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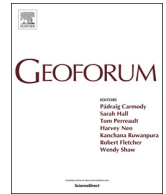
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Curating digital geographies in an era of data colonialism

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ABSTRACT

The spaces of/for (human and non-human) life are inescapably infused and bound up with the digital. The concept of ‘data colonialism’ has emerged against this general backdrop, connecting fruitfully with research on ‘digital geographies’ and a broader ‘critical data studies’ literature. ‘Curation’ is frequently invoked in these contributions, although the experiences taking shape when digital subjects curate digital geographies in an era of data colonialism have not been given sufficient attention. In response, this paper uses an autoethnography of everyday digital practices to probe the possibilities and constraints in play when digital subjects curate digital geographies. The analysis reviews how ‘iterative interplays’ and ‘constellations of contingencies’ are given vitality when digital geographies of ‘flow’ and ‘territory’ are pursued. The paper concludes with observations and provocations for future research on what we might refer to as ‘data curation.’

1. Introduction

The spaces of/for (human and non-human) life are inescapably infused and bound up with the digital: with data, lines of code, and the myriad data flows and transactions that work behind-the-scenes to prompt and conceivably monetize behaviour in stark ways. Data pervade everything, with subjectivities and life chances exposed to and possibly altered by new forms of ‘algorithmic governance’ (Zook and Blankenship, 2018). Novel architectures of automated (and algorithmic) decision-making now sit alongside complex human-software interfaces, thereby giving rise to a ‘planetary cognitive ecology’ (Hayles, 2017) characterised by human societies ‘*enmeshed in cognitive assemblages*’ (p.126; my emphasis), proliferating digital assistants – Alexa, Cortana, Siri, or the new call centre ‘bots’ within Robotistan (Peck, 2017) – and diverse disruptive projects rolled out by firms and governments.

Against this general backdrop, the concept of ‘data colonialism’ brings into sharp relief the gains made by technology firms who colonize, aggregate, and capitalize upon data (Thatcher et al., 2016). The data at issue – collected by firms in expanding ‘reserves of data’ (Cheney-Lippold, 2017) and connected together to form a ‘global assemblage of data flow’ (Pickren, 2016; also Graham, 2014) – are produced by populations when they click or swipe in digital devices and services; when they provide information about actions, tastes, ideas; and ultimately because the human body is now ‘akin to a signalling beacon, continuously leaking details that attest to its circumstances, its mood, its motives, its doings and its whereabouts’ (Smith, 2016, p.118). Populations might be relatively passive and possibly even addicted to

the interactions playing out within these devices (e.g. Kulwin, 2018). They are vulnerable to new forms of political manipulation (e.g. see Howard et al., 2018; Bradshaw and Howard, 2018). But they are certainly subjected to invasive forms of surveillance when they are tracked and analysed by technology firms and governments alike (Zuboff, 2015, 2019). Thus, what makes this process of data capture ‘colonial’ is not so much that it involves alien powers or forces subjugating and controlling indigenous populations, as has been effectively charted by scholars with reference to the last 500 years of European colonial activities (e.g. see Galeano, 1973; Said, 1978; Mamdani, 1996); rather, the sense of ‘colonial’ in play here refers to the way digital subjects are ‘dispossessed and alienated from the very data they generate’ (998) and because accumulation strategies in this process seek to ‘quantify, alienate, and extract conceptions of self’ (1000) *from* those data (on the similar term ‘digital enclosure,’ see also Andrejevic, 2009). This is, therefore, a more general sense of the ‘colonial,’ one in which the race or ethnicity of subjugator/subjugated does not necessarily *directly* matter.

Research on ‘digital geographies’ (e.g. see Ash et al., 2018a; Ford and Graham, 2016; Rose, 2017; Zook, 2017; Zebracki and Luger, 2018) responds to these (and other) developments by pointing out that the ‘digital reshapes many geographies, mediates the production of geographic knowledge, reconfigures research relationships, and itself has many geographies [hence] an *engagement* with the digital develops our collective understandings of cities and development, as well as health, politics, economy, society, culture, and the environment, among others’ (Ash et al., 2019, p.5; my emphasis). Digital geographies research, which is closely associated with the ‘quickly evolving’ (Burns et al., 2018, p.126) field of ‘critical data studies’ (CDS) (e.g. see Dalton and

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Thatcher, 2014; Dalton et al., 2016; Iliadis and Russo, 2016; Burns et al., 2018; Thatcher, 2017; Ettlinger, 2018), invites geographers to develop new insights about the spatiality of digital life.¹

One such invitation is the idea that digital life involves various practices of ‘curation.’ Widely invoked in diverse contributions, the concept arises when ‘curated social media output is resold and monetized as marketing avenues’ by technology firms (Zook, 2017, p.5); when technological developments such as InformaCam express ‘an emerging culture of data collection in which actors on the ground exercise their agency by constructing and curating data...’ (van der Velden, 2015, p.8; see also Ettlinger, 2018); when digital actors are ‘curating stories’ via use of selfies that ‘challenge dominant narratives about gender-based violence’ (Farhadi, 2018, p.141; regarding curation practices on Pinterest, see also Almjeld, 2015); and when ‘the curation of an online branded persona’ becomes germane to the strategies of freelance workers (Gandini, 2016, p.124). Emphasizing curation connects with wider discussions of ‘digital curation’ as a relatively new practice in diverse arenas, such as museums, archives, or in numerous workplaces where digital artefacts or content demand care and attention (Beagrie, 2008; Higgins, 2011). Related to these discussions, moreover, there is a sense in which ‘the explosion of online content and the advent of social networking sites designed to facilitate sharing, have, in essence, turned all of us into content curators’ (Weisgerber and Butler, 2016, p. 1342; also Bhargava, 2009). Finally, curation is highlighted as a key element in the growth of flagship digital firms, such as Netflix. Its ‘data-driven programming’ (Wu, 2015) has been central to attracting and retaining paid subscribers (Fernández-Manzano et al., 2016), as exemplified by its commercially successful original series *House of Cards*, which came about after algorithms were used to identify an opportunity for a political thriller of that type (Hallinan and Striphas 2016).²

