

A Networked Self

Each volume in this series develops and pursues a distinct theme focused on the concept of the Networked Self. The five volumes cover the broad range of socio-cultural, political, economic, and sociotechnical issues that shape and are shaped by the (networked) self in late modernity—what we have come to describe as the anthropocene.

A Networked Self: Identity, Community and Culture on Social Network Sites

A Networked Self and Platforms, Stories, Connections

A Networked Self and Love

A Networked Self and Birth, Life, Death

A Networked Self and Human Augmentics, Artificial Intelligence, Sentience

Growing upon the initial volume, *A Networked Self: Identity, Community and Culture on Social Network Sites*, published in 2010, the five volumes will form a picture of the way digital media shape contemporary notions of identity.

A NETWORKED SELF AND HUMAN AUGMENTICS, ARTIFICIAL INTELLIGENCE, SENTIENCE

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3

SELF IN THE LOOP: BITS, PATTERNS, AND PATHWAYS IN THE QUANTIFIED SELF

Natasha Dow Schüll

Which is the kind of being to which we aspire?

—Michel Foucault (1984)

We lack both the physical and the mental apparatus to take stock of ourselves. We need help from machines.

—Gary Wolf (2010)

In 1990, just as digital information and communication technologies were coming into widespread use, the French philosopher Gilles Deleuze (1992) suggested — that the architectural enclosures, institutional arrangements, and postural rules of disciplinary societies were giving way to the networked technologies of “control societies,” involving continuous coding, assessment, and modulation. The latter scenario bears an uncanny resemblance to the tracking-intensive world of today, in which the bodies, movements, and choices of citizens and consumers are ever more seamlessly monitored and mined by governments and corporations. The capacity to gather, store, and analyze individuals’ physiological, behavioral, and geolocational data has come to affect a wide array of domains, from policy making to policing, corporate marketing to healthcare, entertainment to education.

Scholars working in the emergent field of critical data studies argue that data-tracking has come to “permeate and exert power on all manner of forms of life” in societies that are robustly digitally networked (Iliadis & Russo, 2016, p. 2). Some emphasize the “asymmetric relations between those who collect, store, and mine large quantities of data and those whom data collection targets” (Andrejevic, 2014, p. 1673; see also Beer, 2009; boyd & Crawford, 2012; van Dijk, 2014). Individuals perform unpaid and invisible “digital labor” in their role as data sources (Lupton, 2016, p. 118; Till, 2014); their data streams become “biocapital” to harness and

exploit (Rabinow & Rose, 2006, p. 203). Selves are “sliced and diced into decontextualized parts, and bought and sold,” write anthropologists Neff and Nafus (2016, p. 62). Others focus on the threats that data-analytical *algorithms* pose to human agency, as “operations, decisions and choices previously left to humans are increasingly delegated to analytical algorithms, which may advise, if not decide, about how data should be interpreted and what actions should be taken as a result” (Mittelstadt et al., 2016, p. 9; Beer, 2009; Lash, 2007; Mackenzie, 2005).

Yet even as heated academic and public discussion unfolds around the dangers of data technologies, people have invited sensors to gather information about them through mobile apps and networked devices, convert this information into electrical signals, and run it through algorithms programmed to reveal insights and, sometimes, inform interventions into their future behavior. The contemporary world is characterized by “an intimacy of surveillance encompassing patterns of data generation we impose on ourselves,” writes anthropologist Joshua Berson (2015, p. 40). As prescient as Deleuze’s vision of the future was, Berson notes that the philosopher did not anticipate the degree to which the tracking and coding of bodies and acts would be drawn into the project of self-formation and self-care.

