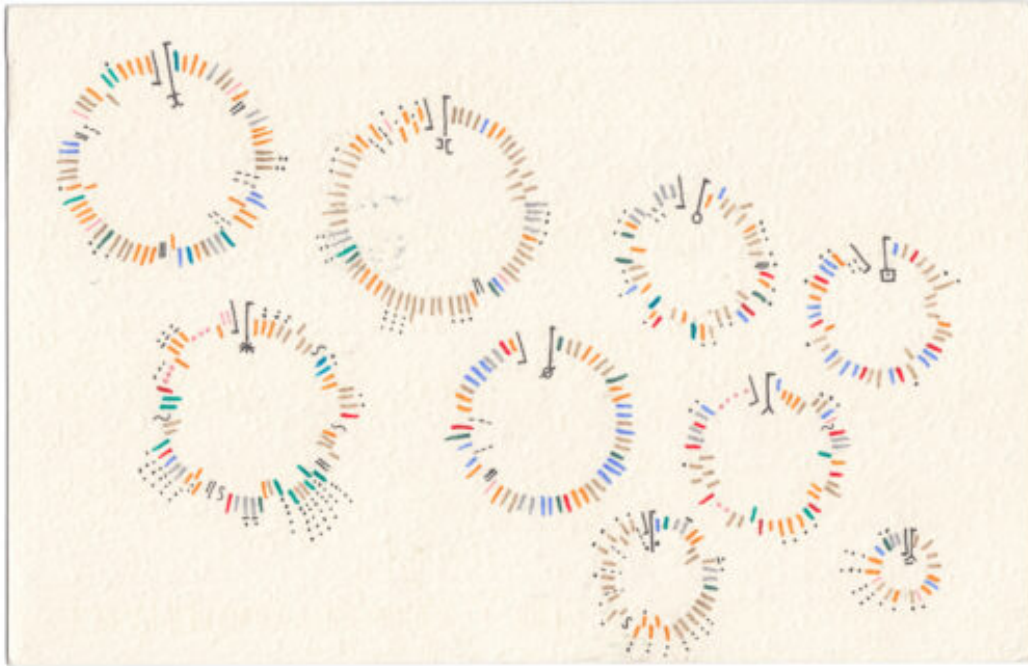


The subjects of digital psychiatry

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By



Giorgia Lupi/Stefanie Posavec (2014), MOMA
“Dear Data, Week 8, A Week of Phone Addiction”

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Imagine a room full of research assistants at a North American university listening to the audio recorded speech of human research subjects diagnosed with bipolar disorder. Though they will never meet or interact with these individuals, the research assistants must carefully quantify the affective dips, sighs, and texture of the subjects’ speech. Number by number, day by day, their clickwork will form the algorithmic infrastructure that – the study’s Principal Investigators hope – will eventually power a smartphone application for predicting mania or depression based on vocal qualities.

Meanwhile, in rural Nepal, a young mother is searching for the “beacon” after putting oil on her baby. The small sensing device gets tagged on to her child’s clothes to measure the distance between her and the baby throughout the day. Too much prolonged distance may indicate neglect,

too little a lack of self-care opportunities for the mother; both could be problematic for her recovery from maternal depression. A lay mental health counsellor will visit her village in a few weeks and discuss the data with her. They will look at the graphs and scores on her cell phone and discuss whether she moved and socialized in the village as advised.

Now, cast your mind to a clinical research facility in an English university town, where a sixty-five-year-old woman is having a device attached to the small of her back. Unlike the patients in the memory clinic down the corridor, she has not (yet) experienced problems with her cognition. But the researchers tell her it may soon be possible to detect the first signs of dementia many years before symptoms develop. And so, as part of an intensive observational study, she'll wear the sensing device that will track the rhythm, pace, and speed of her walking; 'gait characteristics' that could become subtle but important predictors of a future diagnosis.

These scenes present us with disparate subjects, practices, places and temporalities of sensing, predicting, diagnosing, or treating mental health. Each is situated at different nodes of the pipeline of technological interventions spanning prediction, diagnosis, and treatment. And each constitutes problems of mental health profoundly differently. Yet, they are all part of the emerging field of 'digital psychiatry,' and more precisely, use a technique called 'digital phenotyping' that expands the remit of psychiatric interpretation to digitally collected behavioural traces.