In the interest of pursuing ‘an engagement with the digital’ (Ash et al., 2019, p.5; my emphasis), especially the concept of data colonialism, my focus in this paper is on developing how we understand curation. Specifically, I inquire into the notion that digital subjects curate digital geographies, which I define as the active and re-configurable arrangements of digital devices and services enrolled in, and thereby constitutive of, the spaces of everyday life. I ask: What happens and what emerges when subjects curate digital geographies? What comes to light and what possibilities and constraints matter when they produce data and navigate or negotiate data colonialism? What experiences take shape, and what effects spill outward, when actors use, tweak, and re-arrange devices and services? I begin by arguing that curating digital geographies is an everyday practice and constituent component of digital life, which deserves particular attention because it challenges how geographers should conceptualize space. I then ground this argument by introducing, examining, and discussing materials drawn from an autoethnography of curating digital geographies, focusing in particular on the nuances of curating what I refer to as *digital geographies of flow and territory*. Finally, I present some conclusions and reflections on the broader significance of curation for how we conceptualise digital geographies in an era of data colonialism.

¹ I use the term ‘digital life’ hereafter, rather than similar but less satisfactory terms such as ‘digital society’ or ‘digital economy.’ My argument is that geographers can conceptualize a broader range of actors and arenas by emphasizing ‘life’ over ‘society’ or ‘economy.’

² Although companies such as Netflix ‘rely more on data every day’ (Wu, 2015), it is still important to recognize that ‘the best human curators,’ such as Ted Sarandos, Netflix’s Chief Content Officer, ‘still maintain their supremacy.’ ‘Data may help,’ but the core practice at issue in Netflix ‘is a form of curation (at which Sarandos excels) whose aim is guessing not simply what will attract viewers but what will attract fans—people who will get excited enough to spread the word’ (Wu, 2015).

2. Curating digital geographies

‘Curation’ is often viewed in relation to practices in art galleries or museums where curators conduct analysis and consider how artefacts might be presented, positioned, and translated in diverse ways and with a wide range of objectives (Villi, 2012; citing Joy and Sherry, 2003). In this sort of definition, a museum curator ‘scours the art scene, selects the finest works, arranges the pieces around a unified theme, provides a frame to understand the artists’ messages, and then engages the public in a conversation around the collection’ (Weisgerber and Butler, 2016). The curator intervenes in the world. The curator produces space. In a similar guise, it makes sense to conceptualize digital subjects as the curators of their digital geographies because so much of everyday life involves presenting, positioning, and translating digital content in the form of data, ones and zeroes, and new lines of code. Whether enacted via diverse forms of ‘digital skill’ (Richardson and Bissell, 2017) or via firm-based analyses of customer behaviour on web sites (e.g. see Ash et al., 2018b), digital subjects curate digital geographies when they ‘generate [the] data points organized, sorted, and analysed by algorithms’ (Thatcher, 2016, p.2). Like the art curator, therefore, the digital subject produces space, although in tandem with digital technologies and in relation to data colonialism. They are, for example, curating what they see, making decisions about how they will navigate the web, or opting to click on one link, rather than another. At times, they will do so alone: *their* singular experience of the web, devices, or apps is at issue. At others, users click, tap, and move in ways that establish dispersed communities or networks of people that ‘interpret, publicize and endorse content’ (Villi, 2012, p.617). They express ‘slivers of agency’ (Cheney-Lippold, 2017, p.194) by curating digital engagements and relationships. The scale of transformation might be small and personal, as when an actor alters the look, interface, or arrangement of ‘units’ (Ash et al., 2017) on their devices. But to the extent they can accept or refuse invitations or prompts from technology firms (e.g. see Thatcher, 2017, p.10), digital subjects can also play a part in broader shifts, for example by gradually abandoning one platform and populating another (e.g. see Parker et al., 2016, pp.131–134); by crowding to a certain hashtag and supporting a call for social change (Ray et al., 2017); by working with the affordances of algorithmic life to pursue ‘productive resistance’ (Ettlinger, 2018); or by developing tactics such as obfuscation to create enduring digital infrastructures that protect rights, promote social justice, and address complex social phenomena (Cheney-Lippold, 2017, pp.228–247; also Milan, 2015). In short, digital subjects can establish crucial new connections with others by curating innovative and potentially radical digital geographies. Digital technology affords as-yet-unwritten opportunities and possibilities.

If these everyday practices of curating digital geographies resemble the work of a museum or art curator, there is one other significant parallel to highlight. Consider here that ‘curatorial decisions can catapult an [art] object from obscurity to public exposure’ (Villi, 2012, p.615; citing Joy and Sherry, 2003, p.163). The curator intervenes without ever knowing what effect they will have on audiences because effects are contingent upon what the observer sees, experiences, or feels; who they are standing beside; what they were doing earlier; what their life is like and what socio-cultural materials they bring with them. Likewise, curating digital geographies entails the creation of multiple (conceivably simultaneous) effects that always spill outward and away, contingently. The key determinant here is that all of today’s digital players have scope to click, swipe, or create digital content that can, within an incredibly short space of time, connect to billions of others and then assume new meanings and, in effect, new forms of vitality. A President’s tweet, a company’s advertisement, a government’s instruction, or an individual’s video upload has an almost inordinate potential to meet up with numerous distant others in highly unpredictable ways. Asymmetries of power operate; the algorithms of technology firms skew the trajectories of digital content via prompts and promotions. But *all* content *can* ‘go viral.’ Actions on (or happening close to) digital devices

can have explosive effects. As such, the upshot of emphasizing curation is recognizing how it creates a significant expansion in the volume and potential spatial reach of overlapping and interacting contingencies. The practice of curating digital geographies is tantamount to a contingency-producing machine.

