
Bodies, Mood and Excess

Relationship Tracking and the Technicity of Intimacy

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Abstract

A range of commercial mobile technologies are emerging which use psychophysiological sensors to monitor bodies and behaviour to produce new forms of knowledge about social relationships. In this paper I am concerned with how this kind of relationship-tracking influences intimacy. I am specifically interested in what I call the “technicity of intimacy”, the cultural techniques which emerge through the historically contingent technologisation of intimacy. Based on archival research, I argue that relationship-tracking promises to take up the intensive social labours associated with contemporary intimacy. Yet, the psychophysiological measurements these technologies rely on produce partial and ambiguous indicators of intimate life, gesturing toward an excess of intimate meaning that cannot be interrogated. The self-reflexive concern with this excess drives further tracking experiments and techniques. Yet intimacy remains a continuous mystery, and this problematises the value of self-tracking as a system dedicated to achieving meaningful self-knowledge and completeness.

Introduction

A range of technologies are emerging which monitor bodies and behaviour to produce new forms of knowledge about social relationships. This kind of relationship-tracking is part of the broader self-tracking phenomenon, but rather than concentrating purely on the self it interrogates the meaning of social bonds. Popular applications focus on the “health” of long-term relationships, correlate social, emotional and biological variables, and often provide goals to work towards enriching intimate life. Some also provide an algorithmically automated means for ranking and filtering relationships based on physiological inputs. Hence, as well as producing new forms of social knowledge, relationship-tracking promises to alleviate the burden of managing one’s social life.

I am interested in how relationship-tracking, as a repertoire of technologies and techniques, influences intimacy. Various studies have begun to examine web-based, social and mobile media in relation to transformations in intimacy (Hjorth/Wilken/Gu 2012; Hjorth/Hinton 2013; Lambert 2013) to the point where some have suggested a nascent “intimacy turn” in media studies (Hjorth/

Lim 2012). These media ask us to probe the relationship between embodiment, affect, privacy, publicity, closeness and distance, concepts that are central to modern notions of intimacy. Relationship-tracking similarly makes intimacy and its various dimensions a primary concern. In pursuing this topic I keep to a fairly basic and well-accepted notion of intimacy as denoting the social experience of close, caring relationships. Yet it is important to recognise that the meaning of intimacy changes in different cultural and historical contexts (cf. Jamieson 1998). Moreover, late modern European and Anglophone life is inflected by transformations in intimate relationships (cf. Giddens 1992). In this context, research into intimacy is always and already a study of changes in its nature.

New technologies are undoubtedly driving some of these changes. To research the historically specific technologisation of intimacy is to study what I call the technicity of intimacy. In its most general sense, technicity denotes the dynamic and emergent nature of the human-technology relationship. Technicity involves *technê*: the practical skill and techniques a person brings to using a particular technology for a particular purpose. Where intimacy is concerned, such techniques are influenced by cultural norms and socio-political structures, as well as by the material characteristics of new technologies. Here the German school of media theory provides the useful concept of “cultural technique”. For theorists such as Kittler (1999) and Siegart (2013), cultural techniques are influenced by the way in which a technology records, stores and transmits aspects of phenomenal reality. While these theorists were interested in how technologies such as the gramophone and cinema projector negotiate phenomena such as sound and light, I am interested in how self-tracking technologies negotiate psychophysiological phenomena that emanate from the body. The technological capacity to register and represent these phenomena, I argue, is largely driving the technicity of intimacy of relationship trackers.

The term “cultural technique” originated as a way of describing the skilled practices of particular technical groups, such as agricultural engineers (Winthrop-Young 2013). This remains useful for understanding relationship trackers, who can be thought of as a particular technical group defined by their practical relationship with tracking technologies. Relationship trackers cultivate techniques such as fitting sensors, operating applications, making measurements, objectifying and interpreting emotions, ranking social ties, and in some cases building and refining complex systems out of these elements. In this article I explore how the cultivation of these techniques are producing a new relationship to intimacy. Ironically, they do not reveal the personal, interpersonal or essential meaning of intimacy. They conceal intimacy in a mystery, always just beyond reach.

In the following section I introduce the methodology and primary case study – an application called *PplKpr* (pronounced “people keeper”) – that I use to develop my argument. Following this I explore how the techniques of relationship-tracking have their roots in psychotherapy. Both psychotherapy and relationship-tracking seek to create healthy individuals by fostering well-functioning relationships. The need for this intensifies with modern social and mobile media, which complicate the meaning and value of social relationships

and social interactions. Relationship-tracking promises to take up the labours associated with this experience of “intensive intimacy”. Yet the psychophysiological measurements these technologies enable produce partial and ambiguous indicators of intimate life, and in particular *intimate presence*. They gesture toward an excess of intimate meaning which cannot be interrogated. I argue that the self-reflexive concern with this excess drives further tracking experiments and techniques. I conclude with a consideration of what this means for contemporary understandings of intimacy.

Case Study: *PplKpr*

I look at a smartphone application called *PplKpr* to understand how relationship-tracking influences the technicity of intimacy. *PplKpr* is both an art project and an application that can be downloaded from the Apple App Store. It was developed by two artists, Lauren McCarthy and Kyle McDonald, with the support of a Frank-Rathye Studio for Creative Inquiry residency, and funding from the Andy Warhol Foundation. *PplKpr* uses a phone’s GPS to detect when the user is moving to meet up with someone. The application will ask whom the user is meeting, and the user will input a name from his or her list of contact. It will then ask whether the user is feeling excited, aroused, angry, scared, anxious, bored, or calm. It will detect the intensity of the chosen mood by applying an algorithm to physiological data taken from a Bluetooth connected variable heart rate monitor wristband. Over time a user’s contacts will be ranked in terms of how intense a mood they provoke. *PplKpr* gives the user an opportunity to send prefabricated text messages to those who elicit positive moods. It will also automatically block and remove contacts who elicit negative moods.

