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Article abstract

Internet algorithms influence the news we read, the products we buy, the music we listen to, the people we interact with, and even the words we use to communicate. Our preferences, beliefs, perceptions, and behaviours are all shaped by algorithmic processes, threatening our capacities for self-awareness and self-formation. What's more, algorithms operate smoothly and imperceptibly under the surface of our postdigital existence. How can we begin to make sense of our relationships with algorithms, knowing that they operate beyond the limits of perception? How can we reconsider the human-algorithm relationship as a way of opening new possibilities of being? Using a/r/tographic inquiry, I addressed these questions through a months-long process of walking, writing, and weaving, revealing insights that may help illuminate a path toward living with the complexities and contradictions while hanging on to the parts of ourselves that remain resistant to domination.

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WALKING-WRITING-WEAVING: AN A/R/TOGRAPHIC RECONSIDERATION OF THE HUMAN-ALGORITHM RELATIONSHIP

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Abstract: Internet algorithms influence the news we read, the products we buy, the music we listen to, the people we interact with, and even the words we use to communicate. Our preferences, beliefs, perceptions, and behaviours are all shaped by algorithmic processes, threatening our capacities for self-awareness and self-formation. What's more, algorithms operate smoothly and imperceptibly under the surface of our postdigital existence. How can we begin to make sense of our relationships with algorithms, knowing that they operate beyond the limits of perception? How can we reconsider the human-algorithm relationship as a way of opening new possibilities of being? Using a/r/tographic inquiry, I addressed these questions through a months-long process of walking, writing, and weaving, revealing insights that may help illuminate a path toward living with the complexities and contradictions while hanging on to the parts of ourselves that remain resistant to domination.

Keywords: a/r/tography; algorithms; walking; weaving; agency; entanglement; self-formation

Algorithms—mathematical processes upon which all computing technology is built—determine the news we read, the products we buy, the music we listen to, the people we interact with, and even the words we use to communicate (Just & Latzer, 2017; Kitchin, 2017). We are all embroiled in complex algorithmic relationships whether we are aware of them or not. Our preferences, beliefs, perceptions, and behaviours are all imperceptibly shaped by algorithmic processes. As Brubaker (2020) explained, our digital experiences are increasingly personalized by corporations who use algorithmic systems to ensure we are fed the content we prefer. Each of us encounters an individualized effect of these algorithmic processes. Rather than connecting us to others with new perspectives and broadening our understandings, algorithms use data from our pasts to show us more of what we have liked, reinforcing past selves and severely constraining our capacities to become anything else, mapping out "a space of our own for us to inhabit and discourag[ing] us from leaving that comfortable algorithmic home" (Brubaker, 2020, p. 789). What's more, algorithms operate in enigmatic black boxes (Hargittai et al., 2020), growing, changing, and producing in ways that are imperceptible even to their creators. It is impossible to know exactly what algorithms are up to. Yet, without algorithms, the world as we know it would not exist. Tools we have come to depend on to navigate daily life, such as search engines, GPS, news aggregators, video platforms, social media sites, and learning management systems, could not function without algorithms. For better *and* worse, algorithmic systems are here to stay.

What, then, are we to do? Subjectively, how can we begin to make sense of our relationships with algorithms, knowing that they operate beyond the limits of perception? Can we reconsider the human-algorithm relationship as a way of opening new possibilities of being and becoming? Although there are no answers to these questions, a months-long a/r/tographic process of walking-writing-weaving has created openings for the development of new insights regarding the human-algorithm relationship. A/r/tography, an "arts-based methodology grounded in the physicality of making and creating" (LeBlanc & Irwin, 2019, p. 1), which is defined in more detail below, was well suited to this inquiry as it is concerned with practices and processes "that question yet reimagine how we might live in difference" (Irwin, 2008, p. 78).

Understanding Algorithms

Before moving into a description of this a/r/tographic inquiry, it is necessary to articulate an understanding of algorithms. Though some have warned that the term *algorithm* has "become a sloppy shorthand" that can lead to "mistaking multipart, complex systems for simple, singular ones" (Bogost, 2015, para. 28), centring the conversation on algorithms emphasizes the active processes of technologization—processes that sort, collate, categorize, classify, decide, recommend, evaluate, predict, and regulate people, places, and things (Kitchin, 2017). Although I acknowledge the "danger of ascribing centrality to any feature of the massively complex globalized networks of hardware, software, content, humans, natural resources, techniques, knowledge and legal, political and social structures"

(Taffel, 2016, p. 332), I believe the value in focusing on the term algorithm outweighs the risks. Accordingly, my use of the term is intended to function as a kind of synecdoche to discuss the "particular sociotechnical ensemble" in which "people, representations, and information are rendered as data, are put into systematic/mathematical relationships with each other, and then are assigned value based on calculated assessments about them" (Gillespie, 2016, p. 22). Inherent in this use of the term is an attempt to describe and represent the "problematic rise of computational technologies in everyday settings" (Cellard, 2022, p. 983).