There are provocative implications to consider here, especially with regards to the way geographers conceptualize space. To the extent that space can be viewed as a product of curation, digital subjects need to be viewed as curators who interact in a dynamic manner (again, often simultaneously) with a highly complex and contingent field of action playing out across multiple devices and services. Digital life expands via diverse ‘intersections and recursive relationships’ (Lupton, 2016, p.143), ‘tangled processes’ (Thatcher, 2016, p.3), and various modulations and interstitial practices that mean subjects are ‘pushed and pulled’ (Cheney-Lippold, 2017, p.33) by obscure, opaque, proprietary, and bias-heavy algorithms. As I put it, therefore, at issue when we recognize curation are ongoing ‘iterative interplays’ between subjects, firms, and governments. When they encounter prompts and respond by curating content or other forms of action on a device or a service, digital subjects express their agency, albeit with respect to a fluctuating set of parameters. There is a constant back-and-forth: apps are updated; security patches are rolled out; new features of a service survive and thrive, or fade away if users reject them. Firms and governments can push to achieve certain aims and objectives; data colonialism operates by numerous firms looking to capitalise while grabbing a user’s attention. But digital subjects retain latitude to enliven the iterative interplays with firms and governments. They can: choose not to click, nor to swipe or tap; obfuscate, avoid, turn off tracking, or delete cookies; cancel a download, uninstall a software program, upload a video, crowdfund a political campaign, subscribe to a blog, or create a podcast, YouTube channel, or Facebook page. In short, everyday digital life involves actions that lie somewhere between the extremes of passive acquiescence and active resistance. There are simultaneous flows, movements, and changes to consider because digital subjects are frequently engaged in multiple practices: they consume *and* produce data; and they can acquiesce and resist at the same time, by clicking and swiping to send funds to a protest movement, for example, while listening to a podcast from *The Economist* (and advertisements from whomever) on their iPhone. Precisely the point of data colonialism (and to a large extent its motive power) is that firms and governments can see and seize upon the latitude digital subjects retain to consume and produce in diverse ways on digital devices and services. Our combined ‘slivers of agency,’ played out across all of the ongoing iterative interplays, create trillions of recordable but unpredictable occurrences.

A key outcome of digital life, therefore, is the formation of what we might refer to as ‘constellations of contingencies’ that pervade, infuse, and complicate space. Digital subjects engage data colonialism by curating digital geographies via numerous simultaneous iterative interplays when they produce and consume data. Digital life takes shape in unpredictable ways, with each new device or service tapping into extant socio-technical relations and creating new reserves of data when actions in an enormous range of digital arenas are surveilled, aggregated, and analysed. In an era of data colonialism, life ‘as seen by capital [might be reduced to] what can be recorded and exchanged as digital data’ (Thatcher et al., 2016, p.1000); but rather than expecting a ‘smoother, more predictable surface of capitalist consumption’ to take shape, iterative interplays between digital subjects, firms, and governments operate to draw upon and generate new constellations of contingencies.

I argue the significance of these points regarding curation, iterative interplays, and emergent constellations of contingencies arises in light of critical geographical scholarship on the ‘chance of space’ (Massey, 2005, pp.111–117), which emerges from ‘the often paradoxical character of geographical configurations, in which [...] a number of distinct trajectories interweave and, sometimes, intersect’ (Massey, 1999, p.284). In the context of data colonialism, order still obtains: we can

examine digital life and discover underlying logics, for example via a Marxian approach to space which emphasizes a relatively neat, albeit crisis-prone, rulebook of contradictions (Harvey, 2014). Plainly, technology firms do play a part in the production of space: they must compete, satisfy shareholders, and therefore create ongoing geographical configurations of materials that reshuffle and recreate the worlds we encounter and theorise. However, the unpredictability of iterative interplays – the emergent shape and dynamics of the constellations of contingencies flowing from digital life and given vitality by digital subjects – actually *amplifies* the significance of ‘happenstance juxtapositions’ (Massey, 2005, p.94) in conceptualizations of space and spatiality. The chance of space *swells* via the billions of daily clicks, swipes, and taps that reconfigure parameters – sometimes unwittingly, for example when a trending hashtag such as #MeToo spills over from social media into other arenas of human life – and thereby give new meaning to the sense that space emerges via the ‘the unforeseen tearing apart’ (Massey, 2005, p.94) or the ‘entangled interplay’ (Allen and Lavua, 2015, p.357) of diverse entities and their constituent materials and relations. Consider how digital subjects can tap fruitfully into extant architectures to generate data and new clues about political viewpoints; how new unanticipated actions can work on those data and wider populations to manipulate democratic processes; but then how subjects such as Christopher Wylie, whose actions in Cambridge Analytica exemplify these points, can tear it all apart and reveal to the world what sort of entanglements are operating today (e.g. see Zuboff, 2019, pp.278–282).