On the application’s website, a video promotes *PplKpr* in the following way: “Our social circles are widening. All those relationships can be overwhelming.”¹ To assist in this dilemma, *PplKpr* will “automatically manage your relationships so you won’t have to”. The style and tone of the video is subtly tongue-in-cheek, which seems to complement the developers’ intentions. In an interview with the Australian radio programme *Download this Show* (2015), Kyle McDonald states:

“It’s meant to be provocative and humorous and interesting and disturbing all at the same time. We made an application that you can actually download now and try out yourself, and we do this because we think that there is something really important about trying these kinds of ideas out on yourself and having an experience, and that we learn from experience, and that gives us more insight to discuss these things and think about them.”

In this response, McDonald opens up a clear critique of self-tracking culture as something that may have disturbing elements, while also connecting with the very ethos of self-tracking as something that produces new knowledge and

1 www.pplkpr.com.

advances personal growth (cf. Lupton 2014). In this paper I take up the developers' provocation, using *PplKpr* as a way of gaining deeper insight into relationship-tracking's influence on intimacy.

Importantly, although *PplKpr* may seem to make assumptions about social life (discussed below), it is by no means atypical. There are commercially available applications, as well as ones still in development, that share many of the same features and assumptions. There are apps that rank and prioritise social ties based on interaction frequency, and prompt social engagement when certain people are being ignored.² General purpose life-logging applications correlate social interactions with factors such as mobility and emotions.³ There is a vast array of mood tracking applications.⁴ Finally, there are applications that automatically remove information to remove distractions and increase focus.⁵

I used *PplKpr* for a period of three months. Each time I engaged with the application I wrote down my insights on what became another kind of self-tracking application, *Evernote*. I also reviewed the rich archive of forum discussions, blog posts, technical manuals and videos found on self-tracking websites such as quantifiedself.com and monitorme.com. These websites are used by a community of dedicated self-trackers, some of whom are experts such as doctors, psychologists, dieticians, engineers and developers. Many tracking apps that become commercially marketed are first beta-tested and discussed within this milieu, both online and in popular offline "meet ups". Hence, discourses and techniques of relationship-tracking are fostered within this community before circulating to a broader market.

Relationship-Tracking and Psychotherapy

According to Lupton, self-tracking engenders the "reflexive monitoring self" who engages in "systemised information collection, interpretation and reflection as part of working towards the goal of becoming" (2014: 12). Lupton argues that these practices exemplify modernity's broader fascination with self-improvement, spurred on by a sense of "ethical incompleteness". The contemporary story of intimacy is similarly entangled with practices of self-knowledge production, discourses of self-actualisation, and technologies of self-surveillance. This story cannot be told without reference to the popularisation of psychotherapy, which has been used to make sense of (and in the process has heavily influenced) changes in the nature of intimate relationships (Giddens 1992; Illouz 2007; Berlant 2012;).

Eva Illouz (2007) supplies one of the most compelling critiques of the psychological conjugation of intimacy and selfhood. Although she focuses on

2 See *Stitch*, available at: <http://www.lastinitial.com/stitch>.

3 See *Reporter*, available at: <http://www.reporter-app.com/>.

4 See *Moody Me*, available at: <http://www.medhelp.org/land/mood-diary-app>; see also *Mood Panda*, available at: <http://www.moodpanda.com/features.aspx>.

5 See *Rescue Time*, available at: <https://www.rescuetime.com/>.

American twentieth century history, many of the phenomena she discusses are global in reach. Illouz describes the way in which various psychotherapeutic discourses and practices suffused everyday life through a variety of means. Therapy entered popular culture through autobiography, paperback pop psychology, and TV relationship counsellors. The feminist movement of the 1960s courted therapy to politicise the inequities of private life, and in the process began the deconstruction of the home as a pure space of intimacy. The post-war State championed therapeutic management in various sectors, and intimacy entered the workplace to foster happy, productive workers.

Psychotherapy closely connects mental health to healthy relationships, and in the process covets and reconstitutes cultural understandings of intimacy. Illouz writes:

“In the context of close relationships, intimacy, like self-realisation and other categories invented by psychologists, became a code word for “health”. Healthy relationships were intimate and intimacy was healthy. Once the notion of intimacy was posited as the norm and the standard for healthy relationships, the absence of intimacy could become the organizing overall frame of a new therapeutic narrative of self-hood.” (2007: 46-47)

Psychotherapy makes the production of self-knowledge, particularly knowledge about emotions, an essential aspect of intimacy, as it becomes a means to achieving healthy relationships and hence a healthy psyche. In Illouz’s analysis, negative or ambiguous emotions become the “archenemy of intimacy” (ibid: 35). Psychotherapy provides the techniques to purge these emotions by externalising and objectifying them as speech, writing, and visual representations. Once mediated in this way, emotions can produce insights about what exactly is going wrong in a relationship. There are many examples of this process becoming increasingly standardised and quantified, including emotional intelligence tests, psychometric questionnaires, and, of course, the mood monitoring practised by the self-tracking community. Through computation and physiological sensors, self-trackers attempt to identify and externalise emotions, especially negative emotions, to improve themselves and their relationships. These techniques are inherited from psychotherapy and reconstituted in a new techno-materiality.

The dissemination of psychotherapy produced what Illouz calls an “emotional field”, in which a “great variety of social and institutional actors compete with one another to define self-realisation, health or pathology, thus making emotional health into a new commodity” (ibid: 63). Self-tracking culture augments and extends this field. Importantly, the growing market of self-tracking applications embeds the commodification of emotional health in the techno-economic environment of digital media. Consequently, the therapist or therapeutic narrative is exchanged for widely available personal digital technologies. This is nicely illustrated in the following comment by Gary Krane (2011), a relationship-tracking application developer and clinical psychologist, talking about his application *Couple Space* (later changed to *CoupleWise*) at a Quantified Self meet up:

“[Couple Space is] for the 55 million unhappy couples in the U. S. who can’t afford a therapist but would spend 19 dollars a month for a web app that can do eight things a therapist can’t do and about 80 percent of what a cognitive behavioural therapist can do.”

