and uncovering the hidden, layered subjectivity of urban spaces" (Jethani & Leorke, 2013, p. 488). Are being more and more pushed behind a system of passwords and codes (Adams & Jansson, 2012) that conditions access and participation. That inaccessible and selective participator space, however, is not private or concealed: the platformized public space has become transparent and monitored: "CCTV circuits and surveillance cameras hold public space under siege, mobile devices are traceable, and users routinely checking in on social media enable permanent forms of corporate-, peer-, and self-surveillance (Humphreys, 2011)" (Rodriguez-Amat & Brantner, 2021); and this condition has added complexity to any understanding of the public sphere: the initial Greek-infused distinctions between public, private, needs now to incorporate the transparent spaces to set a

new regime of publicness. The public sphere assimilates now to “a form of disowned tax-free publicness systematically ring-fenced by an expansive corporate gesture of platformization (Van Dijck et al., 2018)” (idem).

The spearhead of an extended manifestation of research efforts tries to scholarly grasp the new *liquid* complexity of a space that expands, merges online and offline generating complex interactive environments. Symptomatically, Kitchin, Lauriault and Wilson wrote “Spatial media are transforming the production of space and the nature of spatiality. (2017); which aligns with Evans and Perng writing that “knowledge of spaces becomes a complex interdependent process where presence, practices of use, software and data are all intricately linked in producing knowledge and understanding”. (2017). As noted by Fernandez (2021) a lot of the interest has turned around the city and the urban life; and the forms of mobility assisted by digitally enabled devices has challenged old definitions and has required new ones.

In this direction, there have been some recent efforts to update the academic tradition approaching the concept of *public sphere* as an integrative environment of individual, political and social activity, of technologically mediated interactions that needs to be connected again with the territory. Among others, this is what happens with the notion of communicative space: “Democracy has to be grounded on a notion of open and accessible communicative spaces that enable debate, negotiation, struggle, and (dis)agreement.” (Schlesinger, 1999) similarly Sarikakis has used the form *communicative spaces* (Saikakis 2015) but only later Rodriguez and Brantner (2016) among others have extended the notion to consider the online geomediated activity. Among the more recent conceptual efforts, Chadwick (2017 and Chadwick & James, 2017) refers to a *hybrid space* that involves the Deleuzian notion of assemblage and describes the space that combines the journalistic work and the platform based online activity. That similar notion of assemblage -particularly in the considerations by DeLanda (2016)- merges with the possibilities of the concept of interface as expanded by Scolari (2021) to inspire the recent work on governance of the communicative spaces that theoretically and methodologically updates the concept of the public sphere. The public sphere can now be understood and researched as the constellation of practices and infrastructures, space, and platformized data as an assemblage that works as an interface for politically shaped social interaction (Brantner, Rodriguez-Amat, Belinskaya, 2021).

Research on geodata is expanding and the work does not end with these latest approaches.

There is room still for further discussion on what Scolari (2012) called a double -double opportunity: First, geodata is a (new) object of study emerging and living in the social space with amounts of available material and extended possibilities of processing it: critically exploring its limitations, creatively expanding the toolkit for its methodologies, and opening new debates about data representation, data visualization, and data analysis to make it understandable. And second, geodata expands like an interdisciplinary opportunity: geographic and urban sciences are clearly exploring possibilities of expanding their work towards approaches such as cultural and social media analytics, computing communication studies is a fast-growing field that demands a literate critical discussion about the tensions between the datafied processing of life and its social, cultural and political complexity. From the perspectives of the extension of semiotics of the media and of space as much as other disciplines, there are sound contributions to make, too. The concerns about surveillance, the dream of absolute data-control, and even certain *imperialism* of data-knowledge are not there to be denied; but to be challenged, exposed, and confronted with some heteromatic (Ekbia & Nardi, 2017) human presence that reveals the darkened corners of a form of knowledge that hides its own vulnerability behind technological slang and oversized myths: this chapter tries to open, some of them, bare; and to invite to bring the critical debate further.

4. Nowhere to hide: opening strands for further debates

This paper started with a Spanish project that showed how the use of a geodata generated by mobile devices in our pockets and without the users consent but still owned and stored by the big internet providing corporations is ethically problematic. And yet, there is something fascinating about having the opportunity to work with such an amount of geographic data; it might be the love of maps, or the visual and aesthetic possibilities. Data matters, and data with a geographic twist matters more: the data seems to leave us with no place to hide, is it a regime of geolocative data?

