

Glitches in the technonatural present

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Abstract

Ecological collapse and the proliferation of digitally mediated relations are two conjoined elements of the ‘technonatural present’, which pose varied challenges and openings for the future of geographical thought and praxis beyond the delineated sub-disciplinary concerns of more-than-human and digital geographies. In this commentary, we draw attention to the inseparability, now and into the future, of geographical thought and praxis from digital mediation. This mediation is also central to forms of encounter, exploitation, and governance shaping human-nonhuman relations. Within this complex nexus of humans, nonhumans, environments, and technologies, it is crucial to critically examine how nature is made (mediated) and remade (remediated), by whom, for whom, and with whom. We call for research that affirmatively centres the potentials for progressive digitally-mediated environmentalisms, drawing from Agnieszka Leszczynski and Sarah Elwood’s work on ‘glitch epistemologies’. To conclude, we point to a series of themes and questions that geographers might usefully engage with as they navigate digitally (re)mediated catastrophic times.

Keywords

Digital ecologies, digital geographies, glitch, more-than-human geography, technonatural present

The technonatural present

Digital technologies have proliferated in the everyday lives of people globally. In the discipline of

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geography, the future of research and practice looks unavoidably digital, for better or worse. What a geographer *does* – including pedagogy, research, writing, dissemination, activism – is now unquestionably underpinned by digital mediation, and by implication, so is the constitution of the discipline itself. If we are to re-imagine the multiple potentials of geographical thought and praxis looking forward, as this special issue ambitiously invites us to do, there is no doubt that algorithms, artificial intelligence, screens, information infrastructures, and communication technologies will be increasingly prevalent. The burgeoning field of digital geographies attests to the empirical, conceptual, and methodological significance of these digital presences (e.g. Ash et al., 2019; McLean, 2020). Meanwhile, much geographical research is now shaped in one way or another by, and certainly takes place within, the context of the contemporary ecological catastrophe. Heterogeneous global ecological issues such as climate dysfunction, biodiversity breakdown, and mass extinction now affect topics that were once considered the sole domain of human geographers. The same ecological issues, moreover, are fundamentally known, communicated, and acted upon through the scientific and technological practices associated with the proliferating use of digital media (Stengers, 2015).

What Agnieszka Leszczynski (2015) calls the ‘technological present’ is characterised by the drastic reconfiguration of spatio-temporal relations through media – technical objects such as hardware or software – and forms of mediation. But the complex nexus of technology, society, and environment is further complicated and re-imagined in what we call the ‘technonatural present’. The technonatural present is characterised by digital entanglement, involving both the ubiquity of digital mediation across society (including geographical research and praxis), and the recognition that digital mediation is itself ecological: it concerns the relations between and assemblages of human and nonhuman bodies, environments, and technologies (see Jørgensen, 2014; Taffel, 2019). This conception of the present further articulates our desire to bring digital geographies and more-than-human geographies into closer conversation in future geographical work through the framework of digital ecologies (see Turnbull et al., 2023). Engagements

with the digital mediation of more-than-human worlds are frequently characterised by speculation and spectacular narratives of techno-apocalyptic despair and techno-utopian futurism, with limited grounding in the technonatural present. Addressing this requires, in the first instance, ‘technonatural histories’ attentive to the cultural and historical contexts concurrently shaping ecologies and digital technologies (see Searle et al., 2023). Here, we further advance the urgency of prefigurative, empirical geographical research that offers more positive, hopeful and ‘glitchy’ accounts attentive to the digital mediation of more-than-human worlds.

Remediation and prospects beyond despair

Remediation has emerged as one possible form of addressing contemporary ecological catastrophe. Environmental remediation is usually understood as the action of removing toxins or contaminants from anthropogenically-degraded landscapes (see Papadopoulos et al., 2023). Remediating the technonatural present, in the way we use the term here, concerns the tools used to make sense of it, to tell stories about it, and to think creatively beyond spectacular binary narratives of hope or desolation (see Grusin, 2015). Digital technologies increasingly mediate more-than-human encounters, from farm animal surveillance to wildlife webcams, with profound implications for how we know and govern ecologies and their precarious current dynamics. Indeed, environments are continuously sensed, represented, and commodified via digital technologies.

Digitisation has a range of material and experiential effects that condition contemporary understandings of ecological catastrophe. Yet it should be stressed that the very process of digitisation – converting analogue signals into binary code – has lasting environmental impacts (Gabrys, 2011), relies on vast material infrastructures to function (Pickren, 2016), and is existentially dependent upon exploitative and extractive economies (Cubitt, 2016). Indeed, digital technologies are routinely deployed to expand extractivism in a globalising economy. For example, we can see across varied contexts how digital technologies are deployed to exploit nature and to inform decisions affecting local communities, which are now often made by

actors removed from these local contexts using remotely collected data and digital decision support tools (Adams, 2018; Sammler and House-Peters, 2023). Yet, as Jamie Lorimer (2022: 77) notes, multiple examples exist where digital technologies can ‘have the potential to promote progressive environmental politics’. Digital entanglements, then, are neither inherently good nor bad for more-than-human worlds, yet they raise critical questions concerning the specific contexts in which they materialise, are politicised, and come to affect ecologies. At the confluence of these research themes, we have proposed ‘digital ecologies’ as an analytical framework for examining the relations and politics between humans, other species, and digital technologies. This framework asks what these relations are, where they occur, and why and to whom they matter (see Turnbull et al., 2022).