Technically, an algorithm can be understood as a step-by-step procedure for solving a specific problem (Gillespie, 2014). Algorithms use conditional logic and operate through "if … then" statements, which instruct programs to perform certain actions if certain conditions are met (Bucher, 2018, pp. 21–22). Algorithms only work "as a result of the translation of items, actions and processes into calculable and malleable units or data points" (Willson, 2017, p. 147). Indeed, algorithms and big data are interdependent; without the technological functionality to track each mouse click and keystroke and turn it into a data point, the algorithmic systems that have become "woven into the fabric of everyday life" could not function (Mackenzie, 2015, p. 430). Likewise, without these algorithmic systems, the mind-boggling quantities of data encapsulated by the term *big data* would be utterly unintelligible. As algorithms constantly dynamically respond to an endless stream of new data, they can be understood as "ontogenetic in nature (always in a state of becoming), teased into being . . . passing through multiple iterations stretched out over time and space" (Kitchin, 2017, p. 18).

Guiding Theoretical Perspectives

This a/r/tographic inquiry is informed by the postdigital perspective (Jandrić et al., 2018) and by Michel Foucault's (1988) conceptualizations of technologies of power and technologies of the self, which are explained below. The former perspective helps develop an understanding of the time we are living through, and the latter illuminates the entanglement of power and agency in the human-algorithm relationship.

The Postdigital Perspective

In "The Subject and Power" (1982), Foucault revisited Kant's 18th century question, "Was heisst Aufklärung?" explaining that the question meant, "What's going on just now? What's happening to us? What is this world, this period, this precise moment in which we are living? Or in other words: What are we?" (p. 785). The postdigital perspective provides a lens through which to address these questions and to contemplate the human condition at our current moment in time (Jandrić et al., 2018). The term *postdigital* can be traced to MIT professor Nicholas Negroponte's 1998 *Wired* magazine article in which he proclaimed that we had witnessed the end of the "Digital Revolution," (para. 6) and begun the transition to a time beyond the digital. His argument was based on the idea that digital technologies were

no longer new but had begun to be taken for granted, in the same way technologies described by philosopher Don Ihde (1993) as "background relations," like electricity and plumbing, go unnoticed in our daily lives. As Negroponte (1998) stated, "like air and drinking water, being digital will be noticed only by its absence, not its presence" (para. 4). In 2000, inspired by Negroponte's article, artist Kim Cascone used the term *postdigital* to describe the aesthetic created by technological malfunctions, or glitches, that occurred when humans partnered with digital technologies in creative acts. With these moments of technical failure, Cascone posited, the human became fleetingly present as a part of the sociotechnical artistic ensemble (Cascone, 2000).

The postdigital perspective considers questions "surrounding the entanglement of technology, culture and social change" (Taffel, 2016, p. 325), and asserts that we have moved beyond the digital to a time that is "hard to define; messy; unpredictable; digital and analog; technological and non-technological; biological and informational" (Jandrić et al., 2018, p. 895). The postdigital is a "highly dynamic process which evolves and grows every single time that we think of interactions between digital technologies and our 'original' nature" (Arndt et al., 2019, p. 9). In the postdigital, boundaries between analog and digital have become blurred to the point of nonexistence. We can no longer distinguish between real and virtual, as our digital actions and interactions are just as real as those that take place in the analog world. Boundaries between the human and the technological have similarly disintegrated. As Elwell (2014) posited, we inevitably and perpetually dwell in the uncanny valley, the place where boundaries between humans and non-humans no longer exist, where we may find ourselves simultaneously intrigued and repulsed by what is happening to us.

Life in the uncanny valley of the postdigital is a life of digital hyperconnectivity, of potential connection to "everyone and everything . . . everywhere and all the time" (Brubaker, 2023, p. 1). Digital hyperconnectivity has altered our perceptions of reality by "converting the whole of human culture into an endless stream of digital content, fed to us by personalized algorithms" (Brubaker, 2020, p. 772), making it increasingly difficult to sustain attention or engage in reflection (Klein, 2022), and leading to a "deterioration of the personality, evidenced by increased impatience, impulsivity, and narcissism, all signaling an inability to distinguish between self and other" (Pinar, 2012, p. 151). Life has always been confusing, but the hyperconnected life of the postdigital has the potential to become overwhelmingly so (Brubaker, 2020). Rather than wallow in perplexity and succumb to inevitable feelings of desperation, the postdigital perspective asks us to engage with our confusion and the messiness of postdigital life as an exercise of reconsideration (Jandrić, 2019; Jandrić & Knox, 2021).

