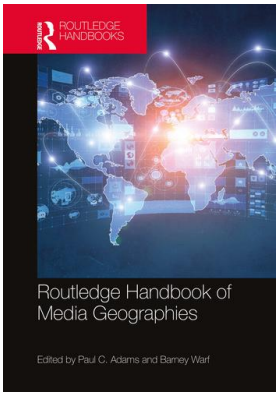

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DIGITAL SURVEILLANCE AND PLACE

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In the past few decades, surveillance and securitization have seen substantial changes with the introduction of a suite of digital technologies into the security arsenals of governments, corporations and citizens. These shifts have changed the governance mechanisms that direct control over spaces and people, and have profoundly impacted on people's experiences of safety, threat and privacy in place. In turn, technological and institutional responses to new forms of surveillance have reshaped the character of geographical work on surveillance. Importantly, geographers have moved away from research focused on dyadic relationships between governments and citizens to conceptualize more complex constellations of actors and technologies, and have adapted their methodological approaches to follow suit (e.g. Adey et al. 2013; Spiller 2016).

Surveillance means "to watch from above," and the concept has long been associated with an institution's control over an enclosed space such as a school, prison or factory (Galič et al. 2017). The interest of geographers in surveillance aligns with the discipline's longstanding interests in the role of the state, the production of territory and the circulation of power through governance technologies and practices. The insight into surveillance produced by geographers goes beyond the mere control over space that is implied in visual monitoring. Geographers also analyze how practices and technologies of surveillance shape the very spaces that are being monitored (Graham 1998; Koskela 2000; Kitchin & Dodge 2011; Pink & Fors 2017; Crampton et al. 2020). Put in other words, geographers understand that "[s]urveillance relates to, focuses on and projects itself into space, becomes inscribed there, and in the process contributes to the very production of the spaces concerned" (Klauser 2013, 275). Geographers study how, as digital technologies change the ways surveillance is practiced, the characteristics of place change too, including its power relationships, laws regulating property and privacy, opportunities for profit accumulation, and its affective atmospheres (Adey et al. 2013; Leszczynski 2016).

This chapter considers how geographical work changes as technologies digitize and surveillance practices change. The chapter demonstrates how geographers adapt their conceptualization of surveillance as digital technologies obscure the boundaries between the watcher and the watched. The chapter highlights the conceptual toolkits and methodological skillsets that allow media geographers to analyze how people are differently and unequally governed, empowered and curtailed as digital surveillance technologies are becoming an

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increasingly constant and active presence in everyday spaces. The chapter considers aspects of surveillance ranging from commercial applications of digital surveillance to the collaboration of many ordinary people in surveillance. To start, the next section offers a discussion of the theoretical foundations of work on digital surveillance in geography.

From moulds to modulation

Geographers' engagement with the concept of surveillance predates the emergence of digital surveillance technologies. While surveillance practices have been prominent throughout history, modern forms of surveillance are distinct because of their emphasis on individuation, and because of the sheer volume and continuity of data collection that can be achieved (Poster 1990; Graham & Murakami Wood 2003; Lyon 2006). These changes have led to a quest, both in geographical work on surveillance and in the interdisciplinary field of surveillance studies, for suitable social theories to help understand digital surveillance, its subjects, technologies, spaces and effects. Both fields have been strongly shaped by Michel Foucault's *Discipline and Punish* (1991 [1979]) (for discussions see Dobson & Fisher 2007; Galič et al. 2017).

One of Foucault's central objectives was to analyze the workings of the modern state and its modes of government. In Foucault's view, a government's control over subjects is achieved by its ability to collect information. In line with this, Foucault based his thinking on power, discipline and surveillance in society at large on the practices and power relationships that govern institutions such as schools and hospitals. Foucault's thinking about surveillance was inspired by Jeremy Bentham's (1748–1832) architectural diagram of the panopticon. Bentham was a utilitarian philosopher and social reformer who developed the idea of the panopticon as a model for institutional buildings in which one overseer has constant visual access to all the subjects in its interior, while those subjects cannot see the overseer. In a panopticon, subjects are aware that they are under constant surveillance, but they do not know at which exact moment they are being watched. According to Foucault, this constant one-directional gaze combined with subjects' awareness of being judged against a set of norms and expectations makes subjects internalize those norms.