Indeed, our daily phone enabled activity generates yottabytes of geolocated data grown from the combined connection with the satellite (GPS) with other devices (Bluetooth) with networks (wi-fi or 4G) or by ourselves just talking about where we are and what we do!

Such an amount of permanently generated information needs to be considered with care: it is vital that we distinguish whatever generated data from the complex and nuanced experiences of what, and where, we live.

This paper starts with a triple distinction that opens spaces for reflection of what and how geodata is made. Within those spaces opening in the splitting distinction, there is an opportunity to identify an interpretive gesture that highlights how geodata has ultimately a constructed nature: geodata is defined by three forms of split: the witness that distinguishes between the phenomenon and its register; the connection and separation between frame and experience (map and point); and the signature that splits the timeline between the being there and the having been there.

The triple split opens two critical lines of interpretive opportunity: first, it shows that those in-between spaces are filled with a constructed and deeply cultural connection -which must be critically explored; and because of that, second, the triple crag also makes visible a circulatory maladjustment between the conditions of production (and of recognition) of the Veronian *meaning lag* embedded within geodata.

These are stimulating opportunities for further critical discussion and this is an open invitation for dedicated empirical analytical research that explores cases of how those spaces are filled in every case: this paper has left the bones of the nature of geodata at plain sight, and the work can now be taken from there.

The following section of this chapter has dealt with the conceptual diversity of the research on media and geodata; mentioning some of the most relevant concepts and focusing specifically on the three most popular: geoweb, locative media, and geomedia. These three concepts connect the main trends in the research involving geolocation data and media; but the exploration of the trading zone must also be taken as an opportunity for further research that maps the concepts and the nuances of their research; and probably that extends in time - backwards with an archaeological or an evolutionary approach that looks into the merging of interfaces, codes and languages combined with their social and cultural adoption and political implementation and regulation.

Finally, this paper has considered power and space; and there it has identified the latest updates on debates about the public sphere that incorporate the new ecosystem of the geodata constellation by treating it as an assemblage of infrastructures, practices, interactions, and devices that build an interface for the political and social-symbolic debate.

There is still work to be done. The early conditions of the geospatial web of the late nineties have dramatically changed with an internet infrastructure occupied by global data corporations; commercial software and privately owned platforms have turned the political debates into posh and tight ring-fenced pool parties served and amused by bots and censored by conservative social media moderation principles; and the datafied and platformised societies combine their leisure-like features with extractivist and colonial understandings of the world. Between the bright-coloured three-centimetre mowed grass mansions and the suburbs of formless favelas of cramped unheard-of users, the debates about the fundamentally cultural nature of data, and the need to break the transparent bullet-proof wall are displaced from the centre of scandalized gazes. Geodata is a form of data, it is a growing field for innovative research, and it is -how very much- politically shaped from its core to its uses.

This chapter has not yet talked about ownership, or about infrastructures of processing and of storage of data; it has not described the geographies of the data extractivism, or the ethical limitations and counterweights of its consideration. This chapter has not explored the costs -environmental, economic, cultural- associated to the processing of geodata. All those belong to the debates about its epistemology, and they all insist on the geodata regime of permanent presence, and of permanent location: the mobile phones did not set us free, they kept us leashed in a constantly visible geography; and it is necessary to keep these debates open to explore it further. This chapter has only shown some of the bare bones of its wiring, it will take some more little hitting if we want -at the end- the crystal window to finally shatter in a thousand pieces.

References

Abernathy, D. (2011). Teaching the geoweb: interdisciplinary undergraduate research in wireless sensor networks, web mapping, and geospatial data management. *Journal of Geography, 110*(1), 27-31.

Abernathy, D. (2016). *Using geodata and geolocation in the social sciences: Mapping our connected world*. Sage.

Adams, P. C., & Jansson, A. (2012). Communication geography: A bridge between disciplines. *Communication Theory*, *22*(3), 299-318.

Andrejevic, M. (2007). Surveillance in the digital enclosure. *The Communication Review*, *10*(4), 295-317.

Arendt, H., & Ludz, U. (1993). *Was ist politik?: fragmente aus dem Nachlass*. Piper.