Things which this application can do that a therapist cannot include the capacity to process large amounts of data to identify key issues which troubled couples need to address to improve their relationships. Hence, the capacity for the therapeutic narrative to improve people by emphasising particular needs, values and goals is augmented by the capacity for computation to quickly reveal correlations in data.

Intensive Intimacy and Immunised Spheres

For Giddens (1991), psychotherapy is a system of expert knowledge that contributes to a state of reflexive modernity in which self-knowledge and self-projects become a source of comfort and stability in a chaotic world. It is most certainly the case that we live in a chaotic world where intimacy is concerned. In many European and Anglophone contexts the meaning of intimacy has been significantly transformed by factors such as social and civic challenges to the heterodox, patriarchal, nuclear family (Roseneil/Budgeon 2004), migration and transnational family care (Madianou/Miller 2011), the cultivation of intimacy in work settings (Gregg 2011), and the emergence of new kinds of caring friendships (Allan 2008). Many people no longer exist in tightly knit, homogeneous and geographically bounded communities. Instead people develop more personalised communities consisting of heterogeneous social ties drawn from a variety of distinct social contexts (Pahl 2005).

This trajectory toward increasing complexity nicely illustrates what I have elsewhere called “intensive intimacy”: a state of affairs where the work of intimacy becomes increasingly laborious and requires the development of new social and technical skills (Lambert 2013). Relationship-tracking technologies promise to take up the labour of intensive intimacy. They promise to help people understand the meaning of their social ties, to clarify the social locus of intimacy. For example, Fabio Ricardo (2015), the organiser of the Rio de Janeiro chapter of the Quantitative Self community, describes the motivation behind his system for rating and ranking his relationships.

“It was hard to manage all these relationships and have at the same time meaningful connections [...] I was like, okay, what kind of tool can I use? So I actually looked at my database, the people that I know, and I realised that I was devoting less attention to the people who were most important in my life [...] So I thought, how can I reduce this kind of ‘fat’.”

Akshay Patil, the chief developer of an application called *Stitch*, describes a similar motivation. Patil (2014) is concerned with the way social apps encourage “superficial interactions with lots of people”. He wants to identify “more intimate

relationships” and have “real conversations with them”. Moreover, he wants to create an elegant system which will perform this task for him.

“I really like tools that actually solve a real problem for me based on the insights we can glean from data. And so for me, my problem was that I don’t feel like I talk with these people often enough. So I built something that would just send me notifications if it’s been too long since we last talked.”

In both examples a system that clarifies who is meaningful and who isn’t promises to alleviate the intensive negotiation of social ties characteristic of contemporary times. Some relationship-tracking technologies also promise a system for automatically filtering ties. *PplKpr* will remove and block certain contacts that cause consistently negative mood states. Overall, this articulates a familiar human-machine relationship, analysed critically since Marx, in which machines promise to alleviate human labour. This is what Morozov (2013) has recently referred to as (with reference to self-tracking) “technological solutionism”. On offer is nothing less than a more intimate social sphere, more intimate social encounters, and hence a healthier life.

Relationship-tracking is thus an excellent example of what Sloterdijk (2011) calls “immunisation”. In his three volume work, *Spheres*, Sloterdijk posits the sphere as the sublime metaphysical geometry through which human life can be understood. Human beings are always constructing spheres of different sizes, but the most figurative is the intimate sphere, which Sloterdijk dedicates his first volume to exploring. Each sphere must have a process for negotiating its boundaries, an immune system for letting good organisms in while keeping bad ones out. We labour on these immune systems when we feel our intimate spheres are being infringed upon by the “non-interior world”. These incursions are exacerbated by the “general space crisis” of globalised modernity, in which traditional spheres of meaning are eroded and replaced by a complex topology of small spheres broiling together, or what Sloterdijk calls “foam”. We respond to this by using new technologies to aid our immunities: “The body of humanity seeks to create a new immune constitution in an electronic medial skin.” (2011: 25)

Because computers can automate the surveillance and categorisation of people, computational immune systems become more effective at creating spheres, even if they are not the spheres people hope for. Consider the filter bubble effect that circumscribes social ties based on marketing, personalisation and relevance algorithms, and is now fundamental to search, social, mobile and locative media (Pariser 2011). Consider dating sites and mobile applications that establish a set of prescribed categories through which people can ensure mutually attractive matches. These immune systems are driving a shift from a cultural ideal of serendipity to one of propinquity: of ideological, social or physical proximity. Relationship-tracking technologies are part of this trajectory. Yet, unlike many of the technologies just mentioned, their capacity to act as effective immune systems is curiously undermined by their encoded assumptions about the nature of intimacy, mood and the body. Their capacity to

measure and infer aspects of social life is so partial and limited that they serve to further complicate and confuse the very things people are seeking to clarify.

The Mysteries of Intimate Presence

PplKpr (and similar applications) seek to influence relationships by monitoring social encounters. It attempts to measure the embodied moods felt while interacting with others. It measures how one's body registers the presence of the other, thus making the nature of embodied social presence centrally important.

Presence has become an essential concept for understanding intimacy in a variety of fields. For example, the psychological process model of intimacy argues that intimacy begins and is sustained through a sense of presence: of mutual attention, acknowledgment and visible emotional dispositions such as care and affection (Laurenceau/Pietromonaco/Barret 1998). Similarly, Gestalt psychology argues that intimacy requires a kind of presence in which self and other become entangled through synchronously performed, shared activities (Melnick/Nevis 1994). These can take on an astounding variety: from leisure pursuits such as playing sport or going bowling, to creative shared projects such as playing in a band; from meaningful rituals like spending a day in bed together, to parental projects such as raising children. Gestalt theories of intimacy emphasise the importance of absorption in the other through a shared activity, as well as face-to-face interactions.