Foucault used Bentham's model to develop his theory of the disciplinary society, in which he argues that people increasingly govern themselves in modern society because of the presence, or threat, of constant surveillance and judgement (Foucault 1991). He focused on institutions such as schools and prisons and documented how institutions communicate expectations and rules, and he analyzed institutional practices such as record-keeping and reporting that create ways of knowing and measuring a population. Foucault argued that in performing these practices of surveillance, governments encourage individuals to fit into the normative mould. Foucault's thinking offered a radical break from scholarship that emphasized coercive qualities of surveillance.

Foucault's work became highly influential because of the technological developments that occurred shortly after the publication of his theory on the disciplinary society. Foucault developed his thinking on power and surveillance throughout the 1970s and 1980s, and this coincided with the introduction of computers and cameras into everyday spaces. The 1990s saw an exponential increase of CCTV cameras in public spaces in many countries including the US and the UK, and CCTV systems have many panoptic qualities (e.g. Fyfe & Bannister 1996; Koskela 2000). The bold presence of cameras in public spaces makes it obvious that one might be watched, while cameras do not disclose exactly when the watching occurs. Another panoptic quality of CCTV is its objective to punish people who present deviant

behavior, or better still, to change people's behavior preventively so that no deviance occurs. These similarities between Foucault's theory and developments in surveillance technologies have led to a strong panoptic paradigm in studies of surveillance, and scholarship on CCTV can be considered the start of the contemporary geographical literature on surveillance (also see Graham & Murakami Wood 2003).

Since the introduction of CCTV into public spaces, surveillance has changed in multiple ways. Where the surveillant parties in Bentham and Foucault's panopticon were either a government institution or a corporation, contemporary surveillance is performed by complex partnerships consisting of governments, technologies and corporations. Furthermore, subjects under surveillance are increasingly encouraged to use digital technologies to collaborate in surveillance, for example, by monitoring themselves or their peers (Albrechtslund & Lauritsen 2013). With the collection of digital data, surveillance is "no longer limited to single buildings, and observations no longer limited to line of sight" (Gandy 1993, 23). This has inspired geographers and social theorists to critique Foucault's theory of the disciplinary society for being too preoccupied with visual forms of surveillance, and the theory is increasingly seen as unsuitable for the study of networked, algorithmic and multi-actor forms of surveillance (Poster 1990; Hardt & Negri 2000). Some adapt Foucauldian theories to new technologies and governance mechanisms, for example by putting forward the idea of a superpanopticon (Poster 1990), a sorting panopticon (Gandy 2003), or by combining various theoretical adaptations (Murakami Wood 2013). Others have abandoned Foucault's disciplinary society and its panoptic paradigm altogether to replace it with theories that emphasize the networked character of contemporary societies and their practices of surveillance.

Geographers are increasingly turning their attention to social theorists who conceptualize relationships between technology and society, especially Gilles Deleuze and Bruno Latour. While not explicitly focused on surveillance, the work of Deleuze and his collaborator Félix Guattari has been critically important for understanding the multiplicity and instability of digital forms of surveillance (Haggerty & Ericson 2000; Lyon 2006). Their concept of the assemblage captures systems of governance that lack clear boundaries and that consist of heterogeneous objects that come together to function as a whole in unforeseen ways (Patton 1994 cited in Haggerty & Ericson 2000). The assemblage has proven a fitting concept to analyze surveillance systems that exist at the intersections of various media that can be brought together and used for unforeseen purposes (Haggerty & Ericson 2000). Surveillance lurks in these systems as mere potential until an opportunity for surveillance presents itself and connections between systems are made.

Digital technologies have given rise to forms of surveillance that seem anonymous and benign because it does not target specific individuals. The collection of deidentified information is unlikely to spark resistance as privacy is predominantly understood as the protection of an individual against intrusion. Instead of honing in on individuals, data-driven surveillance involves collecting extensive information on individuals and dividing this information into segments. Ostensibly very personal experiences such as desires, fears and needs can be predicted based on combinations of people's age, education, gender, credit rating, recent purchases, marital status, postcode, etc. This information can be used to control people's collective behavior, for instance via targeted promotions and electoral advertisements. Deleuze (1992) introduced the concept on the "dividual" to describe the data doubles that emerge as people's individual information is sliced up. The concept marks the end of a period in the social sciences where the individual was deemed the smallest unit to which society can be reduced and explains the need for new forms of collective organizing and resistance in the face of this kind of divisive control.