Technologies of Power and Technologies of the Self

Writing before the proliferation of personal digital technologies, Michel Foucault (1988) articulated conceptions of technologies as forces that govern our lives. Foucault's technologies included technologies of production, technologies of sign systems, technologies of power, and technologies of the self. The third and fourth technologies (power and the self) provide a frame for the analysis of human history and culture, and for the contemplation of education as a continuous reconsideration of our relations to ourselves, to each other, and to the truth. As Foucault (1988) explained, technologies of power "determine the conduct of individuals and submit them to certain ends," while technologies of self "permit individuals to effect by their own means . . . a certain number of operations on their own bodies and souls, thoughts, conduct, and way of being" (p. 18).

According to Foucault (1982; 1987), power is always dependent on the potential for resistance. Power without the possibility of freedom is no longer power; it is a state of domination. By the same token, the self cannot exist outside of its relations to others, which will always include relations of power. Thus, technologies of power and technologies of the self are interdependent concepts, defined by their inextricable relationality to each other. It follows, then, that we are always dwelling somewhere in the middle, in the space between external processes and reflective practices. In the context of this project, that messy, unpredictable, confusing condition of the in-between is the human-algorithm relationship. As technologies of power, algorithmic processes exert control, often working to shape us into neoliberal consumer subjects. Through our reflective practices, or technologies of the self, we may develop methods of awareness of—or even resistance to—these algorithmic processes. Yet, we can never fully escape them. Despite this, "there is life in prison," and "with inner struggle, including detachment from devices, becoming subjectively present within them, we may not in every instance be reduced to information, however channelled through information we must be" (Pinar, 2021, p. 145).

As Foucault (1984) explained, "in order to exercise a relation of power, there must be on both sides at least a certain form of liberty" (p. 123). Judith Butler (1995) rephrased Foucault's point, explaining, "that the subject is that which must be constituted again and again implies that it is open to formations that are not fully constrained in advance" (p. 135). If we are indeed open to becoming something other than what algorithmic systems want us to be, how might we realize that possibility? Having spent countless hours contemplating this issue, I have concluded that thought itself is not enough; we must actively undertake practices to counter algorithmic technologies of power that sort, collate, categorize, classify, decide, recommend, evaluate, predict, and regulate us. Direct counteraction is largely not possible, as our daily lives are enmeshed in unknowable algorithmic black box systems. Taking breaks from technology may be beneficial, but even our patterns of non-use are tracked as a type of use (Bucher, 2020), making it impossible to opt out. Aesthetic processes and practices that stand in opposition to a widespread societal faith in measurement and

calculation may help us approach our relationships with algorithms on an angle, however, creating opportunities to suspend the algorithmic order and "live with the paradox that results when opposing forces—rule and exception—can occupy our thoughts and demand no resolution" (Phelan & Hansen, 2021, p. 18). A/r/tographic inquiry is one such way to do so.

A/r/tographic Inquiry Into the Human-Algorithm Relationship

To attempt to reconsider the human-algorithm relationship as a way of opening new postdigital possibilities of being, I engaged in an a/r/tographic process of walking-writing-weaving. A/r/tography involves an aesthetic inquiry into the world (Irwin, 2003) as a way of disrupting traditional forms of social sciences research and "provoking alternate possibilities for understanding" (LeBlanc & Irwin, 2019, p. 1). Although numerous studies have aimed to arrive at generalizable findings concerning our relationships with algorithms using traditional methodologies (e.g., Dogruel, 2021; Hargittai et al., 2020; Latzer & Festic, 2019; Vartiainen et al., 2022), an a/r/tographic inquiry allowed for deep immersion within the complexities and nuances of the human-algorithm relationship and created opportunities to gain insights into the fascinating, bewildering elusiveness of what it means to exist in the postdigital age.

In what follows, I describe my a/r/tographic inquiry, the thought processes behind decisions to undertake specific practices as part of this inquiry, and insights gained through the process. My description is composed of expository and poetic writing, along with photographic images related to the weaving process. This composition is intended to serve as a form of a/r/tographic rendering, sustaining "multiplicity, ambiguity and indeterminacy" (Barrett, 2013, as cited in LeBlanc & Irwin, 2019, p. 2). As such, I invite the reader to consider my process and insights as disclosures particular to my embodied experiences of the world that can never be fully understood or experienced by anyone else. As Maurice Merleau-Ponty (2012) put it, "the thing can never be separated from someone who perceives it; nor can it ever actually be in itself because its articulations are the very ones of our existence" (p. 334). I hope that by sharing my a/r/tographic inquiry others might be encouraged to reconsider their own relationships to algorithms through aesthetic means, a/r/tographic or otherwise.

Walking

Walking is a mode of inquiry within a/r/tography that recognizes the value and uniqueness of embodied knowledge and creates opportunities for engagement with the physical world (Lasczik et al., 2021). As Irwin (2006) explained, walking can be understood as "a curriculum that notices those liminal moments and spaces in between elements . . . and uses those occasions to nurture an aesthetic and spiritual currere" (p. 120). Indeed, with a cultivated sense of attentiveness and awareness, walking fosters dynamic ways of seeing, being seen, and engaging with the world, with each other, and with our selves (Lasczik et al., 2021). This form of motile investigation encourages a kind of theorizing that promotes

linkages between cognition and embodiment, and between reasoning and aesthetics (Burke et al., 2017).