These ideas have been problematised with the advent of computer-mediated communication. Milne (2010) argues that communicating parties must have a sense of one another's embodied characteristics to evoke a sense of intimate presence. This sense of embodiment can be produced through a variety of media, not just in face-to-face, synchronous contexts. For example, Milne explores how particular kinds of rhetorical work are required to evoke a sense of embodiment through letter writing, postcards and emails. In these cases a skill for descriptive writing is essential. One could say that different media technologies produce different cultural techniques of presence. Yet in any medium, presence always requires this kind of performative work, and hence presence is always mediated by performative techniques and norms, which are themselves constituted through shared histories that are absent from the present moment. Hence, responding to Derrida's (1997) deconstruction, Milne argues that the feeling of intimate presence is ultimately a psychological state, a fantasy conditioned by mediation and absence.

Recently, scholarship on intimate presence has turned to how mobile and social media undermine the ability to sustain this psychological absorption in another person. These media cause various social contexts to "collapse" into heterogeneous, networked public spaces (boyd 2011). Hence, we experience "presence bleed" between parts of our lives that were preciously separate, such as work and leisure (Gregg 2011). People must continuously negotiate social demands that are "elsewhere" and yet entangled and interpenetrated, creating what Gergen calls a "diverted or divided consciousness" (2002: 227).

For example, Richardson and Wilken (2013) consider how people interface with smartphones while moving through demanding urban spaces. Ring tones, vibrations and screens compete with the bodily navigation of built environments. Complex interactions between place, embodiment and presence result in “oscillating technosomatic resisters of attention, inattention and distraction” (ibid: 189). Increasingly, mobile media users must negotiate between various “different presents” evoked through different media, such as maps, photographs and augmented reality – witness distinguishing terms such as “telepresence” (Mantovani/Riva 1999)⁶, “virtual presence” (ibid), “locative presence” (Farman 2009), “augmented co-presence” (Ito 2003) and “intimate visual co-presence” (Ito 2005).

These complications in intimate presence illustrate two key discursive dimensions of intensive intimacy. On the one hand, there is a scholarly and engineering discourse that emphasises the need to design new platforms and develop concomitant skills and techniques (Knobel/Lankshear 2008). On the other hand, there is a potent discourse found in scholarship and popular culture that advocates the stoic denial of media consumption and the re-sanctification of uninterrupted face-to-face experiences (Pinker 2014; Turkle 2011). Importantly, both discourses are similar in that they are concerned with creating properly immunised intimate spheres in which the Gestalt experience of intimate presence can proceed without distraction. Both are similar in the recognition that there is a problem with intimate presence which needs to be solved.

The scholarship mentioned above is for the most part concerned with how technologies mediate communication and hence social presence. A change in framework needs to occur when thinking about relationship-tracking technologies such as *PplKpr* which *measure* rather than mediate presence. There is a rich history of technical scholarship on quantifying and measuring “social presence” in Computer-Mediated Communication (CMC) contexts (cf. Kiesler/Siegel/McGuire 1984). Much of the psychophysiological work in this field has been driven by Human-Computer Interaction design in the context of immersive virtual worlds and gameplay (Jenett et al. 2008; Ekman et al. 2012). Relationship-tracking takes the work of quantifying and measuring presence out of the hands of these experts and puts it in the hands of a broader market of everyday users. This creates a new kind of self-reflexive relationship to intimate presence. When first using *PplKpr*, the application creates an overriding sense of anticipation. How will it measure this approaching social encounter? What will I feel? What insights will I gain? However, anticipation soon yields to disappointment when one realises that a social interaction cannot be reduced to a single measurement of a physiological mood state, which appears as one small, ambiguous part of a much larger and complex phenomenon.

As one becomes more experienced in using *PplKpr* its misrecognitions and inaccuracies are better understood. The user must choose from a limited set

6 Mantovani and Riva give this concept a strong critical treatment, yet the concept itself can be found in a range of Computer-Mediated Communication and Human-Computer Interaction literature dating back to the 1980s.

of moods that ignore a much richer and personalised repertoire of emotional descriptions. A single emotional measurement is encouraged for each social situation, making it difficult to monitor changes in emotion or the experience of multiple emotions simultaneously. While the application asks you to assign an emotion to a particular person, it could just as easily be some non-personal aspect of the situation which is producing an emotional response. Finally, it is instantly clear that the heart-rate monitor system on which these measurements are based is a less than worthy indication of something as rich as an interpersonal interaction.

PplKpr also intervenes in the rhythms of social life. Measurements are made between social encounters, and hence outside of the experience of intimate social presence. Whatever emotion is qualitatively reflected on or physiologically inferred is always differed from the affectual experience of presence. Also, because *PplKpr* relies on GPS to infer movement, there are many social interactions it cannot anticipate, such as when one receives visitors while remaining relatively sedentary, or when engaging in mediated interactions. *PplKpr* problematises the relationship between social and embodied rhythms, and the relationship between presence, absence and mobility. The overall impression one gets from using this device is that it gets things “wrong”. Yet, in getting things wrong the application also gestures toward an excess of intimate meaning that it has failed to interrogate. The relationship tracker is placed in a self-reflexive relationship with what resists being tracked. Intimate presence becomes a beguiling mystery that demands to be solved.

