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Looking beyond the Glitch

What can we Learn from Sociologically Informed Critical Studies of Datafication?

Abstract
Despite dominant technology discourses focusing on novelty, growth, speed and effectiveness, the sociologically informed analyses of datafication have, to some extent implicitly, emphasised brokenness and glitches as productive and inherent elements of a datafied society. This article asks: "How can sociologically informed analyses of datafication be expanded to further guide and understand datafied societies?" The goal of this article is twofold: first, I depart from the idea of "broken world thinking" and the notion of glitch, and discuss some examples of previous research where sociologically informed and critical analyses of datafication provide a unique perspective of looking "beyond the glitch" and deeper into power relations and social structures. Second, I discuss some areas and directions for further exploration, suggesting that looking beyond the glitch is not only a productive perspective but that it also reminds us to keep up with the critical sociological imagination.

Keywords: Critique, Datafication, Glitch, Power, Sociological Imagination

THE TOPIC OF "big data" has been on the sociological agenda for at least the past decade. The term itself often refers to the recent expansion of digital data generated as products of users' digital transactions and other activities, including digital surveillance technologies like CCTV cameras, traffic monitors and sensors. In practice this means that users' activities become data commodities ready to be sold to third parties or collected by companies for their own advertising purposes. Although big data are often perceived as reliable, neutral and precise predictors aiming to improve safety, efficiency and resource management, sociologists, particularly critical sociologists have raised warnings about big data as sociocultural artefacts and that there is more to it than meets the eye (Lupton 2015). Some suggest that big data, likewise other digital data objects, are "systems of knowledge that are implicated in power relations and (…) both the product of social and cultural processes and themselves act to configure elements of society and culture. They have their own politics, vitality, and social life" (Lupton 2015:116). This notion of big data "living its own life" also emphasises that, despite the widespread assumption that technology is neutral, predictable and reliable, it is *also* breakable, prone to erosion, decay and repair.

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In this article I depart from the notion that sociotechnical systems are seldom smooth operating entities. Instead, they break, and it is at that very instance that we are reminded that a bug or a glitch can be a productive moment and a catalyst for change. I ask: "What can we learn from sociologically informed critical studies of datafication? How can this be sharpened by thinking with glitches? How can sociologically informed analyses of datafication be expanded to guide and understand datafied societies?"

The article is in two parts; first I discuss the idea of the "broken world thinking" and repair (Jackson 2014) and the notion of *glitch* (Sundén 2018; Benjamin 2019; Broussard 2024) followed by some examples of previous research where sociologically informed and critical analyses of datafication provide a unique perspective of looking "beyond the glitch" and deeper into the power relations and social structures. I argue that sociologically informed analyses of datafication offer an invaluable contribution to theorising and understanding of modern datafied social life, beyond the discourse of novelty, growth and predictability. Second, I suggest that sociological imagination can be a fruitful concept in research on datafication and discuss some areas and directions for further exploration focusing specifically on the issues of data, agency and public engagement. My goal here is not to give an extensive overview of either sociology or critical data studies, but rather suggest that looking beyond the glitch allows us also to scratch beyond the "tech surface" and maintain a critical perspective on datafication, digital technologies, capitalism, inequality and power.

Glitch as a catalyst and potential for change in datafied societies

Nearly ten years ago, there was a flurry of reporting on various incidents pointing to algorithmic bias, like the infamous 2015 incident where Google was criticised – and quickly apologised – for its image-recognition algorithm that auto-tagged pictures of black people as "gorillas".[1] The company promised "immediate action" to prevent occurrence of the error, by preventing the program from labelling *any* images as "gorilla, chimpanzee, or monkey – even pictures of the primates themselves" (Hern 2018), which still seems to pertain (cf. Grant & Hill 2023). More recently, another controversy came up when Google's AI Chatbot told a homework help-seeking student to "Please Die" (Prada 2024). Google has apologised, again, saying that "large language models can sometimes respond with non-sensical responses", and this is an example of that and that they have taken action to prevent similar outputs from occurring again. The issue that AI programs exhibit different types of bias has also been mentioned in the context of medical applications, where bias particularly affects disadvantaged groups that can be subject to less accurate algorithmic predictions which might underestimate the need for care (Mittermaier, Raza & Kvedar 2023). Also, the predictive analytics models employed by the justice system to predict and prevent crime occurring in some American cities use publicly available data but reveal increased police response in wealthy neighbourhoods while ignoring less advantaged areas (Wood 2022). In many

1 https://www.bbc.com/news/technology-33347866

instances tech developers argue that possible cases of bias are simply a matter of tech development, temporary fixable bugs or *glitches*. However, as some scholars argue, the concept of glitch can be more useful than that.