Michel Foucault (1988, p. 18) distinguished between technologies of power, “which determine the conduct of individuals and submit them to certain ends or domination, an objectivizing of the subject,” and technologies of the self—through which individuals perform “operations on their own bodies and souls, thoughts, conduct, and way of being, so as to transform themselves in order to attain a certain state of happiness, purity, wisdom, perfection, or immortality.” The latter take a literal, material form in the assemblages of sensors, analytical algorithms, and data visualizations that constitute contemporary self-tracking practices. This chapter brackets the growing literature on how data tracking serves as a technology of power to explore how it can also serve as a technology of the self—as a means, a medium, and a cipher for human experience, self-understanding, and sense of agency. Such an inquiry is a worthwhile endeavor not only in itself but also because it allows a richer understanding of datafication and its dynamics, and a more effective critique of its asymmetries and discontents. My point of entry for this exploration is the Quantified Self (QS) community.

Quantify Thyself

Nearly a decade ago in the San Francisco Bay Area, small groups of technologically savvy, existentially inquisitive individuals began to gather and reflect on what they might learn from data-gathering devices and analytical software about the mundane mysteries, dynamics, and challenges of their day-to-day lives—drug side-effects, sleep disorders, the association between diet and productivity. One at a time, they would “show and tell” their experiments in self-data, delivering 10-minute presentations scripted to answer a trio of framing questions: *What*

did you do? How did you do it? What did you learn? After sharing their experiences, speakers would entertain questions and solicit feedback from those in attendance.

The group was anointed Quantified Self (QS) and, evoking the Delphic maxim “know thyself,” given the tagline “self-knowledge through numbers” by co-founders Gary Wolf and Kevin Kelly, both former editors of *Wired* magazine. Through social media like meetup.com, QS quickly established a presence in major urban areas across North America and Europe, drawing in newcomers through a website featuring videos of members’ presentations, a message board where people could discuss tracking tools, and links to local meet-ups. Today Wolf describes the group as “a loosely organized affiliation of self-trackers and toolmakers who meet regularly to talk about what we are learning from our own data” (2016, p. 67).

QS gained national prominence in the United States in April 2010, when a long-form essay by Wolf, “The data-driven life,” ran as the lead article in the *New York Times Sunday Magazine*, a human figure collaged from graph paper, calipers, and folding rulers appearing on the cover. The article proposed that data could serve not only as a means of inspecting others’ lives (as an actuary, policy maker, or welfare officer might) but also as a new kind of digital mirror in which to see and learn new things about ourselves. “Humans have blind spots in our field of vision and gaps in our stream of attention,” wrote Wolf, “We are forced to steer by guesswork. We go with our gut. That is, some of us do. Others use data” (2010). In heart-rate spikes or mood dips charted over time, individuals could better grasp how they were affected by seemingly trivial habits or circumstances than by relying on expert advice, guesswork, or even intuition. “If you want to replace the vagaries of intuition with something more reliable, you first need to gather data,” insisted Wolf. “Once you know the facts, you can live by them.” In this do-it-yourself formula for self-care, data-intensive technology such as automated sensors, enumerative metrics, and statistical correlation were presented as tools for the good life.

Most who posted in the comments section for the story expressed disdain for the intensively tracked and monitored life that Wolf had prescribed, diagnosing it as a “loss of human-ness.” A woman from New Jersey asked: “When do we reach the point that all we’re doing is logging data for a life that’s not being lived?” A reader from Kansas wondered what of lived experience we might miss by dwelling on “how many licks it takes to eat a lollipop” while another from Philadelphia wrote that “we are not machines and no amount of data will make us so—and no amount of data will give us all the answers to the bigger mysteries.” The general response was that an excessive emphasis on that which can be measured degrades existence, rendering the unquantifiable stuff of life as so much noise to be filtered out.

A similar sentiment ran through the stream of one-off journalistic profiles of extreme self-trackers that appeared between 2010 and 2013 in the pages of *Forbes*, *Vanity Fair*, and even *Wired* itself, accounts that typically portrayed their subjects as caricatures of technological boosterism and American individualism

(e.g. Hesse, 2008; Morga, 2011; Bhatt, 2013). Relying largely on these pieces, the cultural critic Evgeny Morozov (2013) launched an acerbic attack on the quantified-self community, alleging that its abandonment of narrative reflexivity in favor of soulless numerics was both dehumanizing and politically troubling. In a similar vein, social scientists have been quick to pin self-trackers as exemplary figures of contemporary biopolitics and governmentality, responsibly managing and optimizing their lives as cogs in a neoliberal wheel (Lupton, 2016; Ajana, 2017; Depper & Howe, 2017; Rich & Miah, 2017; Oxlund, 2012).