Averbeck-Lietz, S. (2015). Eliseo Verón leído desde la perspectiva de los estudios en comunicación alemanes: Semio-pragmática, comunicación e investigación en mediatización. *Estudios*, 33 (Jan-June 2015), p. 151-163. (available online in: https://revistas.unc.edu.ar/index.php/restudios/article/view/11609. Accessed July, 2021.

Barlow, J. P. (1996). A declaration of independence for cyberspace. (available online in: https://www.eff.org/cyberspace-independence) Accessed July, 2021.

Benjamin, W. (2006). *The writer of modern life: Essays on Charles Baudelaire*. Harvard University Press.

Bhabha, H. K. (2012). *The location of culture*. Routledge.

Brantner, C., Rodriguez-Amat, J., & Belinskaya, Y. (2021). Structures of the public sphere: Contested spaces as assembled interfaces. *Media and Communication*. (accepted)

Brantner, C., & Rodriguez-Amat, J. R. (2016). Constructing public space| New "danger zone" in Europe: Representations of place in social media–supported protests. *International Journal of Communication*, *10*, 22.

Business Wire, (31/10/2019). AWS to Open Data Centers in Spain. Business Wire. Seattle. (Available online in: https://www.businesswire.com/news/home/20191031005789/en/AWS-Open-Data-Centers-Spain). Accessed Dec, 15th 2019.

Calhoun, C. J. (Ed.). (1992). *Habermas and the public sphere*. MIT press.

Chadwick, A. (2017). *The hybrid media system: Politics and power*. Oxford University Press.

Chadwick, A., & Dennis, J. (2017). Social media, professional media and mobilisation in contemporary Britain: Explaining the strengths and weaknesses of the Citizens' Movement 38 Degrees. *Political Studies*, *65*(1), 42-60.

Cingolani, G. (2020). Recommender Systems: The Interplay between Asymmetry Spaces and the Mediatisation of Access and Circulation. In Scolari, C.; Fernández, J. L. & Rodríguez-Amat, J. R. (Eds.), *Mediatizations. Theoretical conversations between Europe and Latin America* (pp. 152-166). Bristol (UK)-Chicago (USA): Intellect.

Couldry, N., & Mejias, U. A. (2020). The Costs of Connection: How Data Are Colonizing Human Life and Appropriating It for Capitalism.

Derrida J. (1982). Signature, Event, Context. *MARGINS of Philosophy*. Translated, with Additional Notes by Alan Bass The University of Chicago Press, 1982, p. 328) Available online: http://hemi.nyu.edu/course-nyu/advanced/materials/text/derrida.html. Accessed July, 2021.

Dodge, M., & Kitchin, R. (2004). Flying through code/space: the real virtuality of air travel. *Environment and planning A*, *36*(2), 195-211.

Ekbia, H. R., & Nardi, B. A. (2017). *Heteromation, and other stories of computing and capitalism*. MIT Press.

Elwood, S., & Leszczynski, A. (2013). New spatial media, new knowledge politics. *Transactions of the Institute of British Geographers*, *38*(4), 544-559.

Elwood, S., & Leszczynski, A. (2011). Privacy, reconsidered: New representations, data practices, and the geoweb. *Geoforum*, *42*(1), 6-15.

Evans, L., & Perng, S. Y. (2017). Spatial Knowledge and Behaviour. *Understanding Spatial Media*, 169-177.

Farman, J. (2020). Mobile Interface Theory: Embodied Space and Locative Media (2nd ed.). Routledge. https://doi.org/10.4324/9780429460241

Fast, K., Jansson, A., Tesfahuney, M., Bengtsson, L. R., & Lindell, J. (2017). Introduction to geomedia studies. In *Geomedia Studies* (pp. 1-17). Routledge.
Fernandez (2021) Vidas mediaticas. La Crujia.
Finnegan, D. A. (2008). The spatial turn: Geographical approaches in the history of science. *Journal of the History of Biology*, *41*(2), 369-388.

franzke, aline shakti, Bechmann, Anja, Zimmer, Michael, Ess, Charles and the Association of Internet Researchers (2020). Internet Research: Ethical Guidelines 3.0. Available online: https://aoir.org/repor Accessed July, 2021.