Digital phenotyping denotes recent efforts to harness digital traces of human behaviour as signs, symptoms, and risk factors of mental disorders. A person's voice tonality, mobility pattern, or typing speed on their smartphones, once made legible through computational analysis, is hoped to predict the onset or relapse of depression, manic behaviour, cognitive decline, or suicidality. Such digital data are commonly collected directly from the person's lived environment – sometimes with, but more often without direct, intentional data input by the user – collecting so-called "passive data" through smartphones and wearable devices while the person goes about their everyday life.

Proponents of digital phenotyping hope that digital behavioural data patterns will reveal new markers of mental pathology, echoing and fundamentally reframing the longstanding search for biomarkers in the psy-disciplines (Birk and Samuel 2020). As such, the emergent knowledge practices of digital phenotyping are part of a burgeoning digital psychiatry that crafts an alternate future no longer reliant on shared linguistic constructs, symptom recall, interpersonal rapport, or the clinic as a separate sphere and infrastructure. Put differently, digital phenotyping, and the broader set of practices and imaginaries that we call '[digital psy](#)' untether the common arrangements of place, temporality, language,

labour, service users, experts and carers characteristic of the Western psychiatric model.

This, we suggest, deserves close ethnographic attention.

Our ethnographic and collaborative engagements have led us among the actors who produce coherence, meaning and new forms of therapeutic efficacy from digital datasets. These empirical engagements have compelled us to pay close attention to central units of analysis in digital psychiatry. Rather than ascribing and re-constituting the individual, the population, or the (post- or trans-) human, we encountered experimentation with these units, leading us in turn to re-think their analytical role in our own disciplines as they became productively scrambled via the newly observed knowledge practices of digital phenotyping. Digital traces in many ways have the potential to challenge definitions of the individual and their constituent 'parts' as Latour et al suggest in their provocation that "the whole is always smaller than its parts" (2012). Here, we take a crucial look at the new arrangements of parts and wholes, and ask: What are the contours of the subject of digital psy, especially in digital phenotyping? And what are the methodological implications of these emergent subject positions, sites of inquiry, and sociotechnical relations?

Digital phenotyping: Scrambling the maker and the made

The subjects of digital psychiatry defy easy placement. At once construed as the target of interventions and active participants in the production of data, the lines between those who produce knowledge and those who are produced by it, between the maker and the made, often appear scrambled. The mapping of persons to digital phenotypes can be thought about as a particular kind of "objective subject formation" (Dumit 2013), using newly available sources. But the question of to whom these data are 'available' can vary greatly: some data are actively produced by users of the technology, others are collected 'passively' as 'silent' signs of illness. Some are shared with the user in real time through a smartphone app while others become part of large datasets, their effects, predictive value, and efficacy flowing from the aggregate. The digital subject may thus straddle or loosen the distinction between people who are making data and those who are made by them, between maker/user, participants/scientist, knower/known (Gregory and Bowker 2016). This pushes us to think beyond the binaries between experts (knowledge) and subjects (experience) implicit in analyses of biopolitical regimes and "looping effects" (Hacking 1995). Studying the digital psychiatric subject ethnographically also breaks open other categories once held dear – objective vs. subjective, material vs. immaterial, mind vs. brain; troubled binaries, new subjectivities, and agencies that become empirically

accessible through the labour bringing them into being.

1) Making, sensing, and undoing the digital

Knowing mental health and illness through digital data requires labour – from creating and maintaining technical infrastructure, to designing apps and the human-technology interface, to new care practices and forms of relationality evolving around the interpretation of digital data. Neither the data and nor the devices digital phenotyping relies on arise from thin air. They must be made, tested, and continually tinkered with. In other words, while screens, code, and cloud computing may seem immaterial, as Philips, Irani and Dourish (2012) remind us, software is always held together by the alignment of “wetware and fleshware” (19): bodies, minds, sweat, and, above all, human work, including affective and linguistic labour, which often play a central yet less visible role in data gathering and processing practices (Semel 2018).