Deleuze called the process by which large data sets are organized into categories and patterns to gain social control "modulation." Modulation allows surveillant parties to intervene in society's flows and rhythms unknowingly, because interventions are not presented as a response to an individuals' actions. Surveillance is carefully concealed so that people might experience the consequences of surveillance without knowing that surveillance occurred. The control of organizations and companies that collect data on users and customers is thus one-sided, and it forms a threat to democracy because it inhibits collective action and shared forms of control (Andrejevic 2007). In *Postscript on the Societies of Control* (1992) Deleuze stipulated that this kind of undetected surveillance is made possible by an illusion of freedom, and he suggested a break from Foucault's disciplinary society in which the subjects' awareness of surveillance is understood as an instrumental component of projects of surveillance.

A second philosopher who features prominently in geographical work on surveillance is Bruno Latour. Latour responded to Foucault's work by pointing out that surveillance is partial, fragile and prone to failure (see Albrechtslund & Lauritsen 2013). Where Foucault conceptualized all-seeing surveillant institutions, Latour argued that modern surveillance mechanisms do not see everything (pan), but very little (oligo) as digital sensors and devices function in oligopticons that only pick up particular kinds of information that are then isolated from their context (Latour & Hermant 1998). Latour's actor network theory (Latour 2005) conceptualizes the interactions between components in a network, and the theory is used in geographies of surveillance to understand how various people—such as staff, consumers and police—and material objects—such as digital sensors and smartphones—participate in surveillance (Adey 2004; Albrechtslund & Lauritsen 2013). Geographers use these theories of society and technology to analyze how digital surveillance shapes spaces, whether private (Kennedy & Strengers 2020), public (Minton 2018) or liminal (e.g. Crampton et al. 2020).

Ubiquitous computing and the de-territorialized subject

It is difficult to underestimate the reach of digital surveillance technologies and practices. Surveillant assemblages can include the data sets of multiple government and commercial parties, and surveillance systems thus transcend institutional boundaries. Collectively, the surveillant assemblage then consists of CCTV cameras, smart loyalty cards, number plate recognition technology, location and timestamped credit card information, public transport e-tickets, census data, social media profiles, our personal smartphones and the list goes on. This pervasiveness has brought on the "disappearance of disappearance" (Haggerty & Ericson 2000, 619), the disappearance of the possibility for anyone to go off the proverbial radar. Geographers study the accomplishment and the consequences of this omnipresence, its uneven spatial effects and its impact on subjective experiences of place (e.g. Vanolo 2014; Kitchin 2015; Sadowski & Pasquale 2015; Datta & Odendaal 2019).

The collection of large quantities of data, or Big Data, has motivated the collectors of that data to develop way to organize this data into meaningful and manageable units. When large quantities of data are involved, this sorting is commonly done by algorithms that are programmed to recognize patterns, that organize data by placing people into categories, or that sound an alarm when a combination of factors occurs (see Eubanks 2018). Geographers demonstrate how digitization has reworked the spaces and temporalities of surveillance. For example, when digital technologies allow authorities to collect excessive amounts of data to find people who break a certain rule, this information remains available to penalize people who deviate in other ways in the future (Swanlund & Schuurman 2019). This kind of design creep, where data is used for unintended purposes, makes surveillance mechanisms unpredictable. Data doubles and consumer

profiles attach to a person unknowingly as they move through time and space, only to reveal their existence when access, for instance to credit, is denied (e.g. Graham & Murakami Wood 2003; Maalsen & Sadowksi 2019). Algorithmic recognition of patterns has led to forms of anticipatory governance where people are watched or confronted because they are expected to deviate from norms (Kitchin 2015). These reworkings of the sequencing of surveillance and discipline are possible because datafied subjects are never completely deterritorialized. Place continues to function as a key that can be used to re-assemble identities. For this reason, some have argued not to farewell the disciplinary society just yet and to focus on how surveillance strategies oscillate between discipline and control (Iveson & Maalsen 2019).

Shifts in the quantity, speed and continuity of data collection have opened up new objectives in surveillance (e.g. Graham 1998; Haggerty & Ericson 2000; Kitchin 2015). Surveillance is performed in the interest of security and law enforcement, but also for the creation of markets for new products and for the efficient and convenient delivery of a wide range of services. Scholars call this latter variety "surveillance capitalism" as it functions to extract data from consumers to add value to a business (Haggerty & Ericson 2000; Zuboff 2015). Geographers have built on the work of David Harvey to illustrate how this extraction is a form of capital accumulation by dispossession and how it alienates workers from the surplus value they create through their labor (Attoh et al. 2019). The parallel existence of surveillance for profit and discipline demonstrates that surveillance serves multiple interests simultaneously (Iveson & Maalsen 2019). The pervasiveness of surveillance and the mix of objectives it serves contribute to the acceptability of widespread intrusion. Leszczynski (2015) has put forward for instance that people do not resist surveillance and accept the necessity to disclose personal information to governments and businesses because it seems necessary for cost-effective service delivery. Geographers are interested in how such discursive constructs expand the spatial reach of surveillance and shift articulations of power. At the same time geographers highlight the subjective experience of surveillance by registering people's anxieties about being tracked and by analyzing spatial and emotional responses (Koskela 2002; Leszczynski 2015).