Geomedia (2021), Geomedia Conference. Available online: https://www.geomedia.uni-siegen.de /index.php/about/ Accessed July, 2021.

Geomedia Group, 2021 Karlstadt. Available online: https://www.kau.se/geomedia Accessed July, 2021

Gibson, W. (2017). *Burning chrome*. Hachette UK.

Gillespie, T. (2010). The politics of 'platforms'. *New media & society*, *12*(3), 347-364.

Gindin, I, Cingolani, G. & Rodriguez-Amat, J.R. (in press) "Ciberpatrullaje" y autoridad interpretativa: las tensiones entre dato y discurso. Revista *Palabra Clave*.

Goodchild, M. (2009). NeoGeography and the nature of geographic expertise. *Journal of location based services*, *3*(2), 82-96.

Gordon, E., & e Silva, A. D. S. (2011). *Net locality: Why location matters in a networked world*. John Wiley & Sons.

(GPS, 2000). GPS.Gov (2001) Frequently Asked Questions About Selective Availability (Updated October 2001) Available online in: https://www.gps.gov/systems/gps/modernization/sa/faq/ Accessed July 2021

Habermas, J (1971) *Strukturwandel der Öffentlichkeit. Untersuchungen zu einer Kategorie der bürgerlichen Gesellschaft*. 5. Auflage, Neuwied/Berlin 1971 [1962].

Habermas, J. (2006) Historia y crítica de la opinión pública. La transformación estructural de la vida pública. Novena tirada. Gustavo Gili, Barcelona, [1981].

Herring, C. (1994). An architecture of cyberspace: Spatialization of the internet. *US Army Construction Engineering Research Laboratory: Champaign, IL, USA*. (https://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.37.4604)

Jansson, A., & Falkheimer, J. (2006). *Geographies of communication: The spatial turn in media studies*. Nordicom, University of Gothenburg.

Jenne, E. (Ed.). (1998). *Adsorption of metals by geomedia: variables, mechanisms, and model applications*. Elsevier.

Jethani, S., & Leorke, D. (2013). Ideology, obsolescence and preservation in digital mapping and locative art. *International Communication Gazette*, *75*(5-6), 484-501.

Lapenta, F. (2011). Geomedia: on location-based media, the changing status of collective image production and the emergence of social navigation systems. *Visual Studies*, *26*(1), 14-24.

Latour, B. (2012). *We have never been modern*. Harvard university press.

Leszczynski, A. (2012). Situating the geoweb in political economy. *Progress in human geography*, *36*(1), 72-89.

Lycett, M. (2013). 'Datafication': Making sense of (big) data in a complex world.

Kearney, M., Schuck, S., & Burden, K. (2010). Locating mobile learning in the third space. In *Proceedings of mlearn2010: 10th world conference on mobile and contextual learning* (pp. 108-115). University of Malta: Valetta.

Kitchin, R., Lauriault, T. P., & Wilson, M. W. (Eds.). (2017). *Understanding spatial media*. Sage.

Li, X., Pahlavan, K., Latva-aho, M., & Ylianttila, M. (2000, September). Comparison of indoor geolocation methods in DSSS and OFDM wireless LAN systems. In *Vehicular Technology Conference Fall 2000. IEEE VTS Fall VTC2000. 52nd Vehicular Technology Conference (Cat. No. 00CH37152)* (Vol. 6, pp. 3015-3020). IEEE.

Luo, X., Qiao, Y., Li, C., Ma, J., & Liu, Y. (2020). An overview of microblog user geolocation methods. *Information Processing & Management*, *57*(6), 102375.

Maqueda, (28/10/2019) El INE seguirá la pista de los móviles de toda España durante ocho días. El Pais. Madrid. (available online in: https://elpais.com/economia/2019/10/28/actualidad/1572295148_688318.html) Accessed Dec, 15th 2019.

McCullough, M. (2006). On the urbanism of locative media. *Places Journal*, *18*(2).

McGarrigle, C. (2014). Locative Histories: exploring the continued influence of early Locative Media Art.

McQuire, S. (2017). *Geomedia: Networked cities and the future of public space*. John Wiley & Sons.

Ong, T (2017) Microsoft and Facebook just laid a 160-terabits-per-second cable 4,100 miles across the Atlantic - The Verge. (Available online in: https://www.theverge.com/2017/9/25/16359966/microsoft-facebook-transatlantic-cable-160-terabits-a-second). Accessed Dec, 15th 2019.