Technologies of sensing in digital psychiatric interventions contain situated and historically embedded practices of perception and interpretation that are neither neutral nor inevitable (Browne 2010; Goodwin 1994; Mills 2010; Thakor 2017; Li and Mills 2019). As tools designed to focus on narrowly defined aspects of human behaviour, they privilege certain modes of cutting up the world over others. For instance, assembling voice recognition technologies for psychiatric screening depends upon the extraction and categorization of emotionally charged speech from human research subjects (see Semel 2019; 2020). To gather this data, workers (like the research assistants quantifying bipolar speech) often engage in the very same listening practices that the technology in question (like an app for predicting pathological mood change) is designed to mimic and perform autonomously (like the screening interview). This subjective and selective work is obscured from view in dystopian headlines about “robot psychiatrists,” although it determines how, to whom, and what the end-product intervention will analyse. Tracing the behind-the-screen making of digital psychiatric tools illustrates the frameworks of expertise and attentional practices baked into the end-products (Semel n.d.), outlining the contours of what [Joy Buolamwini \(2016\)](#) calls the “coded gaze”: the “embedded views that are propagated by those who have the power to code systems.”

In this way, like any other computational endeavour, digital phenotyping entails chains of labour and the coordination of standards, weaving across Silicon Valley, borders, university laboratories, lithium mines, server farms, smartphone factories, and microwork platforms like [Amazon Mechanical Turk](#), through which people are paid pennies to transform human behavior into bits of information (Irani 2015; 2017). Echoing scholars like Sareeta Amrute (2016), Lisa Namakura (2014; 2015), and Lucy Suchman (1995)

we thus ask: whose labour is foundational to digital psychiatry, while also alienated from and marginal to its purported benefits (see also Glabau 2020)? If we take into account the full span of technological development and manufacture – including supply chain management and digital waste disposal – which ready-made categories are challenged? These lines of inquiry shake up familiar, top-down narratives of designers seamlessly tuning the subjectivities of their targeted users. After all, the intended recipients of digital phenotyping interventions – and the research subjects who populate datasets – do not always passively accept design specs or quietly comply with research protocols.

As we know from other sites of biomedical experimentation, clinical labour is differently risky, regulated, lucrative, and therapeutic across contexts (Mitchel and Waldby 2010; Petryna 2005; Parry 2015). And in the realm of ‘datafied’ health more specifically, Ruckenstein and Schüll (2017) have urged us to look to the ‘other sides’ of mainstream digital practice, to forms of data activism and new combinations of health- and self-care. Thus, in addition to following the researchers, laboratory technicians, and repair workers responsible for the qualities and criteria that are woven into the technologies on which they work, we further look for unruliness and agency, for moments of system failures and instances of subversive (re)appropriation.

2) Reaching for and scaling the digital subject

Digital data practices also invite a reflection on scale, since the promise of digital phenotyping is first and foremost one of reach: to care for those considered “hard to reach” – geographically, socially, or structurally – and to “reach millions” as part of a humanitarian desire to extend care to a global scale (Gedeon Achi 2019, Doraiswamy 2019). The subjects of digital psy are thus first and foremost construed as remote and excluded – from care, resources and infrastructures, and by implication the larger projects of community, society, and global humanity (Rees 2014). Digital phenotyping then explicitly reaches *across* divides construed as rural/urban, South/North, or as inequalities, cultural differences, treatment gaps. Here, remoteness always figures as both – that which technology needs to overcome and that which it achieves, in the name of cost-effectiveness, convenience, and real-time data complexity.

Digital data practices may therefore present us with altogether different notions of scale and scalability, to which we may need to attune our analytics. Anna Tsing (2001) brilliantly showed how scaling sits at the heart of colonialism and capitalism, yet her idea of scaling was premised on an expansion of standardized “units without change.” Using the plantation as her prime example, she shows how it forced plants, bodies, and labour into scalable units in a process that obliterated diversity and

multiplicity in its wake. Yet, the scalar ambitions of digital psy, especially when mobilized by Global Mental Health, may ask us anew what in fact constitutes a unit, an order of scale and movement between them (Bemme and D'souza 2014). Digital phenotyping confronts us with new paradoxes of scale that come with moving between big data sets, individual subjects, and their molecular make-up (cf M'charek 2016). As Venturini and Latour (2009) suggest, familiar distinctions such as "micro" and "macro" level analysis – and with it the purview and epistemic pride of whole disciplines – may vanish when both can be done simultaneously through large digital data sets.