With the ubiquity of surveillance technologies, groups of people are being watched who were not monitored before. Haggerty and Ericson have argued that:

> [i]ndividuals with different financial practices, education and lifestyle will come into contact with different institutions and hence be subject to unique combinations of surveillance. The classifications and profiles that are entered into these disparate systems correspond with, and reinforce, differential levels of access, treatment and mobility.
>
> *(Haggerty & Ericson 2000, 618)*

Geographers take an interest in how surveillance interacts with existing axes of difference and inequality. While everyone is being watched in some form, the effects on different groups of people, such as welfare recipients, women and people for color, are starkly uneven (e.g. Koskela 2002; Leszczynski 2016). For instance, geographers have speculated and analyzed how surveillance is used to ban non-consumers or exclude people from spaces who are otherwise deemed undesirable (see Hatuka & Toch 2017). Geographers have also been persistently concerned with the possibilities of using surveillance technologies to increase the cost of insurance for those who can least afford it (e.g. Graham & Murakami Wood 2003; Maalsen & Sadowski 2019). The discipline's social justice concerns are going beyond issues of privacy and seek to understand how digital surveillance informs neoliberal governance

regimes in which inequalities are actively reproduced while government responsibilities are devolved to the private sector.

Public-private surveillance assemblages

Social and cultural geographers have a rich tradition of researching citizenship and the changing role of the state as governments privatize public services and devolve responsibilities to local authorities and individual citizens. While securitization is deemed part of governments' responsibilities even in small government ideologies, surveillance is now commonly performed in collaborations between government and civil parties. For example, in their attempts to identify offenders, police increasingly request access to data that is collected by companies. Police departments have been known to use video footage of crowds posted to websites such as YouTube and Twitter to identify protestors or offenders and increasingly turn to digitally organized community groups on platforms such as Facebook and WhatsApp for assistance with surveillance (Kelly & Finlayson 2015; Van Holstein 2018). As a result, the boundaries between what counts as public and private have blurred and geographers analyze the shifts in power geometries this creates.

Surveillance digitization has led to increasingly complex relationships between governments and private companies as companies develop the technologies that gather the data that governments want to use. Concepts such as the "hybrid state" and "security assemblages" have been put forward to conceptualize partnerships between private parties and the state (e.g. Colona & Jaffe 2016) and help make sense of the incorporation of citizens, tech companies and a range of electronic devices into increasingly complex surveillance networks. A good recent example emerged when multiple police departments in the US were found to be collaborating with Amazon to access their customers' digital front door camera footage. Ring, Amazon's home surveillance company, was found to provide police with a portal where it can directly request access to footage from individual consumers. The company was also found to coach police officers in techniques to persuade consumers to grant access to this material, equipping police to sidestep the need for warrants and subpoenas. Because the police tap into an existing system, rather than create their own, they have effectively expanded the state's surveillance network without any of scrutiny or accountability that would otherwise be expected from a government institution (Haskins 2019; Perez 2019). The use of third-party digital information for surveillance is prompting legal scholars to reassess laws, such as the fourth amendment in the context of the US, that rely on three-dimensional conceptions of space and reasonable expectations of privacy to protect citizens' rights (e.g. Curry 1997). Geographers have important contributions to make to understanding the new relationships of power that digital technologies afford and how different conceptualizations of place shape those relationships.

The advent of digital technologies in surveillance coincided with the widespread privatization of public services and spaces (Graham & Murakami Wood 2003). The privatization of public services has changed how services are offered, for example by making services available first and most conveniently to premium paying customers. This process was first identified and conceptualized by geographers Graham and Marvin (2001) in their book *Splintering Urbanism*. The framework has provided insight into how data is used, for instance, to give certain customers priority in internet or telephone queues or to treat undesirable customers unfavorably. They point out that the widespread structural discrimination of entire categories of service users was made possible by the digitization of surveillance. The new digital surveillance assemblage coincides with a new political economy of consumer citizenship in which people's rights depend on their ability to pay for a service. Furthermore, for-profit

services that are delivered based on consumer-generated data are most likely to suit people who are represented in that data set, and can overlook people who did not generate data, for example because they do not own a phone.