I engaged in a practice of algorithmic walking four times per week for several months. I used two mobile phone applications for this undertaking: a randomization app that directed my movements as I walked through the city, and a GPS app that tracked my path. Each time I reached an intersection during a walk, I pressed a button. The randomization app then instructed me to turn left, turn right, or continue walking straight ahead. Most algorithms we encounter in our daily lives are far from random, instead making meticulously calculated decisions using machine learning techniques based on massive data sets and personalized data profiles, as described above. Further, the algorithms that govern our lives and shape our realities lack the transparency and simplicity of the randomization app I allowed to dictate my path through the world. By employing such a simplistic version of an algorithmic system, however, I was able to deliberately subject myself to an algorithmic technology that controlled my behaviour and shaped what was possible for me to encounter, as I moved about the world in a way I could experience and examine. My goal in intentionally engaging with these technologies of power was to attempt to bring algorithmic processes, albeit simplistic ones, to the level of perception. Each time I walked at the instruction of the randomization app, I also activated the GPS app, which tracked my movements and created a map of each journey. Of course, there was a cost to this practice. Using these apps involved knowingly and willingly allowing identifying data about my location, my movements, my habits, and my body to be "ogled by corporate surveillance" (Brusseau, 2020, p. 8). It was impossible for me to know what was being done with my data and, by extension, with me. As such, algorithmic walking necessitated a degree of submission, or an intentional relinquishment of control.

To attempt to regain a sense of agency, if only partially and temporarily, I introduced a second component to my algorithmic walking. After some time had passed on each walk, I closed both apps and turned off my phone, instantaneously traversing the postdigital in-between of hyperconnection *and* disconnection. My intention in continuing through the world without my algorithmic companions was to engage in walking as a technology of the self; however, as my practice progressed, I became aware of the cost of attempting disconnection. Although, by turning off my phone I felt suddenly and joyfully free from the algorithmic technologies of power, I was also disconnected from technological tools I consider essential to my daily existence, namely, the app that allows me to control my hearing aids and the app that connects me to the Continuous Glucose Monitoring system of my partner, who has Type 1 diabetes. The immediate feelings of freedom I felt upon shutting down my phone slowly gave way to a mild, creeping dread. Something important could have been happening, and I had no way of knowing. It thus became apparent that, just as there was a cost to intentionally submitting myself to technologies of power, there was also a cost to trying to shut myself off from the digital aspects of postdigital existence.

As I engaged in this walking practice of hyperconnectivity/disconnectivity, my attention and awareness—in relation to myself, my algorithmic companions, and the human and nonhuman postdigital world I moved through—dynamically grew and constricted. The awareness referred to in typical conceptualizations of algorithmic awareness—that there are algorithmic processes involved in the functionality of particular applications or services (e.g., Dogruel, 2021)—is a conscious awareness that can be easily articulated and empirically measured. But, as I walked, it became clear that awareness is not so straightforward.

> *Awareness was hard enough in the old world, the analog world, where things were not always as they seemed but could, with enough diligence and patience and attention and silence, hope to be seen.*
> *But here in the uncanny valley, in the space of the analog and digital, of the human and algorithm, of intrigue and repulsion, of satiation and starvation, what is awareness? I am aware of algorithms. I'm aware of what they're doing if not exactly how they do it. I'm aware of their output, of the things they reveal, of the version of reality they make just for me.*
> *I'm aware of these things. I'm aware of my response to these things. I'm aware of my awareness of my response to these things.*
> *How far can this conscious awareness get me? What's next?*

Perhaps what is needed is an aesthetic awareness, an "opening of the spaces between possibilities and limitations" (Irwin, 2003, p. 65) within the human-algorithm relationship.

Direct engagement with technologies of power in the form of algorithmic processes brought me further into the speculative middle as I attempted to consciously parse my way through what was happening. When I let go, however, I found an awareness that not only helped me understand my relationship with these algorithmic processes but helped me experience the world around me differently.

> *The phone is off and I'm*
> *terrifyingly and*
> *beautifully alone.*
>
> *Filled with a nearly overwhelming surge of energy.*
>
> *I cross the road for no reason;*
> *I cross back again.*
>
> *The sun glints off the Safeway window and I peer through my reflection to behold the spectacular assortment of fruits and vegetables radiating with luminescent energy like the cats of Louis Wain.*

I have never eaten
a mango.
Today will be the day.