Insofar as digital subjects can curate, rip up, and refashion digital geographies, it is necessary also to recognize the latent potential here for ‘topological transformation’ (Dixon and Jones, 2015), which occurs when ‘relations are formed and then endure despite conditions of continual change’ (Martin and Secor, 2014, p.431; see also Allen, 2011; Allen and Cochrane, 2014). Curating digital geographies entails the (oftentimes, simultaneous) construction and interaction with entirely new arenas and, in effect, *regions* of digital life that are twisted and reconfigured in unpredictable ways in videogames or apps, or inside devices (e.g. on the ‘interface envelopes inside the videogame *Final Fantasy XIII*, see Ash, 2015; on the topology of the region, see Allen and Cochrane, 2014). In play are digital subjects who engage the colliding together of multiple temporalities (including constant, episodic, and fleeting pressures and constraints as they engage and answer messages or prompts from friends, family, firms, and governments) and spatialities (such as new pathways opening up or persistent obstacles preventing action). At one moment subjects curate data and simultaneously reproduce key facets of data colonialism, while also working to undermine it. A moment later, the balance can shift. Later still, entirely new threads might be connecting subjects with the broader scene. The implication for geographers is a need for research that can embrace chaos and contingency; account for the ‘creative anticipation’ (Ash, 2015, p.94) via which subjects curate their way around the ‘the multiple yet contingent comings-together of technology, people, and place and space that are productive of our quotidian lived realities’ (Leszczynski, 2019, p.18); and understand the algorithmic configurations enrolled to produce and then re-make ‘new versions of the world’ (Cheney-Lippold, 2017, p.33).

3. An autoethnography of curating digital geographies

It is hard to avoid the sensation that our geographies today are increasingly digital geographies. We move, connect with others, and access information using digital devices and services. I am no exception. Technology mediates my access to the world. I cannot work, travel, or stay in touch with family and friends without contributing to reserves of data. I am also a fairly typical digital subject insofar as I have no specialist technical skills regarding digital practices. My digital life is played out across a suite of non-specialist devices and services (see Table 1), the arrangements of which play a fundamental role in my

Table 1
My suite of digital devices and services.

Device (operating system if relevant)	Services (provider if not otherwise apparent, 'free' or paid subscription)
Laptop computer (Ubuntu 18.04)	Email (Google, 'free')
Work desktop computer (Windows 7)	Skype (Microsoft, 'free')
Home desktop computer (Windows 10)	Firefox web browser (Mozilla, 'free')
Amazon Fire HD 8 6th generation (Fire OS 5.3.6.4)	Chrome web browser (Google, 'free')
Huawei Y5 II smartphone (Android 6.0)	Google Keep (Google, 'free')
Samsung J3 smartphone (Android 8.0.0)	Netflix (paid)
Philips Television	New York Times (paid)
Sky Q Box	Express VPN (paid)
Sky Q Wifi Router	Signal ('free')
	Soundcloud ('free')

daily life. I perform relatively basic, mundane everyday tasks such as: writing emails; checking bank account statements; shopping; searching for and listening to music; watching television; chatting with family; looking for recipes; downloading podcasts; reading newspapers; and so on. I stare at devices for large chunks of the day; go everywhere with at least one device alongside me (and on longer journeys, I often take two or three). I sleep beside them; I hold, care for, worry about, and perhaps even to some extent *love* (at least, one of) my devices (it was a 30 month old phone; it 'died' a few months ago. I miss it). I juggle between and across devices: writing an email on a laptop while downloading movies on a desktop and listening to a podcast on the phone, which has a reminder set to take food out of the oven, and is regularly 'checking-in' (via push notifications) to tell me if family or friends have been in touch.³ My digital geographies are shaped, often to a considerable extent, on whether I have, *inter alia*, downloaded content, swiped right, clicked 'yes,' chosen the premium version of a service, turned off notifications, updated a plugin, or uninstalled an app. When I travel, for example, my experience is affected by whether I have downloaded some new music: did the file download successfully; will my phone play the file? And will my phone still have enough battery to display my boarding pass, or will Uber's app work properly when I arrive at my destination?

My life cuts across, dips into and out of, and is essentially and intimately woven into – 'enmeshed' (Hayles, 2017, p.126) within – the possibilities and constraints emerging from ongoing interactions with digital technology. It is a type of life familiar to many people in a wide variety of contexts. In trying to understand digital life, then, the lives of everyday users are a rich resource for researchers. Quotidian and banal taps, swipes, and clicks deserve attention. Research is needed that can shed light on the practices via which digital subjects alter what they see or adjust how they feel when engaged digitally. At the same time, research must try to make 'visible the operation of data aggregation, analytics and algorithms that are hidden from users' (Ash et al., 2017, p.165).

In response, I follow Bodo et al. (2017, p.144) by arguing for the relevance of autoethnography as a way to research digital life. The autoethnographic approach remains unconventional in geography, not to mention digital geographies and critical data studies (although, on the related approach called 'autonetnography,' see Tavakoli, 2016). A factor here could be a perceived weakness of the methodology, such as concerns that it always presents partial 'data' from an interpretation of the researcher's unique circumstances (e.g. see Besio, 2009, p.242). In

contrast, a strength of autoethnography is that it seeks to 'collapse the conventional distinction between researchers as agents of signification and a separate category of research subjects as objects of signification' (Butz and Besio, 2009, p.1671). As practiced by Fisher (2015, p.468), for example, autoethnography builds upon reflexivity to permit analysis of 'the changes in subjectivities that occur when a racialized body moves into different contexts, and why race, context, and inter-subjectivity matter to discussion of subjectivity and positionality.' It involves using a variety of materials to 'connect the autobiographical with larger cultural, social, and political experiences' (Brown, 2018, p.4); that is, it allows researchers to shed light on an 'aspect of the world that involves but exceeds themselves' (Butz and Besio, 2009, p.1665; see also Subrahmanyam et al., 2015).