As digital technologies have blurred the boundaries between government and commercial surveillance practices, so too have they obscured the visibility of surveillance itself. As argued by Deleuze (1992), contemporary surveillance is carried out under the guise of freedom and empowerment. Tech companies and governments have an interest in making citizens feel like they have choice, for instance to contribute to safety in their neighborhood by volunteering their footage to police. Geographers have been very eager to point out how these changes effectively transfer state responsibilities to citizens. With the ostensible increase in freedom to do whatever one wants, the responsibility for social outcomes shifts away from public institutions and towards individual citizens. This creates new opportunities for surveillance and ways to legitimize it; Ring using the idea of the good citizen who takes responsibility for security is a case in point. Geographers analyze the processes through which services persuade consumers to self-monitor behaviors. Work has highlighted how smart energy meters give consumers insight into their energy usage in ways that create a sense of responsibility for an environmentally sustainable footprint (Levenda 2019), and geographers analyze how self-tracking devices change people's relationships to their bodies, health and surroundings (Pink & Fors 2017). Geographers analyze these shifting relationships between citizens and governments and have been consistently interested in citizens' seemingly voluntary contribution to the growth of surveillant assemblages.

Participatory surveillance

While any system of surveillance requires the participation of various actors and technologies, albeit only to internalize normative judgement (Albrechtslund & Lauritsen 2013), digital systems have made participation in surveillance widespread and acceptable. As people participate in surveillance by sharing personal information with various digital platforms and communities, they have been converted into suppliers of valuable data that can be commodified and otherwise capitalized on by corporate parties (Attoh et al. 2019). With the purchase and installation of each iWatch, FitBit, smart energy meter and home surveillance system, the internet of things expands (Maalsen & Sadowski 2019). Consumers are thus facilitating the strengthening of a leviathan surveillance network that for its corporate shareholder ownership is subject to very little scrutiny.

Contemporary surveillance networks and databases are not organized in a panoptic, top-down fashion. Individuals are not just disciplined; rather they actively participate in their own surveillance by contributing information to databases. These practices are captured in the concept "participatory surveillance" (Poster 1990). Participation raises important questions for geographers about scale and the circulation of power through surveillance. For example, Albrechtslund (2008) has argued that self-surveillance in the form of the sharing of information, activities and preferences can potentially empower and not only violate or exploit the user. Sharing information with wider networks of users can be an identity-shaping practice and a way to motivate oneself (Albrechtslund & Lauritsen 2013). In line with this, surveillance scholars interpret surveillance as a cultural practice that is normalized and rendered meaningful through cultural expressions such as reality television and consumer ratings (Staples 1997; Lyon 2018). Participation in surveillance thus becomes acceptable through wider digitally mediated social environments that comprise digital entertainment, convenience and gamification. It is not always obvious who are the powerful and the powerless ones in these networks (also see Molz 2006).

In addition to consumers generating and sharing data, participation in surveillance also takes more active forms. Some citizens are willing to use digital technologies to assist police departments in their work by becoming the proverbial eyes on the street (Kelly & Finlayson 2015). Citizens can turn to various apps to contribute to securitization, some of which were designed as communication platforms, such as Facebook and WhatsApp, and some of which were explicitly developed for securitization such as "Nextdoor" and Amazon Ring's "Neighbors." Geographers have pointed out that perceptions of risk and strategies for safety are shaped by a combination of personal experience, the shared knowledge of family, friends, neighbors, etc., and the impact of the media, and that security and fear are therefore dynamic, subjective and open to interpretation (England & Simon 2010). Given the subjective experience of security and risk and the role of media and technology therein, the digitization of surveillance practices shift perceptions of risk and responsibilities for security and surveillance (Van Holstein 2018). Algorithmically curated newsfeeds and online community spaces shape the information people are exposed to and this can strengthen existing prejudices and preferences. People's participation in surveillance, whether digitally or not, is thus always mediated by a digital social environment.

Communication technologies that facilitate and encourage people's participation in surveillance often feel secure and familiar because they already play a central role in people's everyday lives. Geographers are interested in people's relationships with technology and have highlighted how technologies are discursively rendered innocent and inherently beneficial (Kitchin & Dodge 2011). The discursive construction of technologies as benign, objective and solution-orientated has worked to stifle objections against their widespread use. People fearing digital surveillance are portrayed as "having something to hide," while surveillance mechanisms are increasingly a part of, or attached to, everyday practices such as shopping, travelling and talking to friends via digital platforms. This while digital surveillance technologies are consistently shown to fail to deliver the objectivity that they promise. For instance, CCTV cameras facilitate racial profiling, and the use of digital apps diverts people away from neighborhoods with ethnically diverse residents and business owners (Adey 2003; Leszczynski 2016). Combined with discursive constructions, the emotional position of technologies used for surveillance further de-politicizes surveillance while it has real effects on people's mobility and opportunities.