Intimate Excess and the Partiality of Sensors

I use the term “excess” to describe the aspects of experience that evade tracking. Self-trackers encounter many such aspects of experience. Relationship trackers encounter an excess in intimacy: those aspects of intimacy which cannot be exhausted by sensing, quantifying, ranking and other techniques. Derrida (1997) argues that an excess of meaning is always produced by signifying structures, as signs get their meaning in differential structural relationship to each other, and there can be no transcendental signifier through which this play of *différance* comes to an end. Interestingly, a similar proposition can be found in the work of Merleau-Ponty (2004), who argues that phenomenal experience has a Gestalt aspect, the totality of which cannot be captured by communication, or by physiological systems which similarly break experience down into component elements and their supposed physical correlates. In this case “excess” describes the remainder of a translation of phenomenal immediacy into a communicative or physiological structure of differences.

Expanding on Derrida and Merleau-Ponty, I argue that different information processing technologies will produce different relationships to excess. By “relationships” I mean the degree to which someone recognises an excess in meaning, is concerned about it, and is able to move toward it and grasp it in some way. For example, writing is familiar to many. We understand how words are produced

in different formats, and how written signs relate to each other on the page. Literate people have habituated the cultural technique of writing and reading, understand how it functions and why it makes sense. For these reasons prose and poetry has the capacity to evoke in many a sense of the spiritual or sublime. What are these but excesses in meaning which the text cannot literally capture, yet can gesture towards? Similarly, for those who are skilled in understanding numbers and mathematics, equations can gesture to something transcendental and universal. Importantly, numbers and letters are different, require different techniques, and depend on different calculative and communicative technologies. Computers automatically process numbers in ways which are completely hidden to most people. Unless you are a highly skilled programmer, your computer is currently producing data which is of no consequence to you. You are in no way interested in any excess of meaning which this data may gesture toward, nor are you capable of moving toward that excess and trying to understand it.

How, then, do the characteristics of relationship-tracking technologies such as *PplKpr*, which involve computation and physiological *sensors*, produce a particular relationship to excess and intimacy? Nafus (2014) describes the way in which data and metrics must become stable, trusted indicators of a relatively unambiguous phenomenon in order to “clot” together with regular social practices. On sensors, Nafus writes:

“It is here where the labor that it takes to clot numbers together becomes visible, as people struggle to work out what exactly heart rate has to do with fitness, or anything else. Because the conditions of possibility for sensor data to connect or disconnect anything meaningfully are still quite thin, sensors give us the opportunity to see what happens when it is difficult for the actors to imagine what kinds of clots can be built, and what kinds of calculative infrastructures could emerge.” (2014: 110)

Here it is the obstinate *partiality* of sensor measurements that makes them ineffective as indicators of social meaning. Sensors operate according to the same basic mechanics: a bodily event produces a signal which is picked up the sensor then transduced into a stronger carrier signal. Commercial mobile and wearable devices digitally sample the carrier signal and use algorithms to combine data from different sensors and filter out sensor noise. Sensors are designed to focus on specific, singular events, and to filter out all other information (James 2007). In the language of semiotics, they produce what Pierce (1998) calls indexical signs, which come about through physical contact with their material referent. Yet the way in which sensors focus on singular events make them a particular kind of indexical media. This becomes clear when comparing a heart rate monitor to a camera, which is also indexical in its direct contact with light. The former filters out noise to focus on a singular signal and to track a singular type of event, the beating of a heart. The latter also captures a singular signal – the light flowing into the lens – but captures a variety of events: a woman running, a tea cup shattering, the sun rising. The former has a semiotic simplicity, while the latter has a semiotic complexity. Both are very partial indicators of a greater

totality. Yet a photograph's complexity and familiarity makes it much easier to connect with. Its partiality is by no means as foreign and ambiguous as an isolated heartbeat.

The material constraints of commercial mobile media exacerbate this partiality. Mood and relationship-tracking applications can trace their pedigree to a broad field known as social psychophysiology, in which a variety of invasive and non-invasive sensing methods have been developed. While technologies like the iPhone combine a variety of sophisticated sensors, the physiological measurements these sensors are capable of are strikingly limited when compared to what is available in clinical settings. For instance, it is unlikely that electrochemical measurements that require biological reactants will be integrated into a commercial mobile device any time soon. It remains an issue of hot debate in social psychophysiology what the relationship between affect, emotion, embodiment and social interactions is, and how best to measure it (Blascovich/Medes 2010). There are multiple competing models of human moods and how they relate to each other, something the self-tracking community, to their credit, has publically acknowledged (Wolf 2009; Carmichael 2012). Whatever model is chosen must "fit in" with the limited affordances of a device. Certain measurements are provided, while others are left out. Hence, arguing for the veracity of a particular measurement becomes an essentially rhetorical process. Jethani writes:

"Simply being able to quantify and see the functioning of the body in ways previously not achievable outside clinical settings provides a false sense of security. For instance, observing a steady resting heart rate says little about vascular health, and the maintenance of adequate daily hydration gives little insight into the underlying health of the kidneys. In revealing certain insights, self-tracking devices also conceal. By imposing goals or assigning value to performance metrics, they mask certain things hidden in plain sight by focusing attention onto rhetorically produced indicators of wellbeing." (2015: 40)

Jethani's point depends on the kind of self-tracking one is engaged in. Given the popularity of the fitness tracking market, it is likely that many indicators of fitness are likely taken as fairly accurate and dependable. Intimacy and fitness are different. As argued above, intimate presence is already a beguiling and mysterious issue. It resists reduction to a partial measurement. The rhetorical effect of sensors is undermined and the authority of algorithms is no longer tacitly accepted and trusted. Hogan, on "invisible algorithms", argues:

"We may intuitively accept that a certain ordering 'makes sense' but without an ability to assess this ordering we are at the mercy of those building the algorithms. Worse, to the extent that we consider this ideology as necessary, we restrict our ability to imagine alternative means for the management of information and concede that the judgment of the algorithm designers is inherently better than our own." (2014: 104)

With sensor-based relationship-tracking technologies this is not always the case. They demand that they be scrutinised. This produces what Nafus and Sherman (2014) call “soft resistance”: the way in which self-trackers apply individualistic critical sense-making practices to their data. Nafus and Sherman argue that such a disposition emerges from the self-reflexive, skilled nature of the dedicated Quantified Self community, as well the technicality of working with particular, personalised self-tracking systems. Soft-resistance is at play where physiological relationship-tracking is concerned. This form of relationship-tracking makes people aware of the excess of intimacy which physiological systems fail to capture. This excess becomes an issue. Yet the capacity to move toward it and grasp it is fundamentally constrained if one remains tied to physiological technologies.