The word *glitch* originates from Yiddish and means to glide or a slippery space and often indicates a problem or distraction (cf. Benjamin 2019:77–96). In the context of modern technology, it implies some sort of mistake, a minor accident that can and oftentimes *should* be fixed. Glitch and repair belong together, although according to Jackson (2014), maintenance and repair work are not necessarily at the fore of our thinking of technology. Instead, it is rather innovation, novelty, growth and efficacy that are dominating the discourses around new technologies, digitalisation and more recently, datafication. Consequently, things, objects and relations that break become rather invisible or quickly replaced with new solutions. To shed light on these forgotten aspects of technology, Jackson employs the notion of "broken world thinking" to argue that breakdown, maintenance and repair constitute crucial but understudied sites of new media technology, and they are "one of our most significant sites and sources of sociotechnical difference (…) and an engine by which technological difference is produced and fit is accomplished "(ibid. 227). To illustrate his point, he uses images of abandoned and aging ocean vessels on the shores of Bangladesh; once the signs of trading glory and globalisation, they are left behind, forgotten, steadily dismantled and repurposed by local markets. They are a reminder that technological objects are made but they also fall apart, become dismantled and rendered invisible. They need repair and maintenance to continue working.

Repair serves, for instance, as a reminder that acts of care in the sense of fixing, support and healing can maintain and transform order and meaning in complex sociotechnical systems (ibid. 222). This approach challenges the notion of technological autonomy and self-sufficiency by emphasising that in moments of glitching and breaking, we learn to engage and perceive technologies in often new and surprising ways (ibid. 230). Such moments draw our attention to the political aspects of technology and the contexts in which they have emerged, the power relations, forms of valuation of objects, moral aspects of technology, such as the ethics of care and various other "glitches" that are oftentimes made invisible by the seemingly smooth operation of sociotechnical systems. In this sense breaking, maintenance and repair are both generative and productive, supporting the notion that it is a common occurrence that things do break and fall apart.

The productive aspect of *glitch* has been discussed by Sundén (2018) in the context of post-humanist feminism. She brings up gender as broken technology and femininity as an unfinished project, constantly in the making as there are neither faultless bodies nor technologies. What the glitch does is call attention to the material aspects of sociotechnological systems. It is the catalyst rather than an error that suddenly stops the anticipated and expected flow and smoothness of the program or system. When, for instance, the internet suddenly stops working, we become aware of broken cables or glitching routers. Sundén cites Lotringer & Virilio (2005:2), who argue that "[M]alfunction and failure are not signs of improper production. On the contrary, they

indicate the active production of the 'accidental potential' in any product" (2018:25). In this way, the machine and its inner workings are revealed through the glitch, its lagging and cracks. We are allowed to peek inside, to glance at the inner structure and become aware of its (im)possibilities. In this way glitch can be both a catalyst of anger, irritation and sudden loss of control *and* the critical point that invites transformation. The glitch reveals and heightens the awareness of what is oftentimes taken for granted and expected, like tacit knowledge or social norms.

In sociology, breaking or breaching of social norms has been commonly associated with Garfinkel (1967) and the ethnomethodological breaching experiments that imply conscious violation of social norms, such as turn taking in daily conversation. The goal of these experiments has been to examine and analyse people's reactions to norm breaching, but more importantly the focus has been on underlying normative social structures guiding those reactions. In other words, by breaching the implicit and seldom articulated social norms, we suddenly become aware of their existence in the first place. Breaching is also an exercise in resilience of social reality, as the most common reaction is to normalise the breach, to fix and repair the "broken norm".