Yet an emerging body of ethnographic research has begun to pull the curtain back on a more nuanced reality, challenging the idea that quantified selves are necessarily existentially impoverished, depoliticized, or exploited. "QS is one of the few places where the question of why data matters is asked in ways that go beyond advertising or controlling the behaviors of others," write Nafus and Sherman (2014, p. 1788). As self-trackers readily acknowledge, quantification "rarely produces a definitive truth, a one-to-one representation of one's life or one's identity" (Sharon, 2017); instead, it involves a "situated objectivity" (Pantzar & Ruckenstein, 2017) in which certain prior experiences, understandings, and shared expectations come to matter. Sherman (2016) has described self-tracking as an aesthetic practice in which bits of the self, extracted and abstracted, become material for differently seeing and experiencing the self. Data is a kind of "transducer" that preserves only some qualities of the thing being measured such that "there is much room for people to maneuver in the imperfect translation" (Neff & Nafus, 2016, p. 25). Looking at personal data charts and visualizations can trigger critical reflection and raise new questions to pursue; the data does not displace or freeze but rather enhances and enlivens self-narratives (Ruckenstein, 2014, van den Eede). Self-quantification "sets up a laboratory of the self" in which "devices and data contribute to new ways of seeing the self and shaping self-understanding and self-expression" (Kristensen & Ruckenstein, 2018, p. 2). Such research approaches self-tracking as a form of open-ended experimentation in datafied subjectivity that is potentially noncompliant, creative, and reflexive—with as yet undetermined individual and collective possibilities.

This experimentation comes to the fore in the following scenes and conversations, which unfolded among participants in a two-day Quantified Self meeting in 2013.¹

Seeing the Signal

After the 400-odd conference attendees had settled in their seats in the airy main hall of an Amsterdam hotel for a weekend of presentations and discussions, Gary Wolf took the stage to open the proceedings with a question: What exactly is a *quantified* self? Clearly, "quantification" involved collecting and computing data about ourselves, but "self," he ventured, was a more ambiguous term. How to understand the self in quantified self? What happens to the self when we quantify it—when "computing comes all the way in"?

Robin Barooah, a British technology designer now working in Silicon Valley, offered his answer to that question in the first show-and-tell session following Wolf's address. Wearing his signature fleece jumpsuit, he used a mixture of data visualization and personal backstory to share how he had measured his mood. Less fleeting than emotion but not as entrenched as temperament, "mood is mysterious," he noted. Robin had been drawn to a quantified-self approach to mood because he thought it could help him find non-intuitive, non-obvious connections between his life circumstances, daily habits, and mood. In 2008, a year he described as the most painful of his adult life, finding these connections was a matter of necessity rather than curiosity or self-experimentation: "I had to start examining my life and work out what to do."

"This isn't statistical analysis," he reassured the audience as he gestured at the timeline of data projected on the large screen behind him, mindful that not all conference attendees were versed in such a technique. The timeline spanned four years and plotted two variables whose relationship to his mood he was curious to learn: above the line, in blue, appeared the amount of time he had meditated daily, tracked with a timer;² below the line, in red, appeared the number of entries he had made each day in an online calendar set up to track his mood (see Figure 3.1). The choice to plot *how many* entries he was putting in the journal rather than some measure of their semantic content—a rating of the relative turmoil or