The autoethnographic approach I pursue involves scrutinising digital practices by reflecting and writing about them with a view to contributing to the understanding of more general practices per the research findings in extant literatures, especially regarding digital geographies generally and data colonialism in particular. I suggest the point is not to over-emphasize peculiarities of the autoethnographer's engagement with digital life, but rather to highlight the meeting points where a particular digital subject connects with broader features. Although apparently banal occurrences inevitably might be considered, I argue a useful approach is to identify and reflect upon flashpoints – critical junctures, turning points, frustrations, or repeated moments when actions take a certain direction, rather than another. Like the work of a researcher who asks respondents why they acted in a particular way at a certain crucial moment, considerable value can accrue when the autoethnographer focuses on these occurrences that help to make 'visible the simultaneous presence of multiple expressions of the social self' (Brown, 2018, p.3). Ultimately at issue is providing a level of detail that might be otherwise difficult to draw from interviews because the autoethnographer of digital life knows the intimacies of digital practices and can pause and reflect on them at length while gradually writing about how they matter – they are the author's practices, of course, and they differ from those pursued by others, but as much as possible the specificities highlighted should point toward general features that others are likely to experience. Moreover, the approach can overcome the awkwardness of conducting research that needs to trace an outline of what is taking place on numerous device screens or inside apps. It is a methodology well-suited to the complex array of vulnerabilities, obstacles, and options for resistance that confront digital subjects.

Building upon my research interests in digital geographies, and with a view to writing this paper, I have reflected upon my daily digital practices for just over one year. Ironically,⁴ a crucial facilitator of my autoethnographic practices has been Google Keep, a note-taking app I have used to record observations. This paper builds on those notes to sketch a picture of the iterative interplays and constellations of contingencies emerging from my engagement with digital life. I have been particularly alert to the notion that I curate my digital geographies: that a back-and-forth takes places; that my sense of digital space is affected and altered by prompts and refusals; and that, when I curate what I see and experience on digital devices and services, I access a digital space of unanticipated possibilities. I also recognize that data colonialism is in play when I curate my digital life. I know that diverse, unseen firms stand to gain by selling and/or inviting me to use devices and services; that I am presenting, positioning, and translating ideas, content, clicks or swipes that generate data to be tracked, collected, aggregated, and analysed by any one of a large number of technology firms (as well as governments). I now elaborate in more detail on these matters by

³ For many others, their phone might be communicating with a Siri or Alexa to automatically adjust heating or air conditioning controls in their home, while streaming music from Spotify, and receiving notifications from an Instagram, WhatsApp, or Twitter app.

⁴ 'Ironically' because my engagements inside Keep (alongside everyone else's, of course) conceivably have helped Google develop the product. I simply record some thoughts and observations. But data colonialism means I am delivering (albeit minuscule amounts of) value to Google.

suggesting that two key flashpoints involve the curation of ‘digital geographies of flow’ and ‘digital geographies of territory.’ My focus on geographies of ‘flow’ and ‘territory’ builds on a longer lineage of geographical scholarship that takes seriously the interrelations between mobility and fixity in the production of space (Harvey, 1982, 1985; for an insightful and critical discussion of the centrality of mobility and fixity in geographical thinking, see Cox, 2013). Unlike Marxian approaches, I am not concerned with dialectical relations here; rather, I take a more general view by suggesting that geographical experiences necessarily involve the ongoing creation and subsequent negotiation of movement (mobility, flow) and permanence (fixity, territory), or conceivably what we might imagine as an ‘architecture of territory and flow’ (Pryke, 2008). We produce and indeed we curate multiple flows at the same time as we work on, curate, and possibly defend diverse territories.

3.1. Curating digital geographies of flow

Digital life holds out the promise that digital subjects can create entirely new pathways through space, with devices and services playing their part in eliminating or ameliorating complexities and irritations. Indeed, a core element in the sales pitch of technology firms is precisely the prospect that users can flow seamlessly through (digital) space, for example by enjoying a ‘constant, uninterrupted mobility’ in the so-called ‘smart city’ (Rose, 2017, pp.787; see also Kitchin, 2014). I try to actualise this promise by curating devices and services; altering arrangements and making decisions with a view to creating unburdened pathways. The objective is to eliminate delays and interruptions. On work and home desktop computers, I try to arrange icons or ‘units’ (Ash et al., 2017) and look for ways to control notifications. I facilitate effective flows, turning to a certain device to complete a task (write an email; check a bank account; watch a video). I dislike interruptions from an app or (far worse) an operating system update. I cannot write code; there are limits to what I can do. I am, therefore, exposed to the possibility that a device will be updated without my permission; that the layout of apps and options in front of me will change when a redesign is rolled out. I encounter personal, immediate, and intimate geographies whenever I use a device or service. I try to arrange these geographies in ways that work for me. I express ‘slivers of agency’ (Cheney-Lippold, 2017, p.194).

However, actually-existing digital life still involves numerous interruptions. Although firms can adjust how devices or services operate and communicate to produce seamless life – although friction can be targeted and reduced – data colonialism requires firms to delay and interrupt digital subjects (Ash et al., 2018b). Iterative interplays and constellations of contingencies come to life. Looking online for a new electricity provider, for example, a pop-up on their web site asks me to complete an online survey. Upon unlocking and entering a car provided by a car sharing firm, its app asks me to rate the cleanliness. When buying shorts in a sportswear store, a staff member asks if I would like my receipt to be sent by email. I am urged to rate a podcast; sign up for online newsletters; receive a discount when booking a bus journey online; and so on. When trying to access public services, I am asked to register and sign in. Finding information, knowing where to go, exploring new social worlds: all these and many other everyday practices are infused with data to such an extent that life entails remaining *activated* within digital worlds that are, in a sense, ‘awkwardly integrated into’ (Shelton et al., 2015, p.14) our everyday lives. In extreme versions, the drive to prompt, activate, and colonise the worlds of digital subjects leads device manufacturers and designers of human-software interfaces to encourage addiction via a steady stream of notifications that bring the user’s attention back to their phone or device (e.g. see Kulwin, 2018). Our pathways through space are filled with episodic engagements with data colonialism. We are prompted and pressured. Firms chase after us. We can refuse each individual invitation –and engage in iterative interplays, possibly tapping into and amplifying

constellations of contingencies to construct alternative pathways and flows through digital space – but we cannot avoid delays or interruptions entirely.