Some argue that the glitches that occurred a decade ago or earlier, like the incident with "racist Google" mentioned earlier, have already been fixed due to technological improvements and development. Meanwhile, other voices from within the industry suggest that instead of pretending to eliminate bias, one needs to focus on remediating it to "reduce the chances of AI behaving badly" (Townson 2023). At the same time, critical scholars emphasise that these problems are not necessarily due to AI's "bad behaviour" but rather that the unconscious biases are built into tech and reflect developers' values and the power structures of which they are a part. Particularly salient here are voices of Noble (2018), Benjamin (2019) and recently Broussard (2024), who argue that glitches are systemic reflections of exclusion and discrimination which are built into sociotechnical systems. They do not only reflect the values and priorities of a relatively homogenous group of developers but also how solutions get defined in and by the tech industry. In other words, glitches are "powerful opportunities to examine the overall system" (Benjamin 2019:47) and "not an aberration but a form of evidence, illuminating underlying flaws in a corrupted system" (Ibid. 80). This means that, for instance, algorithmic bias is structural and cannot be addressed by quick code updates (Broussard, 2024:4). This capacity to see social occurrences as more than glitches, as inherent elements of a flawed system, rests at the bottom of sociological thinking and sociologically informed analyses of datafication. In the following section, I discuss some examples of critical research on datafication and identify some of the systemic glitches scholars have been pointing out.

Glitches within: What can sociologically informed analyses of datafication tell us about the broken system?

Attentiveness to glitches, brokenness and the need for repair has been one of the central concerns of sociologically informed analyses of datafication for the past decade or so. The following is not by far a comprehensive list or an entire review of the current research that engages with questions concerning datafication. Instead, I discuss and point out some concepts and directions where critical scholars have been discussing and exploring predominantly social consequences of extensive digitisation and datafication.

When it comes to ideology and systemic critique, there is body of research mostly inspired by Marx's class and capitalism critique as well as the Frankfurt school's critical theory approach both of which have been focusing on the intersections between late capitalism and digital technologies. It is not necessarily datafication as such that is in focus here, but rather capitalism as a hegemonic economic and social system that is constantly negotiated and renewed in new contexts and practices of digitised societies. One of the most popularised concepts in recent years has been *surveillance capitalism,* which emphasises the new logic of accumulation based on collection and commodification of personal data by corporations (Zuboff 2019). Also, concepts such as *digital discourse*, *digital labour* and *platform capitalism* emphasise the critical political economy of platform connectivity and the main actors of the digital economy as well as the power imbalances that drive them (Scholz 2013; Fuchs 2015; Sevignani 2015; Srnicek 2017). Among other, earlier, scholarly interventions that shed light on digital or platform capitalism, is the concept of *algorithmic ideology,* defined as a tool to understand corporate search engines (Mager 2012, 2014).

For instance, drawing on critical theory, Mager illustrates how capitalist value-systems manifest in search technologies, how they spread through algorithmic logic and become stabilised in sociopolitical contexts, often characterised by a techno-euphoric climate of innovation and politics of privatisation. This critical political economy perspective is also present in studies on digital workers, the gig economy, and in various forms of resistance and workers' emancipation under platform capitalism, such as collective commons and platform cooperatives (ÓRiain 2010; Lund 2017; Scholz 2023). It is worth noting here that the recent special issue of the *TripleC* journal has been dedicated to critical perspectives, including theory and praxis of digital capitalism and more specifically to the role that knowledge, communication and digital media play in this form of capitalism (Allmer, Arslan & Fuchs 2024). Overall, one could argue that it is particularly the critical political economic perspective that is central to this body of scholarly work. By emphasising the problems or glitches of the capitalist system, for instance in terms of accumulation and value extraction as part of the critique of the system, scholars suggest that inequalities and power relations remain central to understanding datafied societies. This is the case even though power relations in many cases are obscured by discourses of innovation, fairness and entrepreneurialism (cf. Sandoval 2020).

