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ASSEMBLAGES OF DESIRE: REAPPROPRIATING AFFECTIVE TECHNOLOGIES

Abstract

This paper considers the operations of affective technology within contemporary technocapitalism through affect theory. It is argued that affective technologies enter into power arrangements with political and corporate interests, altering an acting bodies' *affect* — in the Spinozan definition, the "capacity to affect and be affected" — within social and political life. Affective computation uses machine learning techniques to 'capture' and quantify affective intensities in data form, automating a normalizing logic of division and categorization that classifies bodies, emotions, and objects. Affective technologies invoke what Luciana Parisi called "automated decisionism," where machine learning processes digitize incomputable states in order to impose a self-rationalizing logic structure that regulates a user-subject's actions (Parisi, "Reprogramming Decisionism"). Affective technologies exert biopolitical control over users through quantified logics of division and devaluation. It is suggested that *affect* might simultaneously operate as an analytic lens to speculate on whether collective affectivity and political agency might be reclaimed through using these technologies. The following concludes with an engagement with Deleuze and Guattari's "assemblages of desire" to suggest that affective technologies might produce other micropolitical arrangements that increase user agency as social and political subjects.

A tale of two plushies

In 2013, British supermarket chain Tesco contracted with an American tech startup company to install facial scanning cameras in 450 petrol stations. The motive for doing so: selling a toy penguin. 'Monty the Penguin' was both the title of a heartwarming advertisement for a John Lewis plush, and the Christmas gift fad of 2014, selling out stock only a few hours after the ad premiered. Back in the US, at the Sunny View Retirement Community in California, a white harp seal named Paro snuggles and coos at elderly patients with dementia. The robot seal has been designed specifically for the calming effect it has on its holders and goes for about 5,000 USD on eBay, although a number of lesser knock-off Paros can be spotted on department store websites. A seemingly arbitrary pair apart from their shared cuddly demeanor, Monty and Paro have a similar story of origin, although they went on to lead quite different lives. The development of both Monty's branding campaign and Paro's engineered persona are in fact, the resulting artifacts of the techniques of 'artificial emotional intelligence', also known as 'affective computation'. Affective computation is an umbrella term for an interdisciplinary set of sciences organized around the interpretation, codification and stimulation of human

Figure 1: PARO the Seal. Credit: PARO Robots USA.

affects using machine learning techniques.

Affective technologies are increasingly ubiquitous to our everyday operations, social relations, and consumer habits. The 'age of artificial intelligence' forms a networked tangle of affective technologies that expand from the virtual realm of our social media feeds to the aura of ambient technologies that pepper each room in our homes. The goals of affective technologies vary — they might be sold as commodities that promise easier and more seamless user interaction, while simultaneously mining troves of user data that might be leveraged by corporate or state interests. Affective technologies may take the form of anthropomorphic robots, or cute fluffy Christmas presents. They also might operate subliminally behind the screen, in order to quantify knowledge about a user that might be used to sell them future Christmas presents, or perhaps even sold to other agents who might use this knowledge to justify sometimes violent means of regulation over certain bodies. But what kind of user information is extracted by these processes, exactly, and by whom? What do affective technologies purport to calculate?

This paper argues that affective technologies appropriate social relations in the service of capital. Through techniques of quantification, affective technologies extract data from user-subjects that is then leveraged for profit. It is argued that affective technologies participate in what Deleuze and Guattari call an "assemblage" — or arrangement of "bodies, actions and passions, an intermingling of bodies reacting to one another" that "are necessary for states of force and regimes of signs to intertwine their relations" (Deleuze and Guattari 71). Such assemblages, it is argued, are imbedded with power operators that — to quote Spinoza — alter a bodies' "capacity to affect and be affected" within political society. Within contemporary technocapitalism, affect — which

is here defined by a biological, social, political or technical body's capacity for action — is made commodity through technical instrumentalization. Affective technologies provide a means for the biopolitical control of users — a term which is here considered synonymous with 'subjects' — by those who control privatized algorithms and massive databases, constraining users to certain possibilities of action through standardization. Is it possible, then, for affective technologies to be critically deployed, or must they be dismissed as irrevocably engrained with oppressive logics of division and devaluation of user-subjects? Framing affective technologies as participants in an assemblage permits a critical analysis of their deployment, a necessary lens in questioning whether such technologies might allow for other modes of subject expression with the toolset granted by technocapitalism.