Papadimitriou, F. (2010). Introduction to the complex Geospatial Web in geographical education. *International Research in Geographical and Environmental Education, 19*(1), 53-56.

Puschmann, C., & Burgess, J. (2014). Metaphors of big data. International Journal of Communication, 8, 1690-1709.

van Rees, E. (2013). State of the'Mapping Wars'. GeoInformatics, 16(8), 3.

Rodriguez-Amat, J. R., & Brantner, C. (2016). Space and place matters: A tool for the analysis of geolocated and mapped protests. *new media & society*, *18*(6), 1027-1046.

Russell, Ben (1999), *headmap manifesto*. Available online http://technoccult.net/wp-content/uploads/library + /headmap-manifesto.pdf Accessed July 2021.

Sarikakis, K. (2015) The Struggle for Control Over Communicative Spaces: Creating, Sustaining, Resisting as Tactics of Information Society Governance, in Proceedings of the ISIS Summit Vienna 2015—The Information Society at the Crossroads, Vienna, 3–7 June 2015, MDPI: Basel, Switzerland, doi:10.3390/isis-summit-vienna-2015-I019

Sassen, S. (2018). *Cities in a world economy*. Sage Publications.

Schlesinger, P. (1999, May). Media and belonging: Changing communicative spaces and the European Union. In *Reimagining Belonging Conference, Aalborg University, May* (Vol. 6, No. 8).

Scolari, C. A. (2021). *Las leyes de la interfaz: diseño, ecología, evolución, tecnología* (Vol. 141). Editorial Gedisa.

Scolari, C. & Rodríguez-Amat, J.-R. (2018). A Latin American Approach to Mediatization: Specificities and Contributions to a Global Discussion About How the Media Shape Contemporary Societies. *Communication Theory* 28, pp. 131–154. https://doi.org/10.1093/ct/qtx004

Sheller, M., & Urry, J. (2006). The new mobilities paradigm. *Environment and planning A*, *38*(2), 207-226.

Subdirección General de Estadísticas Sociodemográficas (INE). October 2019. Estadística Piloto sobre Movilidad a partir del posicionamiento de teléfonos móviles (Censos de Población y Viviendas 2021). Instituto Nacional de Estadistica (INE) Available online in https://www.ine.es/censos2021/movilidad_proyecto.pdf) Accessed Dec, 15th 2019.

Taffel, S. (2021). Data and oil: Metaphor, materiality and metabolic rifts. N*ew Media & Society*. https://doi.org/10.1177/14614448211017887

Tonkiss, F. (2005). *Space, the city and social theory: Social relations and urban forms*. Polity.

Tuters, M., & Varnelis, K. (2006). Beyond locative media: Giving shape to the internet of things. *Leonardo*, *39*(4), 357-363.

Van Dijck, J., Poell, T., & De Waal, M. (2018). *The platform society: Public values in a connective world*. Oxford University Press.

Van Dijck, J. (2014). Datafication, dataism and dataveillance: Big Data between scientific paradigm and ideology. Surveillance & society, 12(2), 197-208

Voilmy, D., Smoreda, Z., & Ziemlicki, C. (2008). Geolocation and video ethnography: capturing mobile Internet used by a commuter. *Mobilities*, *3*(2), 201-222.

Waisbord, S. (2019). *Communication: A post-discipline*. John Wiley & Sons.

Withers, C. W. (2009). Place and the" spatial turn" in geography and in history. *Journal of the History of Ideas*, *70*(4), 637-658.

Zeffiro, A. (2012). A location of one's own: A genealogy of locative media. *Convergence*,

18(3), 249-266.

Zook, M. A., & Graham, M. (2007). Mapping DigiPlace: geocoded Internet data and the representation of place. *Environment and Planning B: Planning and Design*, *34*(3), 466-482.

Zook, M. A., & Graham, M. (2007b). The creative reconstruction of the Internet: Google and the privatization of cyberspace and DigiPlace. *Geoforum*, *38*(6), 1322-1343.

Zuboff, S. (2015). Big other: surveillance capitalism and the prospects of an information civilization. *Journal of information technology*, *30*(1), 75-89.