A slightly different, yet still techno-capitalist system-critical, is the approach by

scholars who focus on the continuous extraction of economic value from human life through data known as *data colonialism* (Couldry & Meijas 2019, 2023). Other similar concepts included here are, for example, *digital colonialism* (Kwet 2019), *decolonial turn* (Casilli 2017) and *technocolonialism* (Madianou 2019). This approach departs from the notion that "big data grabbing" practices or extraction of data by tech platforms and corporations resemble early stages of colonialism. In this new form of resource appropriation, it is not land or natural resources but rather data that is extracted from human practices, and which perpetuates power inequalities in the global economy. To understand this new stage of human, historical, economic and political development, we need to consider an integrated history of *both* colonialism and capitalism. The theory of global data extractivism directly links data extraction to capitalisms' colonial underpinnings. However, one of the main differences between colonial parallels today and then has to do with the nature of violence. In the absence of physical violence, the core of the *decolonial approach* to data research lies in emphasising the epistemic forms of violence (Couldry & Mejias 2023), namely the global asymmetries in economic, cultural and knowledge production (Casiilli 2017). This means that, for instance, data extraction is not solely an economic-profit-oriented endeavour, but is also employed as a mode of human governance. In other words, any decolonial and emancipatory struggle against this new mode of colonial power is as much a struggle over practices of technology as it is over human knowledge and rationality (Couldry & Meijas 2023:797).

Scholars who support this argument suggest that we are facing a decolonial turn in data and technology research followed by new modalities of oppression which are often inherent parts of seemingly smoothly operating technology design and use. A different take on the relationship between technology and society is offered in yet another critical strand of research which focuses on the algorithmic power and automation in the context of public service provision.

The idea that automation and datafication offer effective, neutral and objective solutions to social dilemmas and problems lies at the core of digital welfare and algorithmic governance. Demographic changes such as ageing populations, lack of qualified workforce, a strained economy and demands on local municipality services are often framed as a "care crisis" threatening future economic security. Consequently, welfare states, particularly in the Nordic context, are increasingly relying on digital technologies as a solution, offering more effective public governance and service provision (Cozza 2023). *Welfare technology* is a Nordic social policy concept, introduced to promote digitalisation and technological solutions to meet the social challenges facing Nordic welfare states (Frennert 2018). Scholars agree that welfare provision is currently undergoing major transformation, which implies the introduction of technological solutions supporting and enhancing welfare with the help of data (Kaun *et al*. 2023). Intensification of datafication is particularly present in elderly care where AI, algorithms, robotics and other digital devices, like surveillance cameras, are increasingly incorporated into daily care provision. Oftentimes health and social care provision are expected to be evidence-based and standardised, yet challenges with implementation and coordination persist (Gustafsson 2021). Critical scholars who study public welfare

provision and the *digital welfare state* emphasise, among other things, that digital transformation of the welfare sector is often marked by the competing logics of care and control (Zakharova, Jarke & Kaun 2024). For instance, Zakharova, Jarke & Kaun (2024) in the special issue on "Care-ful data studies" suggest that critical data studies and care ethics can inform new ways of understanding the ambivalences of data power in datafied societies. Others suggest that datafication of the welfare state implies new ways of decision making and assessment of needs. At the same time citizens have little impact on automated decisions, for example on risk scoring, fraud detection or social benefits applications (Velkova & Kaun 2019). This development of the welfare state where big data, mathematical models and algorithms issue decisions on citizens' lives has been coined as *political* rather than merely *technological* (Dencik & Kaun 2020:3, emphasis added). Similarly, politics, power and social impact are often mentioned in the context of algorithmic bias in the public sector (Kronblad, Essén & Mähring 2024), for instance as in the case of the Swedish Insurance Agency's silent large-scale experiments with predictive algorithms that resulted in false fraud predictions and discriminatory practices against women who applied for child support (Granberg & Geiger 2024).

Social categories such as gender, class, age, sex, ability and race are at the forefront of understanding how digital technologies reinforce different forms of inequity (Noble 2018; Benjamin 2019; Rosales, Fernández-Ardávol & Svensson 2023; Broussard 2024). For instance, Benjamin (2019) explores how new technologies reinforce racism. She introduces the concept of the New Jim Code, in which power lies in allowing discriminatory and racist codes to enter and operate "through the backdoor of tech design, in which humans create the algorithms hidden from view" (ibid.160). This means that in a context where automation and algorithmic connectivity are presented as neutral and objective alternatives to human bias, the social dimensions of technology and tech design are often rendered invisible. Consequently, ways in which we design the techno-material world not only reflect but also often reinforce social hierarchies and inequalities.