Recent and future geographies of digital surveillance

Technological innovation sees surveillance constantly move in new directions and into new spaces, and geographers follow this closely. For example, recent research on surveillance focuses on the penetration of surveillance networks into domestic spaces (Maalsen & Sadowski 2019; Strengers & Kennedy 2020). These explorations create important insights into how surveillance becomes a part of intimate spaces and relationships. This work also reinvigorates an interest in gendered relationships to technologies. Strengers and Kennedy (2020) for instance show how disparities in skill and confidence around technologies create unequal opportunities to engage in surveillance and argue that surveillance technologies become tools that widen gender disparity.

Another example of a novel direction in geographies of digital surveillance is work that analyzes advances in drone technologies used in surveillance. This collection explores concepts of verticality and cloud constellations used in digital surveillance technologies (Elden 2013; Garrett & Anderson 2018). As this work explores the possibilities and politics of drone use for objectives as varied as warfare and conservation, it explores how the spatial concept of

volume and its visualizations become governance instruments (e.g. Monahan & Mokos 2013; Waghorn 2016). Additionally, a focus on surveillance for the purpose of environmental protection is amplifying existing calls in geography to move away from normative approaches to the study of surveillance as this work highlights that surveillance can equally erode and strengthen social justice.

As digital technologies continue to push the boundaries of what is possible in the field of surveillance, geographers continue to seek concepts that capture the ways in which surveillance reshapes social worlds. A series of 2019–2020 events, notably the protests in Hong Kong and Chile and the COVID-19 pandemic, will likely steer research on digital surveillance in new directions. The use of drones in these circumstances and the deployment of technologies such as facial recognition and temperature sensors raises important research questions about power dynamics and forms of resistance that emerge when adversaries use the same technologies (Leistert 2012).

Digitization of surveillance creates new opportunities and challenges for resistance. The concept of the individual plays a crucial role in debates about resistance to surveillance. Digital media facilitates individualization and oftentimes obscures the collective results of individual actions. For example, working with Uber drivers, Attoh and colleagues (2019) demonstrate how these workers create the company's data by driving around cities and how the same technology divides workers making it harder for them to collectively organize. During a strike one driver cannot know whether fellow drivers are striking. This brings to mind Deleuze's (1992) warning that unions can only remain relevant if they devise responses to forms of control that do not rely on an enclosed space. Resistance is not impossible, but it needs to adapt to the digital playing field. Geographers stress the possibility for sousveillance whereby citizens turn the gaze of surveillance up to those in power such as politicians and the police (Waghorn 2016). Other tactics and strategies for resistance discussed in this line of work are the minimization of exposure to surveillance, for example by using encryption, or by obfuscation where users deliberately add false information to databases to make them less accurate and therefore less valuable (Swanlund & Schuurman 2019). As the omnipresence of digital technologies creates feelings of powerlessness and inevitability in the face of surveillance, work on resistance is of critical importance moving forward.

To close, it is important that geographers reflect on their own role in surveillance. New digital methods available to geographers come with opportunities to experiment, and this opens geographers up to encountering unexpected information. For instance, geographers have asked participants to install apps that share the participants' locations with researchers (Hatuka & Toch 2017) and geographers who use social media platforms such as Facebook know that this makes it harder to draw boundaries around research practice both in terms of when research happens and where it is to take place (De Jong 2015). In this field of new possibilities, ethical slippage is likely to occur, and geographers have a heightened responsibility to reflect on their own research conduct in this light. After all, as geographers use existing technologies and networks in research, they too contribute to the expansion of a surveillant assemblage that is at best only partially under their control.

References

Adey, P. 2003. Secured and sorted mobilities: Examples from the airport. *Surveillance & Society*, 1 (4), 500–519.

Adey, P. 2004. Surveillance at the airport: Surveilling mobility/mobilising surveillance. *Environment and Planning A*, 36 (8), 1365–1380.

Adey, P., Brayer, L., Masson, D., Murphy, P., Simpson, P., and Tixier, N. 2013. "Pour votre tranquillité": Ambiance, atmosphere, and surveillance. *Geoforum*, 49, 299–309.