Contemporary scholarship on affect emphasizes the analysis of everyday modes of being and feeling as a linkage between the 'micro-political' (how a certain body experiences a political context) and the 'macro-political' (how a certain political assemblage arranges bodies across society). Normative forms of being in society are given though what Deleuze, following Foucault, calls a "power arrangement" — a formation of institutional and State powers that constitute "the whole social field" (Deleuze 123). Power arrangements act across micro and macro political registers in what Deleuze and Guattari call "assemblages of desire" — relationships between social subjects, territories, technologies, and institutions — that are in constant flux and recomposition (125). Affective technologies are automated participants in a particular power arrangement that exerts control over users by constructing norms through statistical standardization. Technological normalization, Foucault explains, is an economic operation that produces knowledge effects in

the name of optimization — 'truth' becomes equivalent to efficiency, which under capitalism means whatever is the most productive of capital (Foucault 19). Framing affective computation as a power operation suggests that it regulates operations and human relations in accordance with the interests of capital through the extraction, quantification and datafication of affective information. If affective computation aims to commoditize social relations, might framing them as power operators within an assemblage suggest what Brian Massumi calls a social "potential for re-relating with a difference" for the user-subject (Massumi 54)? Following Deleuze and Guattari, are there other aspects of this "assemblage of desire," new affective relations that fall outside of regulatory and predictive capacities exerted by the power assemblages performed through affective technologies?

An atlas of emotions

We know that face recognition technology is deployed across the globe in order to surveil, police and regulate algorithmically marked bodies, but we are beginning to realize artificially intelligent programs may be used to capture emotions — where 'emotion' is registered as the discrete cognitive states that effect human communication — as well. As of early 2019, Amazon, Apple, Facebook, Google, IMB, Microsoft and other powerful platform corporations are developing and rolling out new technologies that utilize what is known as "emotion AI," or "artificial emotion intelligence" (McStay 2). Other smaller scale tech startups offer clients customizable packages for data collection, including a variety of biometric sensors, cameras, microphones, and multi-modal software. An emotionally intelligent technology might make use of high

detail cameras and other imaging sensors in order to measure certain muscle expressions, generating a representation of an emotion based on a model programmed into the device. Image and scanning techniques would 'capture' emotions based on microscopic movements of a human face, which are discretized and assumed to be universal for the sake of calculability.

Artificial emotional intelligence takes plural forms, some designed to imitate human empathy back to the user (harkening back to ELIZA, the original virtual Rogerian psychotherapist), while others are programmed to assess user's dominant emotional state and trigger certain prompts based on their calculations. We might find these technologies deployed by companies to monitor consumer response in order to assess user engagement and dynamically alter advertisement content, contributing to what has been elsewhere called the 'emotion economy'. [1] Emotional intelligence might tap into our consumer desires, subliminally determining the future choices and actions we will take. In this sense, artificially intelligent emotion technologies make a wager on our (yet) unlived desires, feeding off of the affective surplus of our data exhaust. The cybernetic ideal of systemic control extends itself into the virtual realm of the future through emotional artificial intelligence, where it steers our bodies through the inhuman logic of capital. The consumer within the emotion economy is subject to what Luciana Parisi calls an "alien reason" — or a computational form of automated reasoning that feeds off of contingency in order to produce new levels of determination — the machine not only knows, but brings our future actions into being (Parisi, "The Nanoengineering of Desire" 86).