Figure 1
Awareness and the Speculative Middle

Writing

Writing, as van Manen (2014) explained, can help us "deepen and change ourselves in ways we cannot predict" (p. 20) and can bring our experiences "into being as experiences because we name and describe them" (p. 35). Writing is a central component of a/r/tography, both as an artistic practice (Leggo, 2010) and as a key aspect of the research process (Burke et al., 2017). Rather than writing a research report to explain results, writing as a part of a walking a/r/tography is entwined with other aspects of the process (Burke et al., 2017). As Springgay and Truman (2018) pointed out, writing and walking happen at the

same time; when one is walking, one is “writing in movement” (p. 133). Walking-writing creates speculative middles, and is “a practice of muddling things, of making problems, and agitating thought. In the speculative middle, one does not resolve or clarify an idea, rather walking-writing complicates, stirs, and unsettles thought” (Springgay & Truman, 2018, p. 134).

When I began this project, I intuited that writing each walk would be essential, though I wasn’t exactly sure why. I also wasn’t exactly sure what form my writing would take, only that it was important to do it. From my very first algorithmic walk, the significance and necessity of walking-writing became abundantly clear. Simply knowing that I would be writing upon returning home after my walk led me to consider complexities and conundrums of my algorithmic walking experiences more fully and deeply than I would have otherwise. Although I understood right away that writing would be meaningful, what began as rather disjointed and clumsy attempts at phenomenological walking-writing developed over time into more compelling and poetic forms of inquiry. Walking-writing helped me understand that my relationship with the simplistic algorithmic randomization app to which I was surrendering control was not so simplistic at all. By bringing algorithmic processes to the level of perception, I was attempting to exert agency and take said processes out of their black boxes (Matzner, 2017); however, I ended up creating an illusory experience in which I consented to algorithmic effects at every intersection. Each time I stopped, I reconsidered my next step. Would I push the button again? Would I submit to the algorithmic command? Or would this be the moment I grew tired or impatient or bored and turned off my phone? Was I really submitting to algorithmic governance, or was I playing a sort of agentic tug-of-war? Although I dutifully followed the algorithmic directions even when they led me into uncomfortable situations, such as the time I walked behind a garbage truck for much longer than I wished to, I could choose to stop at any moment. In the human-algorithm relationship, we very rarely have this luxury.

I take in air,
it becomes part of me,
and I exhale something new.
My breath is no longer my own.

Loud noises make me wince.
Beautiful music makes me weep.
A tingling wave of heat washes over me when somebody else gets hurt.

The bright sunlight makes my pupils get smaller,
the darkness makes them grow.
The cool air chills my skin,
my fingers become white and numb.

When it is hot,
I sweat.

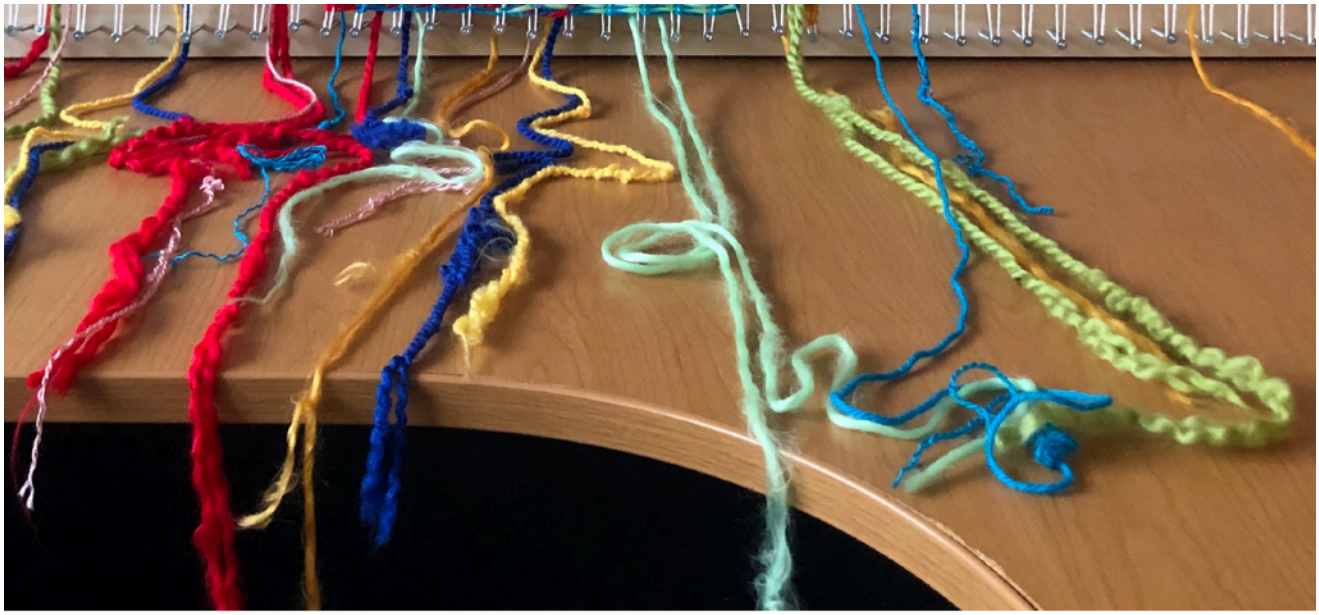
I am never
not
involuntarily responding
to everything else around me.