Following a similar pattern of machine and algorithmic bias, inequality and potential exclusion, scholars have identified *digital ageism* as a generative area of study (Rosales and Fernández-Ardèvol, 2020; Manor and Herscovici 2021). This type of bias is operating both on an individual level with stereotypes of older people as digitally incompetent, as well as on organisational and structural levels, resulting in strategies and tools embedded in the design and implementation of digital platforms. The ageist bias implicates for instance, designers and software engineers, the products they develop, algorithms they train, as well as the values of the tech industry which often discriminate against users with lower digital skills and marginalised backgrounds. Also, the role of technology has been acknowledged in a particular type of ableism, called *technoableism* (Shew 2023). It is based on the solutionist belief in technology, including digital technologies, as eliminating disability, while at the same time, under the guise of empowerment, it is suggested that the use of technologies to allegedly support disability reasserts existing biases. This specific strain of ableism, often inherent in

the workings of algorithmic power and code, "informs how we decide who is worthy, who is entitled or deserving and what justice means when it comes to technology and intervention" (ibid.9). One of the key concerns of critical studies of AI and algorithmic connectivity is the potential machine bias resulting in discrimination, oppression and marginalisation in these systems (Lindgren 2023).

What the analyses discussed above have in common, apart from being critical of the power dynamics of datafied society, is not necessarily only the critique of technology and big data phenomenon as such, but rather the *social consequences* and implications of technological development and change on different social areas such as work, lifestyle, social participation, in both private and public institutions. In a current global, transnational and interdisciplinary academic environment, there is perhaps less space for articulating discipline-specific problems, methods and questions and more need to define and explore common ground and shared spaces for understanding current problems, such as algorithmic connectivity and the increasing datafication of social life. One of the ways of doing so is to look beyond the glitch not as a minor mistake but rather the capacity of seeing inside into the system. It is not only about pushing the critical research agenda further but also about getting more insight into social actors' lives, to capture the variety of experiences, understandings and views on life in datafied societies. By focusing on the social impacts and consequences of datafication or implementation of technological solutions, critical scholars shed light on the systemic contexts in which technological solutions are developed and employed. From systemic issues of the capitalist and colonial legacies to digital welfare and various biases in tech, connections are made between what might occur as personal experiences of discrimination or exclusion and their systemic underpinnings. What we learn here is that social problems are manifesting inside sociotechnological systems and that they are not necessarily solvable with data and algorithmic patterns, how social patterns and meanings revealed in data tell us stories that could be otherwise.

So, what *more* can we learn from looking beyond the glitch? In the remainder of this article, I suggest some directions where sociologically informed critical studies of datafication might go further in exploring and making sense of social life in datafied societies.

What do the sociological imagination and glitch have in common?

Introduced in 1959 by C.W. Mills and described as a framework or ability to see the link between individuals and wider society, the concept of the sociological imagination has been popularised as a distinct sociological way of thinking about and understanding the social world (Mills 1959, cf. Aarons & Willis 2022). Having sociological imagination, according to Mills, means not only understanding humans as ultimately social beings but also being aware of the relationship between individual troubles and biographies and the larger social context of which they are part. In other words, it is about an understanding of how social issues that are experienced by individuals can be perceived in a larger and wider context of public or global issues. From this perspective,

the task of sociology is to identify social forces, often on the macro-scale, that furnish our "personal and private troubles into public concerns and issues" of society and history. For instance, it allows us to see the connection between how a "workplace accident" can be understood as an employer's practice of saving on production costs (Aarons & Willis 2022:6-57) or how daily "incidents" of racism or sexism relate to social power structures and ideologies. In this view, the sociological imagination is also about attentiveness to historical and cultural change, context and differences, and ultimately also about exposing naturalising discourses and thinking beyond taken-for-granted understandings. This approach is particularly important in the context of a growing trust in data, algorithms and digital technologies as effective and objective solutions to social problems and issues. At the bottom of the sociological imagination is the capacity to make connections between individual "troubles" and what may appear as merely glitches and the actual social structures, to see the power relations that lie beneath them. In other words, the sociological imagination can be helpful for sociologically informed analyses of datafication, or any other scholarship that focuses on understanding the datafied society.