More recently, there has been a rapid increase of tech companies engaging with the relatively new science of 'affective computing' — an engineering practice dealing with machines that 'have emotions'. Following the cybernetic dream of bringing together the mind and the machine, affective computation has intervened into the broader umbrella science of artificial intelligence by staking its claim — the human mind is always embodied, and humans have *emotions*, therefore, a more functional intelligence machine might have the ability to detect and respond to emotional states. Corporate descriptions of affective technologies often use verbiage that collapses the terms 'affect' and 'emotion', which affect theorists like Brian Massumi assert have important political distinctions. For Massumi, affect is a proto-political and pre-subjective 'charge' that is always in flux, whereas emotion is "the way the depth of that ongoing experience registers personally at a given moment" (Massumi 4). We might detect each other's emotions through cognitive and social cues, like the tone of a voice combined with the expression of a face, but a smile or grimace can't be assumed to imply the same information universally. While emotion is bound to the individual subject, the concept of affect allows emotion to have political implications because affect arises through encounters between a multiplicity of actors — it is necessarily linked to social relations. Emotions are, in a sense, reductions of affect, crystalized determinations of the "capacity to affect and be affected" that communicate something about an affective encounter. The digitization of affects, as it is automated by affective computation, erases the distinction between emotion and affect, constraining a users' capacity to act in accordance with their pre-codified affective states, intentionally removing any consideration of contextuality .

Affective technologies aim to digitize and programmatically engage with human affect. *Affect* is a force or intensity that — Melissa Gregg and Gregory Seigworth

explain — arises in the relations of bodies, whether those bodies are human, non-human, machinic, or conceptual (Gregg and Seigworth 1). It is an "ever-gathering accretion of force relations" (2) that structures the conditions for a body's knowing and being in the world, through framing what is "*felt* to be real" (Massumi 54). Affect creates a "temporal contour" (Stern 62) that at once evades "received psychological categories" (Massumi 27) while also reorganizing the sensations and instincts felt in everyday life (Bertelson and Murphie 148). It performs what Erich Hörl calls the "technoloecologization of sense," where phenomenological experience is constrained by the affordances of the interface (Hörl 5). Affective technologies programmatically enact a range of computational techniques to enframe the norms of user experience, installing what Massumi calls a "politics of conformity" (57).

The scientific field of affective computation implements a number of techniques in order to standardize data and produce the norms around which it operates. The science was coined by MIT Media Lab director and scholar Rosalind Picard in a 1995 white paper of the same name. "Affective computing," or "computing that relates to, arises from, or influences emotions," makes use of Antonio Damasio's experimental neurobiological research to provide a framework for an "emerging criteria" of emotions in computers (Picard 1). It allies itself with Damasio's "somatic marker hypothesis," which proposes that emotions arise in the limbic system and are later cognized, implying that affect is pre-conscious and pre-subjective (2). Higher decision and learning processes require that an affect is recognized, generalized, and labeled so that it might be used to prompt decision, trigger action, and feed back into the homeostatic system of the cognitive agent. Picard's interest lies in applying this twofold physical-cognitive theory of affect to
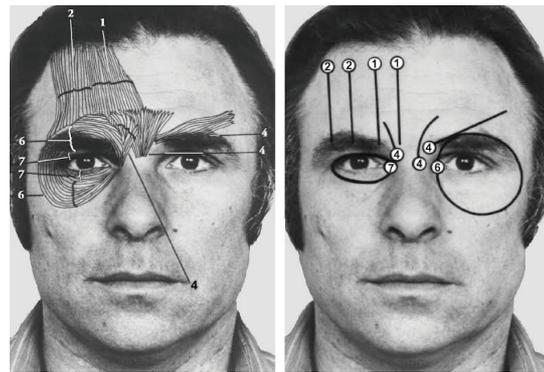
Figure 2: Paul Ekman's Facial Action Coding System chart from FACS manual.

computation — if a human limbic system is replaced by extra-human sensors, she asks, what types of affective communication might a computer enable through its own 'emergent criteria'?