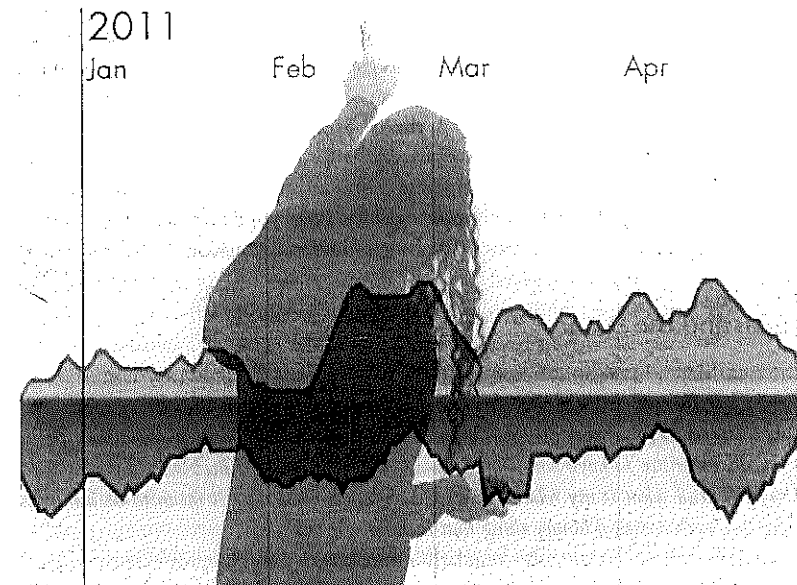


FIGURE 3.1 Robin Barooah on stage at QS 2013, explaining his data timeline (screenshot from video of presentation, available online at <https://vimeo.com/66928697>).

calmness expressed in his words, for instance—was deliberate: it was a way to measure the practice of journaling and see what it might reveal about his mood. What he was surprised to see when he finally (years later) plotted his data on minutes meditated and entries written was the uncanny correspondence between those two variables. “The coupling between the two lines is very clear,” he told us. On any given day, more meditation was mirrored by more journaling, and vice versa. The tight correspondence gave his timeline the look of a Rorschach inkblot turned on its side, its top half in blue and its bottom half in red.

Robin drew the audience’s attention to particularly volatile moments in the moving averages along the timeline: “this dip is where I was flying a lot”; “this trough with no color at all is a time of crippling anxiety and depression.” Travel and major life events, including the death of his father, decoupled otherwise correlated routines or lessened their symmetry. He pointed out a spot on the timeline with a large glacier of red activity beneath it and explained that a new psychopharmacological regimen had spurred a period of intensive journaling. “A massive amount of narrative began to unfold at that time,” Robin remembered. The color red falls off his timeline entirely in November of 2012, at which point the intensity of his anxiety had for the most part resolved and he no longer felt “the same impulse” to write in his journal: “it was a support that took effort, that involved ruminating on how I was feeling, and it basically felt better not to do it anymore.”

Contemplating the visualization, Robin reviewed what he had learned. The graphical overlaying of disparate tracking routines, though not a direct representation of his mood, was profoundly revelatory: “It’s a kind of signal, one I hadn’t seen before; it reflects my activation level, my energy level, my ability to engage with the world... it’s there as an envelope around my whole life, affecting everything I’m doing.” Being an engineer, Robin uses the word “signal” to describe information transmission—in this case, the conveyance of energies that powerfully affect his lived experience into a form he can perceive and assimilate. The signal, communicated in a shifting silhouette of numeric values, is “beyond words ... it’s this very deep *thing* that ultimately becomes thinking and becomes action.”

Discussing the Data

The next day, a breakout session on the theme of data and identity commenced with a set of questions posed by its convener, Sara Watson, a self-tracker and tech writer who had recently completed a master’s (thesis) on QS practices 2013: *What does it mean to have data about myself—a digital, numerical, binary representation of myself? And what is my relationship to that data—what does it mean to be a human interacting with a digital binary thing that is data?*

Whitney, a self-tracker who regularly contributed thought-provoking pieces to the blog *Cyborgology*, suggested that data served as material for self-narratives: “we make stories about ourselves from the data, to make sense of our lives.” Some in the room pushed back, wanting to preserve the facticity of data as expressing an objective truth: data was not some “made up” story; if anything, QS *denarrativized* the self.