Albrechtslund, A. 2008. Online social networking as participatory surveillance. *First Monday* 13 (3). https://doi.org/10.5210/fm.v13i3.2142.

Albrechtslund, A., and Lauritsen, P. 2013. Spaces of everyday surveillance: Unfolding an analytical concept of participation. *Geoforum*, 49, 310–316.

Andrejevic, M. 2007. *iSpy: Surveillance and power in the interactive era*. Lawrence, KS: University Press of Kansas.

Attoh, K., Wells, K., and Cullen, D. 2019. "We're building their data": Labor, alienation, and idiocy in the smart city. *Environment and Planning D: Society and Space*, 37 (6), 1007–1024.

Colona, F., and Jaffe, R. 2016. Hybrid governance arrangements. *European Journal of Development Research*, 28, 175–183.

Crampton, J. W., Hoover, K. C., Smith, H., Graham, S., and Berbesque, J. C. 2020. Smart festivals? Security and freedom for well-being in urban smart spaces. *Annals of the American Association of Geographers*, 110 (2), 360–370.

Curry, M. R. 1997. The digital individual and the private realm. *Annals of the Association of American Geographers*, 87 (4), 681–699.

Datta, A., and Odendaal, N. 2019. Smart cities and the banality of power. *Environment and Planning D: Society and Space*, 37 (3), 387–392.

De Jong, A. 2015. Using Facebook as a space for storytelling in geographical research. *Geographical Research*, 53 (2), 211–223.

Deleuze, G. 1992. Postscript on the societies of control. *October*, 59, 3–7.

Dobson, J., and Fisher, P. 2007. The panopticon's changing geography. *The Geographical Review*, 97 (3), 307–323.

Elden, S. 2013. Secure the volume: Vertical geopolitics and the depth of power. *Political Geography*, 34, 35–51.

England, M. R., and Simon, S. 2010. Scary cities: Urban geographies of fear, difference and belonging. *Social & Cultural Geography*, 11, 201–207.

Eubanks, V. 2017. *Automating inequality: How high-tech tools profile, police, and punish the poor*. New York: St Martin's Press.

Foucault, M. 1991 [1979]. *Discipline and punish: The birth of the prison*. London: Penguin.

Fyfe, N. R., and Bannister, J. 1996. City watching: Closed circuit television surveillance in public spaces. *Area*, 28, 37–46.

Galič, M., Timan, T., and Koops, B. J. 2017. Bentham, Deleuze and beyond: An overview of surveillance theories from the Panopticon to participation. *Philosophy and Technology*, 30 (1), 9–37.

Gandy, O. H. 1993. *The panoptic sort: A Political economy of personal information*. Boulder, CO: Westview.

Garrett, B., and Anderson, K. 2018. Drone methodologies: Taking flight in human and physical geography. *Transactions of the Institute of British Geographers*, 43 (3), 341–359.

Graham, S. 1998. Spaces of surveillant-simulation: New technologies, digital representations, and material geographies. *Environment and Planning D: Society and Space*, 16 (4), 483–504.

Graham, S., and Marvin, S. 2001. *Splintering urbanism: Networked infrastructures, technological mobilities and the urban condition*. London: Routledge.

Graham, S., and Murakami Wood, D. 2003. Digitizing surveillance: Categorization, space, inequality. *Critical Social Policy*, 23 (2), 227–248.

Haggerty, K. D., and Ericson, R. V. 2000. The surveillant assemblage. *British Journal of Sociology*, 51 (4), 605–622.

Hardt, M., and Negri, A. 2000. *Empire*. Cambridge, MA: Harvard University Press.

Haskins, C. 2019. *Amazon is coaching cops on how to obtain surveillance footage without a warrant*. www.vice.com/en_us/article/43kga3/amazon-is-coaching-cops-on-how-to-obtain-surveillance-footage-without-a-warrant?xyz.

Hatuka, T., and Toch, E. 2017. Being visible in public space: The normalisation of asymmetrical visibility. *Urban Studies*, 54 (4), 984–998.

Iveson, K., and Maalsen, S. 2019. Social control in the networked city: Datafied dividuals, disciplined individuals and powers of assembly. *Environment and Planning D: Society and Space*, 37 (2), 331–349.

Kelly, A., and Finlayson, A. 2015. Can Facebook save Neighbourhood Watch? *The Police Journal*, 88, 65–77.

Kitchin, R. 2015. *Continuous geosurveillance in the "smart city."* http://dismagazine.com/dystopia/73066/rob-kitchin-spatial-big-data-and-geosurveillance/.