Contrary to the opinion that computers should be completely 'rational' or logical machines, Picard proposes that an affective dimension within computation might lead computers to be better decision makers. Because, she claims, human cognitive intelligence is so bound to the material processes of the limbic system, a smart machine would be able to naturally recognize and express emotions in their interaction with a human through taking in environmental sensory information and responding appropriately. An affective machine might make use of high detail cameras and other imaging sensors in order to measure certain muscle expressions, generating a representation of an emotion based on a model programmed into the device.

Affective computation makes psychologist Paul Ekman's 'Facial Action Coding System' an executable program, creating a mapping of the human face that corresponds to a predetermined "atlas of emotions" (Picard 5). Eckman created the FACS between 1972-78 based on his research on what he called "micro expressions," claiming it to be the "first and only comprehensive tool

for objectively measuring facial movement. Eckman proceeded to develop tools using the FACS for clients as broad as the TSA, FBI, CIA, health care providers, the Dalai Lama, and the makers of Pixar's *Inside Out*.[2] It was appropriated by the Picard to create a device that would learn and evolve over time to create a more fluid and 'natural' user experience. Analytics mined from social media platforms might be fitted to models derived from FACS that enable affective intelligence to infer the way a users' emotional disposition effects their browsing habits. Thus, an 'affect' is produced in an affective computer and constructed as a universal marker of an 'emotion' — an object of scientific truth, a sort of 'emojification' of a human feeling. The body of the user becomes collapsed into a one-dimensional data point. A smile, a click, a 'like', are all equivalent codified representations that can be amassed in a database, assessed for patterns, made into calculable models, and extrapolated to produce further information in accordance with the objectives of the programmer.

A 2015 *New York Times* feature on a spin-off company that came out of Picard's MIT Lab, called Affectiva, makes explicit connection between so-called emotionally intelligent machines and the "glimmer of an emotion economy." Affectiva, formed by Picard and partner Rana el Kaliouby, develops custom software for clients that provides facial and voice analysis in order to gather analytics that companies can use to understand consumer emotional engagement. This technology has been used by CBS, Millward Brown, AOL, IBM, and eBay among others in order to assess user engagement and dynamically alter advertisement content through technologies that perform what is called *sentiment analysis* (Khatchadourian). Several of Affectiva's client contracts have caught the interest of the public eye, raising concerns around the violation of privacy rights, such as in the case of the infamously proposed Verizon media console that would use microphones and sensors in order to constantly survey its ambient environment for emotional cues and adjust television ads accordingly.

Affective computers designed through Affectiva extend the human perceptive capacity of the user — where humans register each other's emotions through verbal and nonverbal communication, sensor technologies enable a direct codified registration of a pre-conscious affective state through the sensory capture of microscopic, unseen and unheard information —the machine knows what we are 'feeling' *better* than we do. The technologies employed by Affectiva explode out of the interface into the surrounding environment in order to form a digitally expanded nervous system, of which human users exist as the mere fleshy embodiment of the logics of capital. As a mixture of techniques for codifying affective states, affective computation enables the creation of new markets through the quantification of minute action, like the flicker of a smirk, or the clenching of the jaw. If affective computation appears to be an automated expansion of capital, a power arrangement that constrains the conditions for subjectivation — the possibilities for a social subject to realize its "capacities to affect and be affected" — is it a worthwhile exercise to speculate on whether such technologies might play a role in alternative liberatory regimes, explicitly outside of the domain of capital? Can affective technologies increase, rather than restrain and regulate, human social and political capacities? Perhaps this becomes more complex than a critique of *whom* is deploying the techniques of affective computation when it is claimed that standardization and normalization of social relations is a codified function of these technologies *in and of themselves.*