The phone buzzes and
I look at it.
The laptop dings and
I look at it.
The elevator TV glows and
I look at it.

The elevator TV glows and
I look at it every time.
I hate looking at it and
I look at it every time.
I am aware of it and
I look at it every time.
I am aware that I hate looking at it and
I look at it every time.
I want to bash it with a hammer but
I look at it every time.

I look at it and
it becomes part of me.
My thoughts are no longer my own

Figure 2
Illusions of Deviance



> *It's not raining so there are many more people around than on a typical weekday. The men leer at the women as we walk. They look at our bodies as if they have the right to stare at whoever they want, to invade us with their gaze. The older the men, the more brazen the ogling. These old men are the corporate algorithms of the analog world. Their eyes bug out of their faces; their tongues loll down to the sidewalk. They are cartoon bears who have caught a whiff of an apple pie cooling in the window. I want to slap them or shake them. "What's wrong with you!" I'll shout. "Can't you see she's a human being! Go stare at a rock, you lecher!" But I don't do that because, really, I can't. I mustn't. I can't help the rest of us, but I have my own way of protecting myself. I'm covered in thick, woolen armor. My sweater is two sizes too big. The fleece coat over that is even larger. My trousers billow around my legs. I'm wearing clunky men's loafers. Take that. You can't see me. I know how to become invisible.*

But *do* I know how to become invisible? I may know how to get men to stop looking at me, but when it comes to algorithms, I'm hopeless. And is invisibility really what I'm after? Or is what I'm hoping for just another way of being seen?

Weaving

I was drawn to weaving as a means of artistic expression for my a/r/tographic inquiry for several reasons in addition to my comfort and familiarity with fibre arts. In many ways, weaving can be seen as a technology of the self. The repetitive motions of moving the weft through the warp create moments of introspection, allowing one to develop embodied

reflections. Yet, the act of weaving simultaneously pulls one back into the physical world; losing focus on the material tensions can ruin the product. I have long been inspired by the textile and fibre artist Sheila Hicks, who engages in a metaphorical practice of weaving to inquire into conceptions of deviance and agency, among other things (Westfall, 2007). Hicks is known for the diversity of her work, which ranges from monumental pieces, such as *Pillar of Inquiry/Supple Column,* that work symbiotically with the architecture of the buildings in which they are housed (The Hepworth Wakefield, 2022), to tiny woven Minimes. In describing a particular Minime, Hicks (The Museum of Modern Art (MoMA), n.d.) explained:

> So much of weaving is a grid. The grid is what most of our lives are built around. And then the deviance of the way people refuse to stick to the grid . . . Why does the thread have to obediently cross the warp on the way up and down? Maybe it can just twirl and wrap around. (2:13)

Most of Hicks' work is made of intentionally selected, richly hued fibres and textiles. As she described, "I have often thought colour and texture and form are inextricably linked" (MoMA, n.d., 1:00). Though many fibre and textile artists expound the virtues of natural fibres, Hicks finds wonder in variety. "I have no prejudices about materials," she said. "The more pliable they are, and the more adaptable they are, the more I am attracted to them" (MoMA, n.d., 0:38). I share Hicks' sentiment and find myself drawn to the personalities of materials rather than the labels.

To begin my weaving, I built a loom using a two foot by four foot wooden board and many long screws. I selected eight different colours and textures of yarn to allow for some distinction between different paths taken throughout the project. The yarns I was drawn to were bright primary or secondary colours evocative of Hicks' work, and which I later realized were the same red, blue, yellow, and green of one of our most prominent examples of technologies of power: Google. I wove the GPS tracing of each walk onto the loom upon which I imagined a map of the city. Over time, the layers of yarn overlapped and built up, highlighting repeated paths and points of divergence. To mark the point on each walk at which I turned off my phone, I left a long tail of yarn hanging behind the woven tapestry, intentionally frayed and unrestrained.

As mentioned above, expanding walking-writing to become walking-writing-weaving added another layer of embodied reflection and provided opportunities to synthesize insights. Without weaving, I fear I may have remained stuck in the mire of the speculative middle, unable to find my way through to the illuminated space of reconsideration. The intersections and overlaps of my walks created a form of abstract mapping (Lasczik et al., 2021) that helped me understand hyperconnectivity in a different way.

Pulling and plucking at the tails of yarn brought about a profound visceral connection to my inquiry. Certainly, there is something undeniably visceral about yarn itself; the word comes from the Old English *gearn,* which is of Germanic origin and means guts or intestines

(Merriam-Webster, 2022b). Not only does yarn resemble guts in appearance and texture, creating with yarn often involves feeding it from a position close to the abdomen through the fingers to the piece of fabric it becomes. Notably, the word yarn is also used informally to mean a long, rambling story, often spun from the fibres of everyday life. Like the yarn I used, which existed in a speculative middle of its own in between its raw, unspun, undyed state and its future as part of a work of art, I found myself and my experiences pulled together through the process of weaving.