Experimentation and Incompleteness

I argue that relationship trackers are driven to interrogate this excess of intimacy, and this spurs on constant experimentation with new technologies and methodologies. This focused relationship to an excess, born out of the partiality of sensors, is the engine which drives the evolution of the technicity of intimacy and its component cultural techniques. For Siegert (2013), cultural techniques are structural systems that always stand against and gesture toward that which is not structured or symbolised. To conceptualise the latter, Siegert and his colleagues often purloin Lacan’s concept of the “real”. “For instance,” writes Siegert, “upon closer scrutiny it becomes apparent that musical notation systems operate against a background of what elides representation and symbolization – the sounds and noises of the real” (2013: 60). This self-reflexive effort to negotiate material and perceptual reality drives the evolution of cultural techniques. It follows that a vast panoply of new cultural techniques will evolve as we invent new technologies for processing and programming the real. These ideas can be easily modified to explain relationship-tracking’s connection to intimacy and intimate presence, which has a complex phenomenal nature that is broken apart by tracking systems. Yet intimate presence lingers in its excess and demands to be addressed through some new technical disposition. Relationship-tracking is thus ever experimental and emergent. It epitomises an age in which the technicity of intimacy is restless and fluid.

This provokes a critical question: if the purpose of relationship-tracking is to produce effective knowledge about intimate relationships, and if intimacy always carries an excess that cannot be interrogated, what *value* is there in pursuing these technologies? Various scholars note the way in which the dedicated self-tracking community gets pleasure from the technical experimentation of self-tracking itself (Boesel 2013; Lupton 2014; Nafus/Sherman 2014). Discourses of playful experimentation abound on websites such as *quantified-self.com*. Consider the advice given in an online book on mood tracking:

“There is a significant difference between the knowledge that we discover for ourselves, and knowledge that we receive from others. If you have ever cooked a dish from a recipe, you’ll know that simply reading the recipe doesn’t mean that you know the dish it describes. You learn the dish by trying to make it, by tasting as you go along and experimenting. Along the way, the things that the author of the recipe could never know – your local ingredients, your stove, your cooking style, and your tastes, get incorporated into what you do, and the dish becomes your own.” (Carmichael 2012)

This exemplifies the value that dedicated self-trackers find in experimenting with different technologies, systems and methods. It suggests that meaning lies in the journey, not the destination. Self-tracking is a kind of project, like a hobby, through which one gains inherent satisfaction. Self-trackers can watch their projects grow and evolve, see themselves in their projects, and talk about them with other community members, creating a sense of belonging and mutual admiration (Boesel 2013).

Relationship-tracking can even become a kind of *shared* project (an essential characteristic of intimacy if one follows the Gestalt psychological approach). Joe and Lisa Betts-LaCroix are two Quantified Self community members who enthusiastically share their relationship-tracking system at Quantified Self meetups. Their shared system correlates factors such as weight, sleep and sex to gain insights about the nature of their intimate bond. Interestingly, in one video they acknowledge that the meaning of these correlations remains mysterious, and that the key variable which will disclose the deeper meaning of intimacy remains undiscovered (Kelly 2009). Moreover, the process of tracking a relationship comes to transform their social rhythms and interactions. Joe makes the following point: “One of the main things I’ve learned about self-tracking overall is that self-tracking so significantly affects the things that I’m tracking that it’s hard to know what’s actually being measured. But, it affects them in a really positive way, so I like it and I keep doing it” (ibid). Again, a sense of value does not come from some enlightening *telos*, but from the collaborative techniques fostered on a shared journey.

The dedicated self-trackers in the Quantified Self community consist of professionals and entrepreneurs who are in the practice of developing self-tracking systems. This community has what Nafus and Sherman (2013) calls a “big tent policy” which encourages participation from heterogeneous experts, hobbyists and commercial health and technology companies. In such a milieu, entrepreneurialism as an endless process of innovation is of the utmost value. The excess of intimacy and the restless technicity it fuels is perfectly at home in this cultural context. Here the true value of intimacy is its mystery. As long as a mystery persists an experiment is worthwhile and a product is worth making.

Conclusion

In revealing intimacy as *excess* that is always beyond reach, physiological tracking systems do not alleviate the intensive labours of intimacy, quite the opposite. Anyone interested in an excess of meaning will be compulsively disposed to interrogating it. As mentioned in the previous section, this may be fine for many people who enjoy the process of relationship-tracking in and for itself. This suggests an interesting transformation in the nature of intimacy: intimacy exists simultaneously as a problematic issue and as an eternal mystery, two sides of a dialectic which exist in harmonious contradiction through a third point, namely, the love of technical practice.

However, as these applications become increasingly commercialised and distributed to broader markets, it would be absurd to say that every person interested in tracking their relationships and managing their social lives would be content with an endless series of experiments. Not every smartphone user has the same love of technical practice as a self-affirmed member of the Quantified Self community. As Lupton (2014) argues, self-tracking is often motivated by a search for “completeness”. This implies a complete or perfect system for understanding and managing intimate life. Yet, this ideal must sit in uneasy companionship with the obstinate incompleteness of the bodily measurement.