Joshua, a bearded venture capitalist in his early thirties from California, elaborated on this idea: “The self can be overwhelming as an integrated, whole thing. By doing QS, you can *disaggregate* various aspects of self, work on just those, maybe let them go, put them back in ... It takes an incredible burden off you when you can take these small slices out and say, *all that other stuff is complicated, let’s just look at this.*” Robin interjected to reinforce this point: “Tracking isn’t additive—it’s *subtractive*: you work on some question about yourself in relation to this machine-produced thing and you know that *it will stop*; afterward, you’re left with a narrower range of attributions you can make about your behavior or your feelings; you have eliminated uncertainty and gained a kind of liberation—you can move on with your life, with a new perspective.” If this extractive, bitifying process was a form of self-narration, Joshua concluded, then we should call it “quantitative autobiography.”

Joerg, a German activist whose background in business and philosophy complemented his pursuit of a data-based ethics in the corporate world, further specified the term “narrative” as it pertained to self-quantification: “Numeric expressions of ourselves are inherently *syntactic*, not *semantic*.” The power of self-data lay in the relational grammar that emerged across its data points—not in the authorial intentions of “transcendent phenomenal selves” storying themselves forth. His position at once echoed and countered Morozov’s criticism: yes, self-quantification departed from traditional humanist modes of narrative—but that did not make it *dehumanizing*; rather, it was vital, enlivening.

An American anthropologist employed at a leading technology firm suggested that art, rather than narrative, might be a better metaphor to describe what selves do with their data. “Maybe tracking is like *sketching yourself*,” mused another participant in the session. “You have to fill in the details, it’s a kind of self-portrait, an art.” Robin, from his seat along the side wall, nodded in agreement. He remarked that he had once characterized his tracking as a kind of “digital mirror” but now felt the metaphor was inaccurate, “because mirrors represent a whole, projected image—which is not what we get from our data bits.” Returning to the earlier point he and Joshua had made, he suggested that the value of data points tracked in time is the *narrowness* of the representation they provide: “Data is really just numbers, symbols—it doesn’t reflect back something that already exists in the world as a mirror does; instead it shows us a model of some limited, extracted aspect of ourselves.” Robin had come to prefer the metaphor of self-portraiture: “What we’re doing when we track and plot our data is focusing in on one part of our lives and slowly building up that portrait as we collect data on it.”

Sara, our moderator, pressed the group to further specify the metaphor: If not photorealistic, was the portrait expressionist? Impressionistic? Pixelated? “I think it would have to be an algorithmic mosaic, with shifting composition, color, and patterns, an ever-changing portrait.” Robin suggested. “But *in what way* does it change?” asked a fellow tracker, voicing some ambivalence over his relationship to his data. “I only look at bits and pieces of myself because it’s all I can handle. If it’s

a portrait, then it's a portrait with really bad lighting ... Isn't the point, ultimately, to shine a brighter light on ourselves? Does the portrait ever gain fuller resolution, become more solid, more like a true mirror?"

Joerg posed the question as a tension between self-making and self-unmaking: "If you start breaking yourself down piece by piece, it could lead to non-self, disaggregation, seeing ourselves as a big stream of data ... Or can it, somehow, make us feel more *solid* as selves in the world?" Robin ventured that there was no contradiction between self-making and unmaking:

I think they're consistent views really. If self-quantification, breaking ourselves down into bits, enables us to create new experiences of ourselves, then those experiences are gateways to *new degrees of freedom* in how to act.

The kind of portraiture at stake in the Quantified Self, he suggested, "allows you to imagine new types of self and move in new directions; you are no longer trapped in a limited set of pathways." Self-tracking, it seemed by the end of the discussion, was a means of liberation not only from the impasses of uncertainty but those of certainty as well.

Time-Series Selves

Eric Boyd, a mechanical engineer known in the QS community for designing pendants that flash in time with wearers' heartbeats and vocal cadence,³ delivered a Show and Tell on the second day of the conference, sharing insights into his "daily rhythms" gleaned from his (since-discontinued) Nike Fuelband, a rubberized accelerometer worn on the wrist. He admitted being drawn to the "geeky bling factor" of the consumer gadget and its colorful, sequentially blinking lights, but was otherwise unimpressed. "The graphs on the app are pretty but mostly useless; you can't even tell what time of day things happened. It was super frustrating how non-visible my activity was." The analytic features provided for users obfuscated their activity as so many inscrutable "fuel points"—a measure of activity proprietary to Nike.