Kitchin, R., and Dodge, M. 2011. *Code/space: Software and everyday life*. Cambridge, MA: MIT Press.
Klauser, F. R. 2013. Political geographies of surveillance. *Geoforum*, 49, 275–278.
Koskela, H. 2000. "The gaze without eyes": Video-surveillance and the changing nature of urban space. *Progress in Human Geography*, 24 (2), 243–265.
Koskela, H. 2002. Video surveillance, gender, and the safety of public urban space: "Peeping Tom" goes high tech? *Urban Geography*, 23 (3), 257–278.
Latour, B. 2005. *Reassembling the social: An introduction to actor network theory*. Oxford: Oxford University Press.
Latour, B., and Hermant, E. 1998. *Paris ville invisible*. Paris: Institut Synthélabo.
Leistert, O. 2012. Resistance against cyber-surveillance within social movements and how surveillance adapts. *Surveillance & Society*, 9 (4), 441–456.
Leszczynski, A. 2015. Spatial big data and anxieties of control. *Environment and Planning D: Society and Space*, 33 (6), 965–984.
Leszczynski, A. 2016. Speculative futures: Cities, data, and governance beyond smart urbanism. *Environment and Planning A*, 48, 1691–1708.
Levenda, A. M. 2019. Thinking critically about smart city experimentation: Entrepreneurialism and responsibilization in urban living labs. *Local Environment*, 24 (7), 565–579.
Lyon, D. 2006. *Theorizing surveillance: The panopticon and beyond*. Portland, OR: Willan Publishing.
Lyon, D. 2018. *The culture of surveillance: Watching as a way of life*. Hoboken, NJ: Wiley.
Maalsen, S., and Sadowski, J. 2019. The smart home on FIRE: Amplifying and accelerating domestic surveillance. *Surveillance and Society*, 17 (1–2), 118–124. https://doi.org/10.24908/ss.v17i1/2.12925.
Minton, A. 2018. The paradox of safety and fear: Security in public space. *Architectural Design*, 88 (3), 84–91.
Molz, J. G. 2006. "Watch us wander": Mobile surveillance and the surveillance of mobility. *Environment and Planning A*, 38 (2), 377–393.
Monahan, T., and Mokos, J. T. 2013. Crowdsourcing urban surveillance: The development of homeland security markets for environmental sensor networks. *Geoforum*, 49, 279–288.
Murakami Wood, D. 2013. What is global surveillance? Towards a relational political economy of the global surveillant assemblage. *Geoforum*, 49, 317–326.
Perez, S. 2019. *Over 30 civil rights groups demand an end to Amazon Ring's police partnerships*. https://techcrunch.com/2019/10/08/over-30-civil-rights-groups-demand-an-end-to-amazon-rings-police-partnerships.
Pink, S., and Fors, V. 2017. Being in a mediated world: Self-tracking and the mind–body–environment. *Cultural Geographies*, 24 (3), 375–388.
Poster, M. 1990. *The mode of information: Poststructuralism and social context*. Chicago, IL: University of Chicago Press.
Sadowski, J. 2020. *Too smart: How digital capitalism is extracting data, controlling our lives, and taking over the world*. Cambridge, MA: MIT Press.
Sadowski, J., and Pasquale, F. 2015. The spectrum of control: A social theory of the smart city. *First Monday*, 20 (7), 1–25.
Spiller, K. 2016. Experiences of accessing CCTV data: The urban topologies of subject access requests. *Urban Studies*, 53 (13), 2885–2900.
Staples, W. G. 1997. *The culture of surveillance: Discipline and social control in the United States*. New York: St Martin's Press.
Strengers, Y., and Kennedy, J. 2020. *The smart wife: Why Siri, Alexa, and other smart home devices need a feminist reboot*. Cambridge, MA: MIT Press.
Swanlund, D., and Schuurman, N. 2019. Resisting geosurveillance: A survey of tactics and strategies for spatial privacy. *Progress in Human Geography*, 43 (4), 596–610.
Van Holstein, E. 2018. Digital geographies of grassroots securitisation. *Social & Cultural Geography*, 19 (8), 1097–1105.
Vanolo, A. 2014. Smartmentality: The smart city as disciplinary strategy. *Urban Studies*, 51, 883–898.
Waghorn, N. J. 2016. Watching the watchmen: Resisting drones and the "protester panopticon." *Geographica Helvetica*, 71 (2), 99–108.
Zuboff, S. 2015. Big other: Surveillance capitalism and the prospects of an information civilization. *Journal of Information Technology*, 30, 75–89.