The subjects and units of relevance constituted by digital phenotyping then, too, may change familiar form. No longer grounded in an unchanging nominalism and labels derived from quasi-natural disease categories, reified in path-dependent experimental systems or diagnostics scales, Hacking's "kinds" are made more flexibly. Forged in algorithmic labour and the aggregate, subjects and matters of concern now emerge from flexibly arranged data points – assembling moods, sounds, step counts, typing speeds, activity levels, gait quality, or the distance between a mother and child – into new epistemic objects. This "aggregate human" (Bemme 2019), therefore, has no humanist or ontologically grounded shape but emerges across and alongside novel conceptions of scale. Rather than ossifying into fixed subject positions, labels, and identities the "aggregate human" may remain in flux and responsive to the changing questions brought before large digital data sets. The same digital data traces, for example, can simultaneously map out a person's day, week, or recovery pathway, while also contributing to the identification of behavioural patterns within newly established groups. How do we care for the (mental) well-being of this aggregate human? What forms of care flow from digital scales and novel forms of aggregation?

Scale does not only mark the boundary between disciplines, but also informs the kinds of 'care' that can be recognized within them. Where psy-disciplines traditionally care for individuals, anthropology for local life worlds, sociology for society, and GMH for populations and communities, we might find all of these units re-configured through digital data practices. Anthropology's small scale holds a space for care as interpersonal, intimate, affective, and grounded in attention to others, while it also traces the harmful edge of institutional care (Stevenson 2014, Ticktin 2011, Garcia 2010), its complicity with biopolitics and neoliberalism (Matza 2018), and its troubled lineage as an analytic (Duclos and Sánchez Criado 2020). Epidemiology, Global Mental Health, or digital psychiatry, on the other hand, frame care as necessarily "evidence-based." Such "quantitative care" we learn from Katie Mason (2018), however, may not be opposed to its other forms, or preclude ethnographic inquiry, as its actors care *for*, *with*, and *about* the aggregate in situated ways.

3) Strange kin: the digital and the ethnographic subject

Following a long history of medical anthropology and psychiatry sharing overlapping, often fraught paths along the peripheries of mainstream biomedicine (Behague 2008), we have also found ourselves reflecting upon an awkward disciplinary kinship between the empirical social sciences and the emergent field of digital psychiatry. How might anthropologists and psychiatrists be ‘cousins’ when it comes to new forms of tracking, tracing, and making sense of mental (ill) health? How does the digital psychiatric subject relate to the ethnographic subject? What are ‘we’ representing?

There may be a closer cousin in answering these questions; that of [digital anthropology and ethnography](#), which has provided tools to construct sites of inquiry ‘in’ the virtual world (Burrell 2009) and at the digital/material boundary (Suchman 2013; Ahlin and Li 2019). However, we begin our exploration of digital psy by treating it as an ethnographic object, mindful of the role of digital anthropology as “a technique, and thus a domain of study only indirectly” (Boellstorff 2020, 40).

Attempting to pin down digital psychiatry as an empirical, ethnographic object proves uniquely challenging. After all, digital psychiatry’s trademark motivating goals are mobility, scale and the expansion of what counts as meaningful, psychiatrically significant data (Brant and Stark 2018). It aims to extend the practices of screening, diagnosis, treatment, and tracking beyond the confines of the clinic and the patient-clinician dyad while also enabling data collection (in the context of research studies) to stretch beyond the walls of the lab. Researchers and practitioners committed to digital phenotyping, like former NIMH director Thomas Insel, champion its capacities to draw a detailed, phenomenological picture of mental illness and healthiness, in part by enabling the transformation of any feature of human behavior (footsteps, gait, geolocation, quality of finger touch) into biomedically relevant signs, even if they bear no conventionally recognized relationship to mental illness.