Wanting to examine his daily patterns more closely, Eric interfaced with the Fuelband's object-oriented programming language⁴ to feed the raw values from the accelerometer into a spreadsheet, rendering one cell for every minute of the day and one column for every day of the month: "1440 rows by 30 columns—that's a lot of data showing what I was doing when." He was able to see when he woke up at night to visit the bathroom, and that his usual brisk pace became slower when walking with his girlfriend. Her walking speed was something of an issue in their relationship, he admitted, "and it helped to see that it was actually only 30 percent slower."

Eric's self-tracking concerned habits and life rhythms more prosaic than the depressive troughs and intense peaks at stake in Robin's, but the core features of

self-inquiry were the same: a question; an investigation that apportioned significant epistemological authority to data and its technologies; visual reveals; unexpected discoveries. "The reason you begin tracking your data is that you have some uncertainty about yourself that you believe the data can illuminate," Eric told me. "It's about introspection, reflection, seeing patterns, and arriving at realizations about who you are and *how you might change*." His "introspection," like Robin's, commences not with a turn inward but a turn outward to the streaming data of a device: an extraction of information, a quantification, a visualization.

"When we quantify ourselves, there isn't the imperative to see through our daily existence into a truth buried at a deeper level," Wolf (2010) wrote. "Quantified self is not a linguistic exploration like psychoanalysis," echoes Eric, "it's a digital exploration, and the stuff you're exploring is made up of many little bits and moments." Bits and moments, accumulating into habits, rhythms, and tendencies, are the "stuff" of the self—their effects cannot be known through the semantic twists of language unfolding in the moment of a human encounter (as in therapeutic transference); rather, they must pass through an array of sensors, numeric representations, and algorithmic processes that detect their relational patterns over time (Nafus, 2016, p. xviii; Sherman, 2016; Day & Lury, 2016). "You may not gain any knowledge in a week or even a month," says Eric, "but over time you might see something significant about yourself; you need a view that's longer than whatever moment you're in."

A few years ago, out of concern for climate change, Eric decided to track his driving habits. He knew how many miles he was putting on his vehicle but was not certain which of his routines—going to work, going on road trips, going out socializing—was most significant. "So I tracked every single car trip for around three months and then I put it all into an Excel spreadsheet, with different destinations into categories to see what was driving my miles." He learned that his daily trips to work, only a few kilometers away, were the major contributor to his mileage. "My work was only around 3.5 km, so I hadn't thought it would be significant—but it added up because I would do it around two times a day, and often I would have to circle around the block to find parking. So the *accretion of those little trips* added up to at least as much as the road trips and the socializing."

By engaging data and its technologies to assist in his self-inquiry, Eric does not lose agency so much as he finds a new kind of agency. "In our physical world," he explains, "our powers only extend a few meters—but in the *temporal* dimension we're extremely effective, we're actually going to live a billion moments or something like that. The trouble for us is that *it's difficult for us to see the amount of power we have in time because our sense of time is so limited*; we go through life one minute at a time." Data tracking and time-series analysis "give a longer view of our power in time" by showing how our habits—"the things we're doing over and over"—add up to affect our lives in positive and negative ways. As Wolf (2010) writes, "without good time calibration it is much harder to see the consequences of your actions." Through tracking, Eric has come to regard himself as a "time-series self," one whose truth and consequences are not fixed but made of small actions over

which he has some measure of control; like Robin, he finds this vantage liberating and empowering.