An ocean of affect

The development of affective technologies follows the cybernetic aspiration of bringing together the mind and the machine. 'Cybernetics', or the "the scientific study of control and communication in the animal and the machine," was terminologically derived from the Greek term for 'governor', 'helmsman', or 'steersman of a ship' (Weiner 11). In the heyday of the Macy Conferences, cybernetics obsessed over the idea of making a machine that would mimic the human mind, turning to psychological models of human intelligence provided by Freudian psychoanalysis. Part of the "dream of self-organizing systems and autopoietic intelligences produced from the minute actions of small, stupid, logic gates," as Orit Halpern calls the speculations of the Macy Conferences,
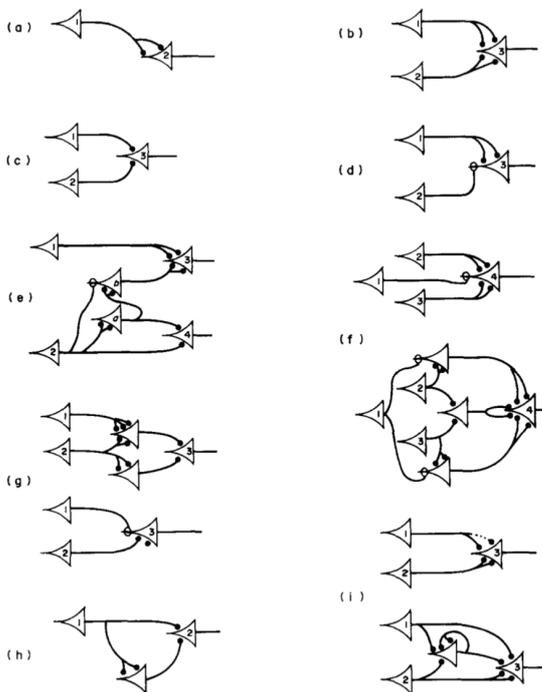
Figure 2: Logic gates modelled by McCulloch and Pitts "Logical Calculus for Neural Activity."
Credit: McCulloch and Pitts.

was the question of *what actually drives these systems* (Halpern 143). The existential questions — what is human will, and why do humans act irrationally? — become technological questions of circuit design. How then might we build a machine that adjusts for contingency in order to regulate output in the name of efficiency?

Luciana Parisi traces this bio-informatic phase of capitalism, where cybernetic theories are modeled on the biological processes within a body (Parisi and Goodman 136). Norbert Weiner's model, based on the idea of *feedback* or "the property of being able to adjust future conduct by past performance," takes a body as a system (whether it be a machine or living organism) that may be controlled and regulated via its inputs and outputs (Parisi and Goodman 136). Bioinformatic capital subsumes a machinic assemblage through adjusting the inputs and outputs correspondingly, not though cutting off the affective flow of information, but by optimizing the assemblage to perform the most efficiently. Moving beyond the cybernetic regime of interaction control, "affective capitalism" creates a future feedback effect — it is "a parasite on the feelings, movements, and becomings of bodies, tapping into their virtuality by investing preemptively in futurity" — exemplified by the finance technologies that typify contemporary global capitalism (164). Contemporary technocapitalism feeds forward into the future, determining the "not yet come" forms of cultural representation though bidding on the actions of social subjects. Our branded and media saturated environment has learned to capitalize on the *affective* states of users, defining social user-subjectivation as a *consumer* rather than a *communal* experience.

In the age of affective computation, which computes human affect in order to produce evolving and complex affective data, the questions of the Macy Conferences fall

short in addressing the social effects of ubiquitous affective technologies. If it is claimed that affective capitalism has subsumed all of social function, what chance could there be for other types of subjectivation processes that do not align with cybernetic paradigms of bio-informatic control? What would it mean to attempt to reinstall what Massumi calls a "politics of affect," or what Bridget Bargetz names "a political grammar of feelings", that emphasizes that shared affective dispositif *is* necessarily a project of politics? The final part of this essay will engage affective technology with contemporary theory on the politics of affect derived from the Spinozan definition of affect — the power to "affect and be affected" — in order to question whether affective technologies have potential to activate the capacities of a user-subject in modes that increase their political and social agency.