The act of weaving and the ever-growing tapestry flattened and condensed time and space, with different versions of myself piling up on top of one another. Was I the red path, or the yellow one? The weaving indicated I could be both and more, twisting back on myself, moving under and over, sometimes getting tied in knots. The long tails hanging from behind the tapestry soon became entangled with each other too, questioning the supposed freedom they represented. The firm, clear algorithmic paths woven into the tapestry and the messy, knotted tails illustrated the tensions of algorithmic entanglement. At times, this entanglement seemed akin to a complicated romantic relationship in which one person, or in this case, entity, holds most of the power and the second person is taken by or caught up in the orbit of the first. At others, it seemed to be more of a *quantum entanglement*, an entanglement of two particles inextricably linked in a perfectly symbiotic relationship across space, simultaneously changing no matter how far apart (Merriam-Webster, 2022a). As each new walk was woven on top of and around the older ones, they changed each other, straining and stretching under the tension. Impressions of the past were thus shaped by the algorithmic present, awaiting inevitable future mutations.

The silken scarf is knotted tightly under her chin.
Her scowl pushes her chin skin down,
melting the folds of flesh and fabric together.

She is scowling at me.

No, she's not.
She scowls.
Her scowl is not a present continuous action,
it is a permanent state of being.
She has never not and will never not scowl.

She reminds me of the women of Budapest and suddenly I'm back there, leaving the M3 metro, leaping off the incredibly fast-moving escalator, pushing through the crowds next to the pizza shop with its tuna corn pizzas. I'll never understand how they can eat that. I'll never understand anything here. I'm walking alone in Vancouver, but I feel the way they lean against me on the trains. I hear the disjointed melody of Hungarian peppered with English. I look like them. They constantly ask me for

directions. I look like them and I look like I know where I'm going but that is very far from the truth.

In many ways, we are the submissive party in the entangled human-algorithm relationship, often taken in by pleasing algorithmic effects. But we are also part of a quantumly entangled relationship with algorithms. We are simultaneously affected by algorithmically generated content just as we affect it through our clicks and likes. Furthermore, hyperconnectivity has created a sort of entanglement between each of us and the entirety of human history and culture, as well as with each other and our ever-growing collection of algorithmically enabled things (Brubaker, 2020). What does it mean to say the boundaries between self and other have dissolved to the same extent as the boundaries between the analog and the digital? Does this have to lead to the self-involved narcissism Pinar (2012) has identified, or might it be reconsidered to create openings where there previously were none?

It's the time of the yellow leaves. The orange ones and the red ones had their age, decorating the branches and the ground with their fierce fiery beauty. The yellow leaves have patiently waited their turn and now it has come.

Soon it will be the time of bare, brown branches, of tiny, twisted twigs. They will mark the moments of winter until the green buds of spring appear. But now is the time of the yellow leaves and I love that they are here.

Somehow, I'd never noticed the yellow leaves before. Are things different this year, or are they always this way? Are the leaves changing, or am I? Does it matter?

I turn a corner, and a stranger meets me with a welcoming grin. Without thinking, I grin back. As we pass, headed in different directions, large foolish smiles pasted on our faces, I think, "I think she thinks she knows me." Then I think, "What if she does?"