Selves in the Loop

Over the past five years, scholars have reached for creative vocabulary to describe how the intensive datafication of life in Western liberal societies is altering selfhood. Some apply Deleuze's prescient notion of the *dividual*⁵ as an archive of traits, habits, and preferences that can be systematically extracted and marketed to, reshuffled, and compared to those of others. Harcourt (2015) gives the term a twist, proposing that *duodividual* better describes "the object of the algorithmic data-mining quest of the digital age"—which, he argues, is not so much to divide an individual into parts but to find its digital "match" or "twin." Many adopt the term *data double* (Haggerty and Ericson, 2000) to name this digital doppelgänger, while for Horning (2012) *data self* best describes the virtual versions of ourselves that arise through social media. "Disembodied exhaust gives rise to a *data-proxy*, an abstracted figure created from the amalgamation of data traces," writes Smith (2016, p. 110). Greenfield (2016, p. 133) discusses the "pixelated person" as "a subject ever divided into finer granularity, but also whose partial datasets can be joined with others." Switching from the register of data to that of the algorithm, Cheney-Lippold (2011, p. 165) describes *algorithmic identities* as "categories of identity [that] are being inferred upon individuals based on their web use" while Pasquale (2015, p. 39) argues that we are treated as *algorithmic selves* or "set[s] of data points subject to pattern recognition engines." For all the subtle nuances and asymmetries this array of neologisms captures about the processes of fragmentation, amalgamation, and aggregation through which selves are made objects and subjects of power in a digitally networked world, they are less helpful when it comes to grasping how selves inhabit, experience, reflect on, and act in their datafied lives.

As we have seen, in archived sequences and sums of bitified life, quantified selfers seek to bring to awareness the patterns and rhythms that define their existence and that might, without digital tools, remain uncertain forces below the threshold of perception.⁶ In this sense, they follow the recommendation of the media scholar Mark Hansen (2015, p. 38) that we "forge connections" with machinic capacities and microtemporal processes, even as they evade the "grasp of our conscious reflection and sense perception." Technical data-gathering and analysis, he emphasizes (p. 196), can be used "not solely to anticipate our tendencies and susceptibilities for purposes of manipulation and exploitation, but also to inform us about these tendencies and susceptibilities and let us act on and in virtue of them."

While admitting machinic forms of intelligence into human ways of defining, categorizing, and knowing life risks the loss of human autonomy, it also carries the possibility for new human agencies (Kristensen & Ruckenstein, 2018; Kennedy et al., 2015; Neff & Nagy, this volume). The science and technology

pundit Melanie Swan (2013, p. 95) proposes that big-data epistemologies, transposed to the scale of the individual, afford "a sort of fourth-person perspective" on the self and, ultimately, a new kind of truth—one that is "not possible with ordinary senses." This truth does not correspond to a classical phenomenological self grounded in time and space but to a "database self" (Schüll, 2016a, 2016b) that extends over time. "You set up this kind of external person or version of yourself, an avatar or companion—or something," said a tracker during Watson's breakout session in Amsterdam, recalling Foucault's (1998, p. 211) characterization of self-care as "establishing a relationship of oneself with oneself." "I had arrived at a place where it was necessary to start relating to myself," a QS member told two anthropologists (Kristensen & Ruckenstein, 2018, p. 9). "It's all about finding a direction, gaining awareness, and then arriving at a 'felt' understanding of oneself," said another (p. 8).

As Robin told us earlier, archives of personal data bits, continuously recomposed, can be "gateways to *new degrees of freedom* in how to act." The kind of freedom he invokes here is not the freedom of autonomy or self-mastery but, rather, as Colin Koopman (2016, p. 45) has characterized the philosophy and life of William James, "freedom amid uncertainty as the work of self-transformation," with the self understood to be "the activity of reflexive recomposition" (p. 47). In the case at hand, digital tracking tools and their data can become part of the loop of reflexive recomposition—expressed as a practice of "quantitative autobiography," "continuous self-portraiture of shifting composition," and the computational-graphic emplotment of signals "beyond words." These emergent conceptions well articulate this chapter's framing notion of "self in the loop" (itself a reference to the AI term "human-in-the-loop," in which human operators or users can alter the outcome of a computational event or process) and stand as important accompaniments to the scholarly neologisms that seek to describe the fragmented, alienated, and exploited selves of the datafied world.