Massumi's "politics of affect" considers power and affect together insomuch as they affect desire, or the potential of an individual to become otherwise. For Deleuze and Guattari, desire is an affirmative and productive force that mutates and transforms matter, linking biological, technical, social and economic bodies in an energetic mechanic assemblage (Parisi 12). Desire is never given, but both realized through practice and affected by power relations. In other words, power arrangements delimit and reduce assemblages of desire within specific societal, political and historical regimes of representation and sensation. Affect, here, "acts in the nervous system not of persons but of worlds" (Berlant 14) to frame what Raymond Williams calls a "structure of feeling" or shared historical organization of culture and the elements contained within it (Williams 53). Affective technologies, when deployed by technocapitalism, claim to produce affective capacity, expanding the possibility of what a (user) body is and what it can do. In their actual deployment, affective

technologies can be typified as part of a particular power arrangement, where rather than merely simulating or producing 'affect' they are regarded as normalizing operators on the conditions of possibility within a structure of feeling. In other words, affective technologies operate on the sensorium of everyday life in order to enforce normalized constraints on the actions and decisions of user-subjects. Affective technologies are not neutral, but rather, are prosthetic extensions of logics of division and devaluation of human life for the benefit of capital interests. With an emphasis that affective technologies come encoded with bias, we might begin to ask what kinds of knowledge they produce, and if they might be deployed to produce more equitable socio-technical relations. Is it possible to reclaim affective technologies towards other machinic vectors of subjectivation that do not simply service the 'emotion economy'?

A beneficial function of affective technologies can be found in their ability to strengthen human to human communication, facilitating new means for social relations. Consider the case of Paro the seal, where affective technologies are used to enable patients with dementia to more comfortably relate to their environment and their care providers. In a similar vein, Picard's original interest in developing the tools to provide better education to children with autism is based in the idea that these technologies might allow educators and autistic students to more clearly understand each other. In situations where affective technologies are deployed to intensify social relations, rather than alienate user-subjects through reducing them to statistically regulated consumers, it serves to induce a different type of "micropolitics" — what Guattari calls the partial techniques of power that produce beliefs, desires, and sense of self on a social level — that remain open-ended and productive of

unexpected subjective capacities (Deleuze and Guattari 213). Invoking the notion of the 'assemblage', the complexity of all social relations for Deleuze and Guattari always contains potential for subjectivity to be remade *differently*. What new types of usership could exist if affective technologies were used to create more transparent interfaces between user and machine, or user and user?

Despite their possible use to increase connection, improve social communication, and empower users, it should not be forgotten that affective computation is part of a cybernetic legacy that is specifically designed to operate on the future through prediction and regulation. Recalling the story of Monty the Penguin, we might see artificial intelligence become quite good at knowing what gives us that 'heartwarming feeling', enabling client companies of these technologies to adjust their products and campaigns accordingly. In a much more sinister vein, security cameras might draw conclusions about the affective states of targeted subjects to jump to unjust predictions about their future actions and intentions. Imagine a world in which hidden facial scanners serve as evidence and justification of discriminatory policing practices, for example. Imagine that the technology exists to make this possible, and imagine that its implementation is a matter for political and ethical guidelines, or lack thereof. Just as affective technologies learn from the data they capture from embodied subjects, they also have the ability to shape and transform the emotional states of users in an affective feedback loop. Consider studies on the linkages between social media and dopamine levels — tech companies are master manipulators of our biochemical reward pathways, with enormous insight into the forms of interaction, layouts, colors and designs that will get us hooked on that feel-good rush of interaction (Haynes). Amplification of universal affective codes shape the way we encounter machines and humans alike, turning us into addicts or avoidants, leaving us wanting more, feeling depressed, or changing the way we come to recognize emotion within others and ourselves. Recognizing the ways in which emotional artificial intelligence as a technique of power is key in acknowledging the way that such technologies have the ability to automate the political agency of a user, and how they might activate this user otherwise.

Notes

[1] The term wascoined by Richard Yonck, frequent blogger for Affectiva, and self proclaimed futurist in a 2017 online article titled "Welcome To The Emotion Economy, Where AI Responds To — And Predicts — Your Feelings," which first appeared on the website of the major media branding agency Fast Company.

[2] Found in Paul Eckman's "Timeline of Achievements," on the Paul Eckman Group website.

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