In turn, curating digital geographies of flow actually requires dealing with new burdens. A crucial consideration is that I must manage the security of devices and data – in the form of sensitive business information, say, or personal materials such as photos – which places an onus on me to remember passwords, keep devices locked and securely stored, and understand (even if only at a superficial level) how my actions can facilitate breaches of security. Firms and governments still retain significant levels of control regarding certain operations or at critical junctures within digital life; but numerous other chunks of decision-making or action-oriented responsibility are inevitably devolved, distributed, and dispersed to digital subjects. I can try to offload, out-source, or devolve responsibility and power to the cloud by storing passwords or information in Google’s or Microsoft’s reserves of data. But such techniques of ‘responsibilization’ (e.g. see Shamir, 2008; Brown, 2015) are rarely easily negotiated. My digital life remains bound up with managing these new responsibilities. I am expected to: keep devices and services up-to-date; stay alert to whatever is taking place on my devices or when I use services such as email; and avoid getting locked out of my accounts, for example by keeping track of my phone in cases where two-step authentication is required. I am made responsible with respect to phishing attacks, hacks, or viruses. I must effectively and securely curate devices, services, and ultimately *data*. Every engagement with a digital device or service that connects to the servers and data reserves of tech firms reiterates these new responsibilities and burdens associated with participation in contemporary digital life. I curate and re-configure diverse arrangements of digital devices and services in the spaces of my everyday life and I do so in ways that respond to and enact responsibilization. I tweak and shape my access to the world; the way I connect with others; what I can do with others; the places I go; and the collections of data points flowing out of my digital interactions that can be gathered, aggregated, monetized, and calculated.

In effect, therefore, I experience all these practices as a matter of ‘*data curation*.’ I do not see data, of course. I see apps arranged on a home screen; options inside an app; error messages. I flow toward and hear the music or live radio broadcast I searched for. I flow through the writing of an email or quickly reply to a conversation in a WhatsApp group. In the most immediate, tactile, visceral sense, I am simply ‘*de-icing*.’ But data are certainly moving behind-the-scenes. I generate data and contribute to the reserves held by large technology firms. Data are collected and aggregated in numerous ways when I use Gmail, Google search, or tap inside Google’s Newsstand app. Like millions of others today, I am a Netflix subscriber; I click and navigate the Skype app on my desktop computer; my browser stores cookies when I visit web sites. I have been aggregated and monetized; I am profiled, grouped, surveilled, and targeted by advertisers; my clicks and swipes inform the research and development activities of numerous firms, albeit in a small way (David and Cambre, 2016; Ash et al., 2018b). I am, moreover, expected to stay on top of things: a misplaced click or a mistaken swipe can close off my access to space, steer me away from where I want to go, or result in other, potentially far-reaching (and even life-changing) consequences.

3.2. Curating digital geographies of territory

Beyond the curation of digital geographies of flow, matters of territory also arise. Consider first my confrontations with what I refer to as ‘*data reservations*’: regions in the topology of digital space where accessing digital content (for example, a movie or live stream) is restricted to subscribers or users deemed legitimate by residency (e.g. see Burroughs and Rugg, 2014). Digital subjects are to be lured into these reservations, wherein their profiles can be analysed for clues about what they might want to do, or what they might want to view or buy

next.⁵ Crucially, however, although the data to play a video or watch a sporting event are ostensibly behind ‘paywalls’ or other fences or borders that define these special zones, the architecture of digital space – its topological structure, much like the region human geographers have confronted in their research (e.g. see [Allen and Cochrane, 2014](#)) – can be twisted and reconstructed in novel ways when digital subjects confront and subvert it. The ‘chance of space’ ([Massey, 2005](#)) permits ‘topological transformation’ ([Dixon and Jones, 2015](#)).

One example matters to me because I have moved from my home country and cannot access certain content produced by the national broadcaster. The broadcaster curates their service to block me: their server identifies my foreign IP (Internet Protocol) address and rejects my request to access content. I am excluded. But I have options. The territory of the data reservation can be trespassed precisely because digital life is constituted by constellations of contingencies. I use my limited digital skills – watching so-called ‘life hack’ guides on YouTube; reading articles on Lifewire; asking for tips from friends – to tap into these constellations, from which I get suggestions to scour the web for solutions or install software or browser extensions that might empower me to re-arrange digital space. Unknown distant others design apps and services that make trespassing possible. I give vitality to these constellations of contingencies by bringing together devices and services and curating new pathways through the digital world. Paying a VPN (Virtual Private Network) provider, I gain access to data reservations in exchange for handing the firm personal data, which exposes me to new contingencies (will they track my actions, record what I do, pass on details to authorities, target advertisements at me or otherwise monetize what I am doing without my knowledge?). Curating these digital geographies of territory also leads me to ‘pirate’ web sites, which broadcast sport without charging a monetary fee, although I must close numerous pop-up advertisements and run the risk of having ‘malware’ installed in my browser or on my computer. I might chat to the ‘admin’ team to report problems. I share links with friends who are, like me, shut out of the data reservation but looking for ways to trespass.