The potentials for progressive environmental politics, we contend, can be found in *glitches* within the deployment of digital technologies. Glitches function as ‘generative fissures within the spaces and practices’ of digital mediation (Leszczynski and Elwood, 2022: 362). Building on Legacy Russell’s (2020) *Glitch Feminism*, this epistemological approach to glitches ‘acknowledges the simultaneous ability for error and erratum in digitally mediated formations’ whereby ‘each rupture offers an opportunity to correct for a different and better outcome’ (Maalsen, 2023: 11). Glitches provide opportunities for geographers to look beyond necessary, but insufficient, criticism of digitisation in the technonatural present, and to speculate on digitisation otherwise through affirmative scholarship. Here, we find great promise in Leszczynski’s (2020) narrative practice of ‘glitchy vignettes’: grounded empirical work that signals a shift from the major to minor register in thinking and writing about technologies. Drawing on Cindy Katz’s (1996) articulation of minor theory as a simultaneous ‘critique, politics, and praxis of knowledge production’, Leszczynski (2020: 196) proposes empirics rooted in the everyday to counter the majoritarian view of digitisation as a ‘techno-apocalyptic phenomenon’ to move towards ‘more open – and ultimately more hopeful’ futures in scholarship, thought, and praxis.

Glitches in the technonatural present offer hope for remediating more-than-human worlds for ecologically and socially just futures. Take, for example,

the deployment of ‘community drones’ for counter-mapping and community-based interventions against land grabs by large multinational mining and agricultural corporations (Paneque-Galv  z et al., 2017; Radjawali and Pye, 2017). Community drones offer one case of ‘grassroots’ reappropriations of digital technologies to serve the interests of local communities in the context of catastrophic ecological change. For instance, the SIKU app, developed by the Arctic Eider Society in collaboration with Inuit communities in Northern Canada, uses remote and in-situ sensing devices and an interactive platform to document Indigenous knowledges and provide digital tools relevant to subsistence and community safety in the context of rapidly changing sea-ice conditions.¹ Sometimes, other-than-human actants themselves prevent the proliferation and deployment of hegemonic technologies, as Pauline Chasseray-Peraldi (2022) shows via ethnographic glitchy vignettes of seagulls clashing with police drones at activist demonstrations in Paris. In other contexts, the hacking of environmental sensors to serve citizen sensing projects has sought to make visible and actionable the effects of environmental pollution on human health, including activities such as fracking (Gabrys et al., 2016).

However, subversive uses or reappropriations of data and technologies are not always, or inherently, positive. They can also present new risks to nonhuman life, as with hunters and fishers seeking to locate and harm wildlife for recreational purposes through accessing satellite tracking data produced by state wildlife agencies (Cooke et al., 2017). Attentiveness to glitches therefore offers geographers more than simply grounds for celebration, instead opening varied avenues for geographical research to rethink majoritarian narratives of the technonatural present.

Geographical thought and praxis in the technonatural present

This commentary has emphasised how the ubiquity of digital mediation has transformed the way more-than-human worlds and their increasing precarity are made sense of and studied by geographers. It has also sought to resist both techno-apocalyptic and techno-utopian impulses regarding the potentials of digital mediation in relation to the contemporary

ecological catastrophe. Instead, we advance an analytical framework for the technonatural present – digital ecologies – attentive to how digital mediation occurs in practice; attentive to the material infrastructures underpinning digitisation, the myriad encounters digital technologies facilitate and the operations of power it enables. In particular, we have attempted to highlight the minor, glitchy, and hacked elements of digital mediation and their capacity for generating hopeful futures for geographical thought and praxis.

As a framing of the contemporary era, the technonatural present is a space of intervention and action; where futures are (or can be) prefigured and affirmed. It is thus prime time to take stock of digital entanglement and to critically understand how nature is made (mediated) and remade (remediated), by whom, for whom, and with whom across more-than-human assemblages. Ecological collapse and mass digitisation simultaneously pose a series of conundrums for geographers: for example, what are the ethical implications of framing digital mediation affirmatively when many digital technologies are locked into harmful production and disposal networks? What other disciplinary insights might be useful for examining the technonatural present in its diverse manifestations? How can geographers employ digital mediation more consciously as part of their research methods, training, engagement, and outputs? These provocations all cohere around a need for technonatural histories, empirical work in the technonatural present, and ethical speculations on technonatural futures. Whilst emerging work in digital ecologies is bridging the conceptual and empirical interests of digital and more-than-human geographers in particular, we suggest these avenues of inquiry necessitate broader conversations, collaborations, and methodological innovation across the discipline of geography.

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Note

1. The SIKU website is for 'facilitating self-determination in research, education, and stewardship for Indigenous communities': see <https://siku.org/>.

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