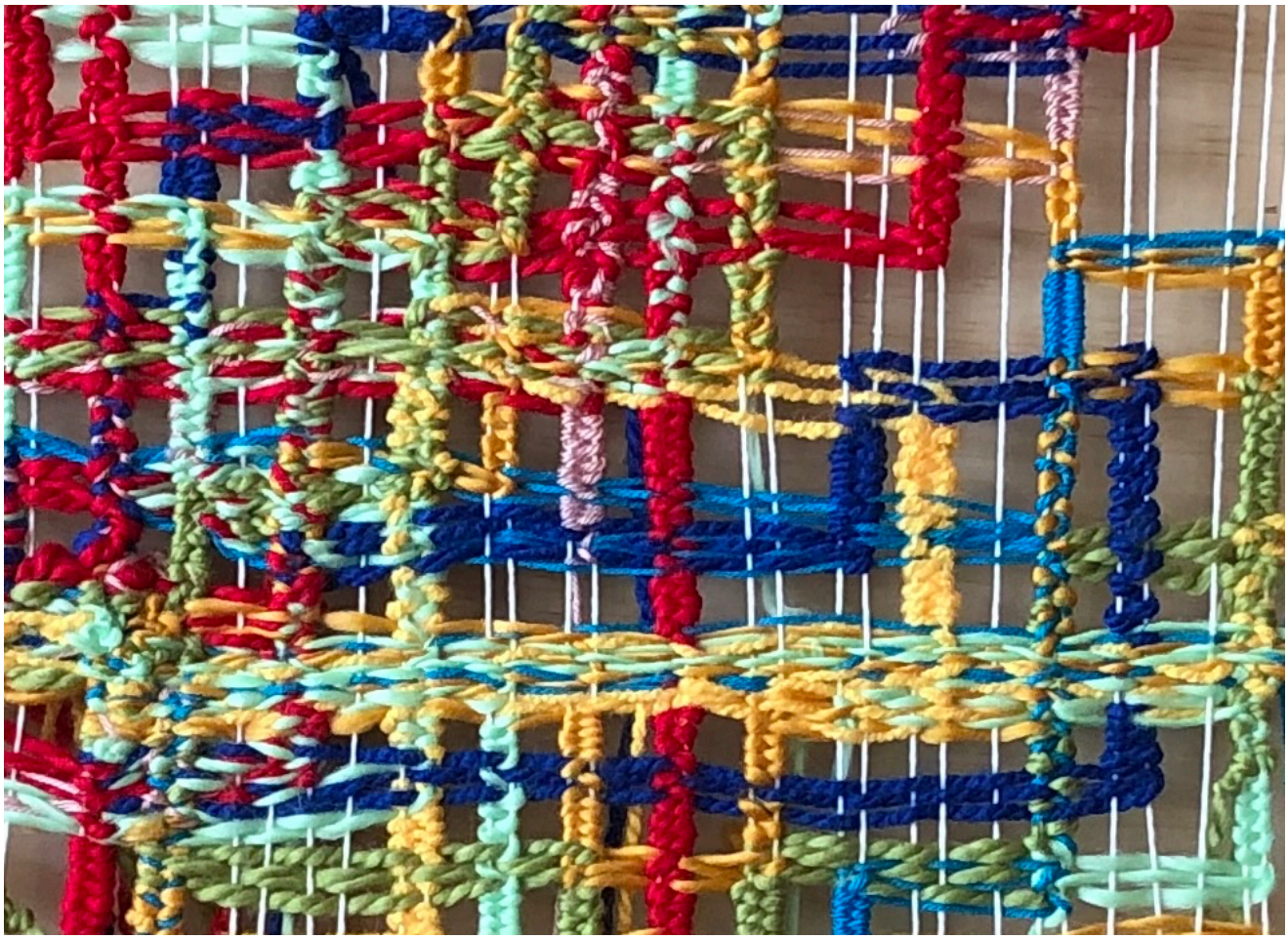
What if she is doing the exact same thing I am doing? What if she is walking around the city at the direction of a randomization algorithm, tracking her walks with GPS? What if she is also trying to bring algorithmic processes to the level of perception? What if she will also go home and write strange things like this about her walks? What if she has a loom, and she weaves her walks, and it helps her understand things a little bit better? What if she is studying the human-algorithm relationship, and she writes the same things that I write? What if she does a better job? What if she does a worse one? What if she's already finished, she's figured it out, and she's grinning at me because she knows what I'm going to go through?

What if it was I who grinned first? What if we grinned at each other at exactly the same time, and both of us think we were merely grinning back at a slightly unhinged

alternate version of ourselves? What if she is me? What if I am her? What if she is an algorithm, reflecting a version of me back at myself? What if I am her algorithmic counterpart? What if she wasn't there at all, and I imagined the whole thing? What if I was walking and grinning at no one? What if I've been alone this whole time? Does it matter?

What if the concrete and pavement of the city I walk through disappeared? What if the bare earth remained? What if I walked there, with no signposts or stoplights or sidewalks? What if I walked on the grass and the dirt and the roots of the trees in the time of the yellow leaves?

Figure 3
Entanglements



Pause

Over the last few months, people have asked me to tell them about the a/r/tographic inquiry project described in this paper. Most of these conversations inevitably conclude with the person I'm speaking to telling me how much they are looking forward to seeing what the weaving looks like when it is finished. I've been repeatedly baffled by this response. At first, I thought maybe I was doing something wrong. Why would they think it would ever be finished? Did they miss the point? Do they not understand that our relationships with algorithms will never end, and neither will the imperative to reconsider these relationships? Over time I began to realize that the reaction I have been encountering *is* the reason for a/r/tography. To disrupt this instrumentalist and deterministic focus, we must constantly reconceive ourselves as researchers, teachers, and artists, in whatever form that may take in each of our lives. Our journeys of self-formation and discovery, and of ongoing reconsideration of our relationships with ourselves, each other, and the truth, should never end, yet our traditional research practices often frame life as if it can be tied up and concluded in a neat little easily digestible package. As a method of countering algorithmic efforts to determine our being and becoming, a/r/tographic inquiry can help us live with complexities and contradictions while hanging on to the parts of ourselves that remain resistant to domination.

Figure 4
Openings

Rather than end this paper with a conclusion, I mark the passage of time with a pause. I will likely not continue with this particular iteration of walking-writing-weaving for much longer. But as long as it is paused rather than concluded, I leave openings for new insights, further reconsiderations of the human-algorithm relationship, and possibilities for subjective reconstitution.

Figure 5
Continuations

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