If I succeed in these efforts, I subvert the topology placed in front of me: I become virtually ‘present’ despite my physical absence. I ‘tunnel’ into a place or region, acquire new capabilities, and become a participant, despite not having a formal invitation. My spatiality – in this banal, minor way – is transformed by constructing ‘abiding revisions’ ([Cheney-Lippold, 2017, pp.106–107](#)). I modulate digital worlds via partial adjustments to settings or configurations within devices and services; and participate in ongoing iterative interplays by confronting obstacles, drawing on diverse resources, and curating data to overcome them. Curating digital geographies can award territorial power to crash through barriers and occupy otherwise-unreachable regions of digital space.

If curating digital geographies of territory partly equips me to subvert topologies and trespass in regions of digital space, it is also about confronting the intrusions inherent in data colonialism. The territory of my daily life, including my living spaces and the landscapes or layouts within the devices and services I use, is targeted by technology firms. I can introduce ‘hiccups’ ([Cheney-Lippold, 2017, p.198](#)). I can obfuscate data, use Tor browser, and perhaps turn off microphones or stick a post-it over a camera; but in the final instance data colonialism persists and expands because technology firms have the capacity to exert territorial power in ways I might never fully grasp.

A case in point involves my relationship with an Amazon Fire tablet,

⁵ The creation and maintenance of reservations also encourages new forms of meta-governance of digital life with new ecosystems of platforms, devices, apps, and services constructed, negotiated, and reformulated with a view to attracting and conceivably ensnaring populations by steering them through proliferating contingent pathways. Amazon’s shift from an e-commerce company to providing services such as Alexa and Prime Video speaks to this development: data reservations are crucial elements within this overall strategy.

which I bought for US\$150 in 2016. I use it to watch content on Netflix (it is my bed-time device and is disconnected from email or messaging apps and cannot receive phone calls, thereby giving me some control about when I can be contacted by others). But the tablet’s operating system, which is a customised version of Google’s Android software, permits Amazon to re-work the ‘interface design’ ([Ash et al., 2018b](#)) and install apps and shortcuts without my active participation. Thus, sometimes when I turn on the device I find that Amazon has installed a link to the Washington Post or to Amazon Prime Video. Amazon even installed an app offering me access to Alexa. I cannot delete or uninstall it from the device. Even if I try to turn off the microphone, I have no way of knowing if Alexa is listening, or what ‘she’ will do with what ‘she’ hears. I experience all this as an invasion; my sense of comfort with the device, what it contains, and how I can use it, is disturbed. The most direct way I can react is to simply create a folder on my home screen and deposit each shortcut inside, thereby removing them from sight. I curate my device to the best of my limited ability: I arrange icons; I try to control what I see; I try to steer a path away from contributing to certain reserves of data. But Amazon anticipates iterative interplays; it tries to stay one step ahead of users like me. An app’s icon might be out of my sight, but opaque digital processes might still maintain connections to distant servers. Like billions of others, my capacity to defend the territory of daily life is constrained. Privacy is almost unachievable. I curate data, albeit with limited scope to decide what data I present, position, or translate because many of these efforts will be undone by intrusions from technology firms.

4. Conclusion

The preceding materials respond to calls for work that can ‘track the ways in which data are generated, *curated*, and how they permeate and exert power on all manner of forms of life’ ([Iliadis and Russo, 2016, p.2](#); my emphasis). As banal as my experiences may be, they nonetheless point to general themes. First, whether it is Amazon placing Alexa on my device, Microsoft updating Skype, or Google altering apps on billions of Android devices, there are numerous efforts on the part of firms today to enrol new digital subjects and thereby locate human life within monetizable chains of digital responses. My experience with data colonialism is one instance of a much broader pattern; the daily back-and-forth, the prompts, the notifications on my devices, are plainly fundamental elements in everyday life across the planet. Our subsequent reactions introduce new contingencies and new interruptions to the dreamt-of predictability or ‘guaranteed outcomes’ ([Zuboff, 2019, p.203](#)) that technology firms claim is within their grasp. We are activated via these new forms of responsabilization to watch over devices and services, or care for workplace systems. Billions of digital actors are now enrolled in similar processes as they labour inside and outside the home, and on an ongoing basis, while they remain on alert to the security ramifications of their everyday digital practices. And once enrolled within, and co-constitutive of, the new regimes pertaining in the digital era, digital subjects then become central to the (ideally, from the point of view of firms or governments) *stable* reproduction, rather than chaotic disruption, of digital life.

A second point is that, although I curate digital geographies of flow and territory with rather mundane objectives in mind, similar practices are used by many people around the world to create far more profound effects. When governments block access to certain web sites, for example, VPN technology or browsers such as Tor can be used to transform geographies (and conceivably broader geopolitical configurations). Actions such as evading government surveillance can draw upon, disturb, and move the constellations of contingencies inherent in digital life. A single tweet, a video uploaded, a misplaced click, or some other digital action always potentially exists in relation to a broader technical assemblage or planetary cognitive ecology ([Hayles, 2017](#)) that permits and affords indeterminate occurrences. Digital life involves an iterative interplay given vitality and additional

unpredictability by forms of data curation that respond to obstacles – and often find ways to overcome, unsettle, and possibly obliterate them entirely.