Looking beyond the glitch means reinvigorating sociological imagination in numerous ways. It can mean to see "flaws" like racist, sexist or ageist bias as inherent elements of social structures. It can mean that when acknowledging new forms of data being generated, there is also the possibility of augmenting rather than replacing other research methods or design (cf Housley *et al*. 2014), because ultimately data can tell us different stories depending on where and how we look at it. It can serve as a reminder to see the people behind the data and machines by acknowledging the social agency of human actors while engaging a variety of publics in the process of collaborative knowledge production. Below I identify some of the areas where glitch could be employed as a productive perspective to further guide sociologically informed analyses of datafication.

Glitches in datafied systems

For over a decade, scholars have noticed that big data has questioned the established epistemologies of science (boyd & Crawford 2012; Hardy 2013). This has resulted in new forms of empiricism and turn towards a more positivistic approach of knowledge and science. Sociology as a research discipline is no stranger to these developments. Although usually big data projects have relatively little direct engagement with sociology as such, some argue that big data and its methods of analysis can support the praxis of doing sociology (Mützel 2015:3). Burrows & Savage (2014) mention the methodological challenges of empirical sociology facing the big data and the hitherto dominant "descriptive power of the social sciences" by suggesting that big data offer the possibility of understanding the social world in a way that was not possible previously. For instance instead of relying on the accounts of actions, based on observations or interviews, new methods of digital tracking based on big data extraction offer more unobtrusive insights into social actors' actions. They also suggest that we need to

reinvigorate the sociological imagination that is needed to grasp the complexities of data. We currently witness a variety of "new" and "old" research methods and even some struggles over those. Moreover, new data sources often bring different modes of "addressing the public, mobilizing expertise, conceptualizing the social, and research methodology" (ibid.5). In this sense, big data is challenging researchers' own authority to define what passes as social knowledge and how to understand it.

At the same time, others have pointed out the dangers of this "new data revolution" and the risks occurring when we start to (over)trust in data as synonymous with objectivity and truth. For instance, Kitchin (2014) calls big data approaches "disruptive innovations" that challenge established ways of doing research. He also emphasises that, as much as the big data analytics approach might be signalling the new paradigm for social sciences and humanities, it is even more important to acknowledge an epistemological approach that is reflexive and considers the situatedness, positionality and politics of social sciences. Similar points could be made about data itself, namely we are reminded that making sense of data is always framed and examined through a particular lens which has an impact on how it is interpreted (ibid.5). This is an important reminder, since as big data analytics have impacted social research, the critical perspective reminds us *not* to trust data at face value by welcoming and accepting different narratives and meanings. This means also, as Broussard points out (2024:2), that computers can merely calculate mathematical notions of fairness and that "mathematical truth and social truth are fundamentally different systems of logic". Every now and then we are reminded about glitches in the datafied systems that put too much trust in data and often reduce human lives to numbers and indicators. For instance, an attempt to introduce a brand-new electronic health record system in November 2024 in western Sweden has been met with protests from both patients and medical personnel, who worry it is putting more trust in IT expertise and potentially marginalising patients' and doctors' perspectives (cf. Falk 2024). Cases like this illustrate that data can only become meaningful if it is interpreted with the help of professionals like medical doctors, not IT data experts and systems developers. Also in research, we should not underestimate the importance of interpretive approaches that were once dominant in social sciences, such as sociology and anthropology. The classic notion of "thick descriptions" (Geertz 1973) invites scholars to gain access to the conceptual world of socially established structures of meaning, not necessarily to provide all the answers, but rather to make others' answers available. The symbolic dimensions of social action can hardly be examined with the help of big data analytics. Already in 1973 Geertz had been suspicious of data-driven epistemologies by saying that "I have never been impressed (…) with claims that structural linguistics, computer engineering, or some other advanced form of thought is going to enable us to understand men *without knowing* them" (Geertz 1973:323, emphasis added). Today, over fifty years later, when AI technologies are on the rise, this sentiment can still serve as a reminder that attentiveness to glitches can be productive and helpful in connecting the dots between the data, social practices and social actors behind them.