These new, non-clinical, alignments between bodily signs, cognition and affect are part of a shift in focus in mental health and neuroscience, from psychopathology to a broader interest in ‘normal’ subjective experience in the age of digital psychiatry (Pickersgill 2018). Yet again, we are pushed to rethink the relationship between the normal and the pathological when it comes to knowing mental (ill) health. But with the current emphasis on preventative and precision medicine, this is often less about representing the healthy or the ill, than it is about foreshadowing the *potentially* ill (Brenman, Costa, and Milne 2020). Increasingly, digital subjects are characterised by what might become of a person: what might be experienced as normal may be marked by underlying, “silent” signs of

future pathology (Dumit 2012; Singh and Rose 2009). Whilst Natasha Schüll reminds us that now, “everyone is *potentially* sick” (2016, 319), the predictive function of digital phenotyping is aimed particularly at those susceptible or ‘at risk’ of chronic and neurodegenerative disease (due to anything from genes, to lifestyle, to age). Whilst the emerging picture of digital psy can’t be captured by a simple medicalisation narrative (Williams, Katz, and Martin 2011), it is worth tracking the making and the makers of this potentially-ill digital subject, in part by tracking its emergent value in scientific and pharmaceutical circles. A particular aggregation of ‘early’ digital biomarkers may carry a very different kind of potentiality – one bound up with the speculative work and commercial stakes of drug development (Brenman and Milne n.d.; 2020).

Perhaps less ominous, though equally compelling, and potentially even inspiring to the ethnographer, is the new modes of digital subject formation outside of the clinical gaze and in the realm of everyday life. As has been observed in other areas of (self) tracking (Weiner et al. 2020; Pink et al. 2017) might the potential for big data generation create more space for capturing the mundane and even pleasurable aspects of daily life? How might digital psychiatry’s long term, subtle methods of measuring bodily and cognitive change in ‘real-time’ capture something closer to what might be called ‘real life’? This brings us back to the ways digital psychiatry can uncomfortably ‘nudge up’ to spaces and methods traditionally occupied by the ethnographer – not the psychiatrist, and certainly not the neurologist. The problem, for anthropologists at least, is that this kind of knowledge production begins to encroach on the principles we hold dear – of following subjects, of locating bodies in space and time, and of attending to daily living; though perhaps without the commitment to maintaining the wholeness of the person, their narratives, and their subjectivity (Brenman 2019).

Conclusion

As we learn these new languages and visions of the good life, and as we watch them create new criteria, thresholds and clusters of meaning from mountains of ‘passive’ data, we maintain an openness towards what the intersection of the digital and the psychiatric might entail, for all of its constituencies (researchers, research subjects, patients, practitioners, funders, users, and more). We leave room for curiosity, surprise, hopefulness, disorientation, and the imagining of things-being-otherwise. In mapping out the landscapes of hope and hype surrounding digital psychiatry, we suggest digging deeper into the grey areas, where we find more complicated stories not adequately captured by the poles of either promise and peril, pure intentions and sullied ones. At the same time, we often share a queasiness vis-à-vis our interlocutors’ underlying assumptions and practices. We reflexively explore how our own ethical

and moral frameworks as anthropologists and as embodied individuals overlap with those of our ethnographic interlocutors in unexpected ways. It is precisely this discomfort – and the productive provocations digital psychiatry poses – that we suggest to work through empirically.

We have described how the comprehensive reach that digital phenotyping methods aim for tugs on the ideals of the ethnographer: context, situatedness, the particular and the everyday. But paradoxically, what is hailed as “N=all” ultimately seeks to eliminate situational and contextual factors (Erikson 2018). The quest for holism through big data may thus lead to a re-emergence of the tyranny of reductionism. What we seek to explore empirically, however, are different and more imaginative modes of engagement and critique when it comes to digital methods of tracking and tracing mental ill health. In letting go of tussles over how the world ‘really is’ (Goriunova 2016), we find that neither the digital nor the ethnographic subject are representations of their living psychiatric counterparts, but rather, lively products of attempts at description, care, knowledge production, lived experience, and so on.

And so, rather than see these disciplinary discomforts as an insurmountable roadblock, we take them as generative invitations to re-think and to expand our analytic categories and methods, including how we anchor and create boundaries around ethnographic ‘sites’ of inquiry. As digital psychiatry disrupts and re-shapes the psy-canon, it calls on us to re-think our own analytical categories, traditions of critique, and methodologies alongside their knowledge practices. We might come undone as well.

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