If ‘we are data’ (Cheney-Lippold, 2017), then, it is, in part, because we *curate* data. But perhaps it is also necessary to suggest we are always data *spatially* precisely because we navigate all manner of ‘unconsidered anticipations’ (Thrift, 2004, p.177; quoted in Hayles, 2017, p.174) while engaging in numerous direct and indirect *transactions* in digital worlds. Managing these new engagements and responsibilities, moreover, means we must *consistently transact*; that is, per the etymology of ‘transaction,’ we must *come to a settlement*, persist, and reproduce extant relations. The meta-architecture propping up digital life, which digital subjects (possibly, unwittingly) reproduce, is constituted by calculated routes that record and commodify locations (Thatcher, 2017), steer action in certain ways, and thereby express the ‘tangible authority’ (Chesher, 2012, p.327) of tech firms and government apparatuses. We can try to take another direction – we can deviate from expected behaviours by tunnelling, obfuscating, or in some other way pursue what we want relative to the iterative interplay that confronts us – but at numerous points we still need to ‘check in,’ have our behaviour monetized, pay a bill, or renew a subscription. Even when digital subjects pursue resistance – even if they use digital technologies to create escape routes away from data colonialism, for example when they refuse to ‘follow the suggestions made and routes offered by “location-based services”’ (Thatcher, 2017, p.10) – their persistent participation within chains of transactions (signing in, clicking, exposing their ideas or tastes to data colonialism) locates and identifies them *as willing partners* who have come to a settlement and accepted reproducing the political and economic basis for the research and development that expands digital life. Data colonialism expands via techniques of responsabilization. And once responsibility has been devolved, we can never fully wash our hands of it. Responsibilization cements the bond we have with digital life. The conclusion to draw: the fundamental geography expressed when we curate data is the enmeshed, inescapable tie we now have with data colonialism.

It is, therefore, *data curation* that seems to emerge as a critical mechanism for digital subjects to negotiate and navigate digital life. Its prevalence today presents a challenge for research on digital geographies, which must shed light on everyday experiences of living in a digital society *and* examine the possibilities for subjects to alter those experiences. The conditions at issue emerge in relation to a range of digital devices and services; numerous overlapping (and frequently simultaneous and possibly diverging) practices played out on/in those devices and services; obtuse digital architectures and assemblages constantly operating behind-the-scenes; and numerous ostensibly ‘offline’ occurrences that constitute digital life in homes, workplaces, or in public space. Digital subjects act via (in)direct moves and responses to ongoing activations, new forms of responsabilization, and the creation of reservations that seek to control what happens in digital space and beyond. In exerting a degree of control over how they present, position, and translate data on their devices and services, the ultimate effect of all these moves is intense unpredictability.

Against this backdrop, my contribution has been to expose the quotidian meeting points with the constellations of contingencies taking shape in an era of data colonialism. I ask whether we will be passive and acquiesce, or will we resist (even in some small way) by choosing the iterative interplays we engage, or the reserves of data to which we will contribute?⁶ Counter-intuitively, perhaps, data colonialism is viable and expanding precisely because we adjust devices – we try to curate things, even if not necessarily with ‘flow’ or ‘territory’ in

mind – and participate in iterative interplays that shape how we are *located* within the broader architectures of conduits that move data around. In doing so, we create further unexpected effects; we expand the constellations of contingencies and *amplify* the ‘chance of space’ (Massey 2005, pp.111–117). Of course, geographers are well accustomed to unpredictability; to the openness of space. But what the prevalence of data curation amidst iterative interplays and constellations of contingencies should perhaps suggest to all geographers is precisely that the digital spaces and spatialities charted of late by digital geographies scholars now deserve to be more fully incorporated into geographical theorizations. The heightened unpredictability wrought by digital life demands further critical scrutiny; geographers working in the area of digital geographies or not must grapple with these emerging effects.

My attempt to understand some of these effects has involved probing the potential for autoethnography to develop what we ‘understand [about] the specific motivations behind the production of data’ (Thatcher, 2016, p.5). There is significant scope for geographers to continue experimenting with this methodology by asking, for example, how they curate and modulate digital devices and services in the workplace or at home; or how they curate digital geographies to connect with, enact, or challenge data colonialism, or simply find ways of handling the uncertainty of digital life. Numerous other possibilities must obtain when autoethnography is embraced by digital geographies researchers. An exciting prospect, signposted by some recent research (e.g. see Brown, 2018), would be to push the methodological approach to autoethnography into new territories, for example by bringing to bear new forms of data regarding the ways we curate digital geographies and thereby data in the contemporary period.

Emphatically, however, geographical research must explore other ways of understanding the emerging complexities of digital society. Further lines of inquiry are needed to shed light on how a ‘host of actors – individuals, governments, corporations – deploy and *curate* data or algorithms’ (Allen and Vollmer, 2018, p.25; my emphasis). The overriding point is that digital life in general and data colonialism in particular makes data curators of everyone (Weisgerber and Butler, 2016). Data curation is at work in numerous arenas today. It is a factor in political activism; active in the workplace and other economic spheres; at issue in family life; and a crucial component in the cultural sphere. Uncovering the various nuances of this new state of affairs is a challenge geographers should try to meet. Future research might examine the lives, practices, and ethical dilemmas facing digital subjects when they curate data, engage in iterative interplays, and accordingly tap into constellations of contingencies. There is scope here to use key insights in digital geographies, for example regarding everyday relations with the crucial interfaces we all encounter on devices such as phones, to develop what we know about the inherent unpredictability of digital life and how clicks and swipes become ways of responding to envelopment, thresholds or transitions (Ash, 2015; Ash et al., 2019). There also exist numerous opportunities to push the horizons of digital geographies research into sub-fields of the discipline where it is yet to have had much impact. For example, we might ask about the digital geographies at issue in the global production networks driven by transnational corporations. There is scope to examine the digital geographies of climate mitigation efforts. The point here is that, for all of the attention the digital has received from some geographers, it is startling to still find geographical research that fails to engage the sort of (general, if not the specific) issues at work in this paper. A more exciting (and possibly more relevant) discipline of geography would take shape if its scholars took on board the call for an *engagement* with the digital (Ash et al., 2019).

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⁶ I note here, for example, that while I am hesitant about leaking details to Amazon, I am still actively subscribing to, and therefore producing data for firms such as Netflix and the New York Times. I am engaged in simultaneous, contradictory, and contingent-laden geographies of data curation.

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