Seeing the people behind the machine

Despite the widespread notion that most digital technologies come from Silicon Valley, are flashy and working seamlessly, this is seldom the case. Most tech innovation and software are developed globally, outside of California. Cracks and breaks are an everyday occurrence rather than an exception. And yet corporate tech cultures tend to celebrate success and innovation rather than the workers who stay for maintenance, repair and preservation, and focus on delivering software that is "good enough" (cf. Bialski 2024). So far, much research within critical data studies has been focused on the "data elite" including data activists, hackers and knowledge workers (Schrock 2016; Lehtiniemi & Ruckenstein 2019). Attentiveness to glitches and cracks in everyday technology, including its developers, can be a useful way to shift focus towards more "regular" social actors and everyday life in datafied societies as well as to the materialities of digital infrastructures. It is also a question of shedding light on the social agency behind the machines.

Datafication is as much about the new regimes of control, discrimination and exclusion as it is about resistance to them, by feeding data back to users to enhance their agency. For instance, Kennedy, Poell & van Dijck (2015) argue that the question of social agency should be central to our engagement with big data because "data subjects may be citizens or consumers, professionals, or amateurs, conscious hackers or unwitting bystanders as data streams increasingly direct our everyday lives" (ibid. 6). Also, Couldry and Powell (2014) urge for a more agent-focused big data perspective with space to examine how social actors make use of, for example, their online presence, by producing online content; but also how data is produced without users' consent or at least deeper insight into the data extraction process. In other words, the big data approach from the bottom up implies understanding that individuals and their private troubles are inherently connected to the public issues that these individuals are experiencing and are subjected to. Here again, attentiveness to glitches can be useful for examining data versus agency entanglements, risks and gains as well as opportunities of data sharing and creating.

Additionally, one can emphasise social agency by making use of social actors' own point of view and sense of justice. This is the approach suggested by Boltansky (2011) in his sociology of critique approach which refocuses scholarly attention on actors *en situation* (ibid. 24). Boltansky argues that "by adopting the viewpoint of the actor, the sociologist can in fact cast a normative glance at the world, without it being guided either by her personal prejudices (…) or by the adoption of a substantive moral philosophy" (ibid. 30). In his understanding of critique as a motor of transformation, Boltansky emphasises the fact that social critique can pinpoint the gaps (or glitches) between what the given system or innovation *promises* and what it is able to *deliver*. This approach can be particularly useful when, for instance, examining and evaluating the actual impact of various automation systems implemented in the context of public service provision of the digital welfare state or technology users' own understandings and experiences of digitisation or datafication (cf. Kania-Lundholm & Torres, 2018).

By employing such an approach, scholars can not only expand their empirical horizons by focusing on social agency, but also become more sensitive to questions about living in datafied, automated societies and how social actors continuously, and not without challenges, navigate them.

Glitch as the catalyst for public knowledge and awareness

In has been over twenty years since 2004 when sociologist – then president of the American Sociological Association (ASA) – Michael Burawoy delivered his speech calling for a disciplinary embrace of public sociology (cf. Burawoy 2005). Although he was not the first one by far to engage in the emancipatory and critical practice of public sociology, his task was to reinvigorate this branch of sociology and encourage colleagues to engage with issues that were, at the time, relevant for both public and political concerns. One of the main missions of public sociology, according to Burawoy, has been to revitalise the discipline from within by addressing different audiences and important public issues with the goal of defending and strengthening the institutions of civil society against the encroachment of both state and market. At the heart of engagement with public sociology has been the type of critique that invites the sociological imagination to pose questions about what has been, what is, but also what could be in the future and imagine what could be otherwise. Today, over twenty years after Burawoy's call, facing the "age of big data" we are perhaps even more than ever in need of public sociology and engagement touching upon contexts, conditions and most importantly, consequences of datafication.