For James, self-transformational ethics entailed "instigating alternatives, provoking differentia, becoming undisciplined and even undisciplinable" (Koopman 2016, p. 43). Likewise, for self-trackers metrics can serve for "detouring from prescribed courses, exploring limits, and defying rules" (Sanders 2017, 21). Nafus and Sherman (2014, p. 1785) write of self-tracking as a form of "soft resistance" that is "always necessarily partial, firmly rooted in many of the same logics that shape the categories they seek to escape." Rather than dismiss trackers of self-data—as life-avoiding and robotically inclined; as victims of data capitalism and its surveillance apparatus; or as symptomatic figures of neoliberal subjectivity and its self-mastering, entrepreneurial ethos—we might regard them as pioneers in the art of living with and through data. Inviting digital tools and epistemologies to partake in their self-transformational ethics, quantified selfers gain new methods for apprehending, knowing, and inhabiting their lives—and, potentially, for resisting, repurposing, and rendering uncertain the normative proxies, behavioral categories, and governing logics that would seek to drive their conduct down certain pathways.

Notes

- 1 This chapter draws on ethnographic research conducted between 2013 and 2017 at QS meet-ups in Boston and New York as well as three annual conferences. At these events I listened, observed, and spoke informally and formally with participants; once in San Francisco and twice in Amsterdam, I convened and led conference sessions. Where recordings are available (my own or posted online), I quote quantified selfers directly; in other cases I draw on fieldnotes.
- 2 Barooh went on to develop a meditation app called Equanimity, along with a flash-based timer for internet browsers, available at www.meditate.mx.
- 3 Boyd's company, Sensebridge, has designed the Heart Spark pendant, which flashes in time with one's heartbeat, while the Sound Spark flashes along with the cadence of one's voice; a compass anklet works at a haptic register, vibrating to augment one's sense of direction.
- 4 Typically, such a maneuver involves breaking a product's warranty and/or terms of service agreement, but in this case, Nike offered advanced users an API to extract the information.
- 5 It should be noted that a different conceptual trajectory for the term *dividual* exists in anthropology to describe forms of selfhood that are not based in Western dualisms (e.g. Strathern 2004) and that are constituted by social relations rather than discrete units.
- 6 Hong notes that in self-tracking "some measurements, like galvanic skin response, are absolutely beyond human access; others, like steps taken, are measured with a frequency and precision practically unavailable to human subjects" (2016, p. 15).

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4

POSTHUMAN FUTURES: CONNECTING/DISCONNECTING THE NETWORKED (MEDICAL) SELF

Laura Forlano

Networked medical devices, unlike communication technologies such as the internet, mobile phones, and social media, offer a unique perspective on the topic of the networked self in the context of human augmentics, artificial intelligence, and sentience. This chapter draws on feminist technoscience in order to understand how networked medical technologies allow us to reconsider what it means to be human, how we understand ourselves and how we create meaning in our lives. Through three autoethnographic vignettes, this piece reflects on the experience of living with/being/becoming part of these networked technologies as a form of posthuman subjectivity. Here, disconnection, rather than connection, emerges as a key theme that animates and makes visible the social and material experience of these technologies. These moments of failure and breakdown allow for new considerations around self-knowledge, agency, and actualization embedded in practices of repair and care.

Since the mid-2000s, the majority of my research and writing has engaged with the materialities of the digital. Amidst the constant claims of dematerialization in the last several decades, which continue to advance the argument that the digital, virtual, online, and networked realms are replacing the physical world, such research is vital for insuring that the aesthetics and politics around bodies, things, and environmental resources continue to matter and, as a result, are less easily dismissed. Specifically, I have been interested in the ways in which sometimes invisible sociotechnical systems and infrastructures reveal themselves through social and cultural practices. These practices are often made visible through the reconfiguration of bodies, representations, and things in time and space (i.e. the global distribution of work practices (Forlano & Mazé, forthcoming), the use of environmental resources, etc.). For example, in 2003, I spent hours watching Japanese teenagers using some of the first camera phones at Shibuya Crossing in Tokyo.