What different responses will people have to these contradictions? Perhaps many will abandon relationship-tracking as a viable way to deal with intensive intimacy, just as some have abandoned fitness tracking in response to feelings of shame. Perhaps some will be stuck in a compulsive attitude toward the mystery of intimacy, without the escape valve of technical pleasure. Such a figure is familiar from criticisms of psychotherapy. Illouz (2007) argues that psychotherapy posits the goal of intimate completeness, yet never clarifies what this state of affairs actually looks and feels like, thus endlessly extending the state of sickness and the process of becoming healthy. Will relationship trackers become like the fetishistic self-helper, always searching for a new diet and a new guru? What critical ethical issues does this suggest for personal, interpersonal and cultural life? Returning to Sloterdijk, the philosopher argues that intimacy always begins with the collapse of the immune system, with the “affective infections” of love and desire. Will the immune systems we craft today allow for this kind of serendipity, or will a computationally regulated regime of propinquity come to dominate our intimate lives?

References

- Allan, Graham (2008): “Flexibility, Friendship, and Family.” In: *Personal Relationships* 15, pp. 1-16.
- Berlant, Lauren (2012): *Desire/Love*, Brooklyn: Punctum.
- Blascovich, Jim/Medes, Wendy Barry (2010): “Social Psychophysiology and Embodiment.” In: Susan T. Fiske/Daniel T. Gilbert/Gardner Lindzey (eds.), *Handbook of Social Psychology*, Hoboken, NJ: John Wiley & Sons.

- Boesel, Whitney Erin (2013): "What is the Quantified Self Now?" In: *Qualitative Research* 5/4, pp. 475-497.
- boyd, danah (2011): "Social Network Sites as Networked Publics: Affordances, Dynamics, and Implications." In: Zizi Papacharissi (ed.), *A Networked Self: Identity, Community, and Culture on Social Network Sites*, New York: Routledge, pp. 39-58.
- Carmichael, Alexandra (2012): "Get Your Mood On: Part 1." Blog posted on the Quantitative Self website, December 9, 2012 (<http://quantifiedself.com/2012/12/get-your-mood-on-part-1/>).
- Derrida, Jaques (1997): *On Grammatology* (C. C. Spivak, trans.), Baltimore: Johns Hopkins University Press.
- Ekman, Inger/Chanel, Guillaume/Järvelä, Simo/Kivikangas, J. Matias/Salminen, Mikko/Ravaja, Niklas (2012): "Social Interaction in Games: Measuring Physiological Linkage and Social Presence." In: *Simulation and Gaming* 43/3, pp. 321-338.
- Farman, Jason (2009): "Locative Life: Geochaching, Mobile Gaming, and Embodiment." Paper presented at the Digital Arts and Culture Conference, UC Irvine.
- Gergen, Kenneth J. (2002): "The Challenge of Absent Presence." In: James E. Katz/Mark Aakhus (eds.), *Perpetual Contact: Mobile Communication, Private Talk, Public Performance*, Cambridge: Cambridge University Press, pp. 227-241.
- Giddens, Anthony (1991): *Modernity and Self-Identity: Self and Society in the Late Modern Age*, Cambridge: Polity Press.
- Giddens, Anthony (1992): *The Transformation of Intimacy: Sexuality, Love and Eroticism in Modern Societies*, Cambridge: Polity Press.
- Gregg, Melissa (2011): *Work's Intimacy*, Cambridge, UK: Polity Press.
- Hjorth, Larissa/Hinton, Sam (2013): *Understanding Social Media*, London: Sage.
- Hjorth, Larissa/Lim, Sun Sun (2012): "Mobile Intimacy in an Age of Affective Media." In: *Feminist Media Studies* 12/4, pp. 477-484.
- Hjorth, Larissa/Wilken, Rowan/Gu, Kay (2012): "Ambient Intimacy: A Case Study of the iPhone, Presence, and Location-Based Social Media in Shanghai, China." In: Larissa Hjorth/Jean Burgess/Ingrid Richardson (eds.), *Studying Mobile Media: Cultural Technologies, Mobile Communication, and the iPhone*, New York: Routledge.
- Hogan, Bernie (2014): "From Invisible Algorithms to Interactive Affordances: Data After the Ideology of Machine Learning." In: Elisa Bertino/Sorin Adam Matei (eds.), *Roles, Trust and Reputation in Social Media Knowledge Markets: Theory and Methods*, New York: Springer, pp. 103-120.
- Illouz, Eva (2007): *Cold Intimacies: The Making of Emotional Capitalism*, Cambridge: Polity Press.
- Ito, Mizuko (2003): "Mobiles and the Appropriation of Place." In: *Reiever Magazine* 8.
- Ito, Mizuko (2005): "Intimate Visual Co-Presence." Paper presented at the Seventh International Conference on Ubiquitous Computing.