One of the current challenges is not only the rise of new forms of control and the imperative to reimagine the infrastructural arrangements that support it, but even more importantly, the knowledge production and practices with which they are associated (Andrejevic 2013:165). This implies, for example, new challenges but also opportunities that emerge in relation to new forms of user-generated and naturally occurring social data. Since disciplinary boundaries have become increasingly porous, sociology's place and role in critical data studies has been previously acknowledged in the context of the Collaborative Online Social Media Observatory (COSMOS), an open platform for social data analysis providing resources for public sociology, based on citizen participation (see Housley *et al*. 2014). Issues of public concern such as data privacy, state or corporate control and surveillance that have become matters of public sociology require collaborative knowledge production practices and engagement by multiple publics including scientists, journalists, activists, community members and others. It also asks for collaboration across a variety of disciplines stretching across philosophy, sociology, political science, media studies, geography, computer science, engineering, law and other professions working at the intersection of technology and society. Examples of an ongoing work include *The Algorithmic Justice League* (ajl.org) whose mission it is to "raise awareness about the impacts of AI, equip advocates with empirical research, build the voice and choice of the most impacted communities, and galvanize researchers, policy makers, and industry practitioners to mitigate AI harms

and biases". Other initiatives include *European Digital Rights Watch* or a UK- based *Open Rights Watch*, both working to protect citizens' right to privacy and free online speech.

These and many other initiatives start with the notion that it is the citizens' right and responsibility to stay informed and up to date with AI developments, to shed light on often hidden social implications and harms that AI brings. In other words, to peek behind the, sometimes random, glitches and cracks that come to the surface.

The task of public sociology in the context of datafied societies could be to provide guidance, critique, conceptual and analytical tools allowing us to look "beyond the glitch" into the social structures and power relations of technological systems. It can mean reinvigorating the classical technology critique and such concepts as *technological rationality* (Marcuse 1982 [1941]). Doing public sociology can also mean making noise and raising awareness about the already ongoing work on tech equity projects, like the ones on algorithmic accountability and audit (Donovan *et al*. 2018; Brown, Davidovic & Hasan 2021), data justice (Dencik *et al.* 2019), AI ethics (Crawford & Schultz 2024) and public interest technology (Broussard 2024). Last but not least, the task could be to continue contributing to the social scientific critique of the "computational turn" (cf. boyd & Crawford 2012) by recognising that technological innovation and social progress are not necessarily always synonymous with each other. In this context, it is important to remember that, as Broussard says "[i]nnovation and social progress are not the same thing. Using more technology does not bring about social progress if the technology causes algorithmic harms or reverses hard-won civil rights advances" (2024:172). This is an important reminder when considering various technological solutions to socially relevant problems and even more importantly the tasks for public sociology to engage with.

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It is virtually impossible to underestimate the social impact of technological innovation and advancement in technical communication over the past decades. A common denominator of what has been defined as digital or datafied society is often the "unprecedented speed" of data and information flow through global networks (Redshaw 2020). The speed of social change that accompanies these developments progresses at a much slower pace, and yet in public discourse, tech innovations are often rendered effective and useful tools in dealing with numerous social issues or problems such as crime prevention, public decision making or predictive analytics of networking platforms. In most cases these technologies and the results they deliver are taken for granted, and materialise in algorithmic recommendations, citizen profiling or sophisticated language models that can answer random questions on the internet. However, when things go wrong, the "slips" or "glitches" that are at times an easy technological fix become symptomatic signs of the social impact of technologies themselves and/or of the social conditions and structures under which they were designed.

In one of the cult scenes of the classic action sci-fi film *Matrix* from 1999, the main

character Neo encounters the same black cat twice in a matter of a few seconds and suspects he has just experienced a *déjà vu* moment. He is quickly made aware of that it was possibly "a glitch in the matrix that happens when they change something". The phrase "glitch in the Matrix" has become pop cultural shorthand for an occurrence that is unusual and cannot be logically explained, something that does not quite match what we know about the reality around us. Glitch also generates an eerie feeling that something is not quite right, even though we perhaps have difficulty articulating what is wrong. It is a reminder that technological systems do break, are never flawless and as smoothly operating as some would like us to believe. As the critical scholarship discussed in this article has shown, looking beyond the glitch is more than just pointing out the brokenness, even though it often begins there. By raising awareness about algorithmic biases, problems with datafied systems' reliability, platform economies, social/digital inequalities and the broader consequences of algorithmic governance, scholars offer a critique that implies potential for change and transformation. Looking beyond the glitch becomes not only seeing more than just flaws on the surface, but also becomes a sociological imperative to once again reimagine technologies with and for people.

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