- James, Daniel Arthur (2007): "Sensors and Sensor Systems for Psychophysiological Monitoring: A Review of Current Trends." In: *Journal of Psychophysiology* 21/1, pp. 51-71.
- Jamieson, Lynn (1998): *Intimacy: Personal Relationships in Modern Societies*, Oxford: Blackwell.
- Jenett, Charlene/Cox, Anna L./Cairns, Paul/Dhoparee, Samira/Epps, Andrew/Tijs, Tim/Walton, Alison (2008): "Measuring and Defining the Experience of Immersion in Games." In: *International Journal of Human-Computer Studies* 66/9, pp. 641-661.
- Jethani, Suneel (2015): "Mediating the Body: Technology, Politics and Epistemologies of Self." In: *Communication, Politics and Culture* 47/3, pp. 34-43.
- Kelly, Kevin (2009): "Joe Betts –LaCroix and Lisa Betts-LaCroix on Self-Tracking in a Relationship." Filmed presentation of New York Quantified Self Show and Tell #5, March 31, 2009 (<https://vimeo.com/3981825>).
- Kiesler, Sara/Siegel, Jane/McGuire, Timothy (1984): "Social Psychological Aspects of Computer-Mediated Communication." In: *American Psychologist* 39/10, pp. 1123-1134.
- Kittler, Friedrich (1999): *Gramophone, Film, Typewriter*. Stanford: Stanford University Press.
- Knobel, Michele/Lankshear, Colin (2008): Digital Literacy and Participation in Online Social Networking Spaces. In: *ibid* (eds.), *Digital Literacies: Concepts, Policies and Practices*, New York: Peter Lang, pp. 249-278.
- Krane, Gary (2011): "Coupleness". Filmed presentation at New York Quantified Self Show and Tell #12, August 14, 2011 (<http://quantifiedself.com/2011/08/2179>).
- Lambert, Alex (2013): *Intimacy and Friendship on Facebook*, Basingstoke, UK: Palgrave Macmillan.
- Laurenceau, Jean-Philippe/Pietromonaco, Paula R./Barret, Lisa Feldman (1998): "Intimacy as an Interpersonal Process: The Importance of Self-Disclosure, Partner Disclosure, and Perceived Partner Responsiveness in Interpersonal Exchanges." In: *Journal of Personality and Social Psychology* 74/5, pp. 1238-1251.
- Lupton, Deborah (2014): "Self-Tracking Modes: Reflexive Self-Monitoring and Data Practices." Paper presented at the *Imminent Citizenships: Personhood and Identity Politics in the Informatic Age*.
- Madianou, Mira/Miller, Daniel (2011): *Migration and New Media: Transnational Families and Polymedia*, New York: Routledge.
- Mantovani, Giuseppe/Riva, Giuseppe (1999): "'Real' Presence: How Different Ontologies Generate Different Criteria for Presence, Telepresence, and Virtual Presence." In: *Presence* 8/5, pp. 540-550.
- Melnick, Joseph/Nevis, Sonia March (1994): *Intimacy and Power in Long-Term Relationships: A Gestalt Therapy-Systems Perspective*. In: Gordon Wheeler/Stephanie Backman (eds.), *On Intimate Ground: A Gestalt Approach to Working with Couples*, San Francisco: Jossey-Bass, pp. 291-308.
- Merleau-Ponty, Maurice (2004): *Phenomenology of Perception* (C. Smith, trans.), New York: Routledge.

- Milne, Esther (2010): *Letters, Postcards, Email: Technologies of Presence*, New York: Routledge.
- Morozov, Evgeny (2013): *To Save Everything, Click Here: the Folly of Technological Solutionism*, Philadelphia: Public Affairs.
- Nafus, Dawn (2014): "Stuck Data, Dead Data, and Disloyal Data: The Stops and Starts in Making Numbers into Social Practice." In: *Distinktion: Scandinavian Journal of Social Theory* 15/2, pp. 208-222.
- Nafus, Dawn/Sherman, Jamie (2013): "The Quantified Self Movement is Not a Kleenex." Blog posted on the CASTAC Blog March 26, 2013 (<http://blog.castac.org/2013/03/the-quantified-self-movement-is-not-a-kleenex/>).
- Nafus, Dawn/Sherman, Jamie (2014): "This One Does Not Go Up to 11: The Quantified Self Movement as an Alternative Big Data Practice." In: *International Journal of Communication* 8, pp. 1784-1794.
- Pahl, Ray (2005): "Are all Communities, Communities in the Mind?" In: *Sociological Review Monograph* 53/4, pp. 621-640.
- Pariser, Eli (2011): *The Filter Bubble: What the Internet is Hiding From You*, New York: Penguin Press.
- Patil, Akshay (2014): "Better Relationships Through Technology." Filmed presentation at the New York QS Meetup Group, November 6, 2014 (<http://quantifiedself.com/2014/11/akshay-patil-better-relationships-technology/>).
- Pierce, Charles Sanders (1998): *The Essential Peirce* (Vol. 2), Bloomington, IN: Indiana University Press.
- Pinker, Susan (2014): *The Village Effect*, New York: Spiegel & Grau.
- Ricardo, Fabio (2015): "How Relationship Data Guides Me Through a Chaotic Life." Filmed presentation at Amsterdam Quantified Self Meetup, January 19, 2015 (<http://quantifiedself.com/2015/01/fabio-ricardo-dos-santos-using-relationship-data-navigate-chaotic-life/>).
- Richardson, Ingrid/Wilken, Rowan (2013): "Parerga of the Third Screen: Mobile Media, Place, and Presence." In: Gerard Goggin/Rowan Wilken (eds.), *Mobile Technology and Place*, Hoboken: Taylor and Francis.
- Roseneil, Sasha/Budgeon, Shelley (2004): "Cultures of Intimacy and Care Beyond 'The Family': Personal Life and Social Change in the Early 21st Century." In: *Current Sociology* 52/2, pp. 135-159.
- Siegert, Bernhard (2013): "Cultural Techniques: Or the End of the Intellectual Postwar Era in German Media Theory." In: *Theory, Culture and Society* 30/6, pp. 48-65.
- Sloterdijk, Peter (2011): *Bubbles: Microspherology* (W. Hoban, trans.), Los Angeles: Semiotext.
- Turkle, Sherry (2011): *Alone Together: Why We Expect More from Technology and Less from Each Other*, New York: Basic Books.
- Winthrop-Young, Geoffrey (2013): "Cultural Techniques: Preliminary Remarks." In: *Theory, Culture and Society* 30/6, pp. 3-19.
- Wolf, Gary (2009): "Measuring Mood: Current Research and New Ideas." Blog posted on the Quantitative Self website, February 11, 2009 (<http://quantifiedself.com/2009/02/measuring-mood-current-research/>).