Machine Extremities

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☞ <u>Acknowledgments</u>

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I am by nature an optimist. My decision to enter the field of technology and design encapsulates both my desire to connect with the sensitivity of art, visuals, and experience, along with the innate desire to help those around me with the technical skills I know best. When mentioning this to my Professor, Colleen Macklin, we both agreed this optimistic inclination is an experience most designers and solution-makers possess. It is something I can clearly see in those around me –my classmates, colleagues, friends and acquaintances alike. Both new technologies and old technologies can be seen to possess a munificent aspect, yet, regardless of these benevolent ideals, no one is stranger to the insidious and exploitative technologies that permeate through our world.

This essay is for those looking to ruminate over the state of our technologies as it stands today. By writing *Machine Extremities* I aim to provide readers with a new mindset/framework to assess technologies. It calls attention to ways in which innovation stems and reinforces cycles of shame. Understanding our seemingly 'evil' technologies through empathy and emotion. In turn, I argue that intentional integration of humility-based design choices can positively guide and compliment the feelings of shame that exist within innovation. In addition, this essay and web publication is the summarization of my last four years of studying design, technology, and technology management at Parsons School of Design. It encapsulates how I aim to approach my future career in design and technology moving forward.

The essay is split into three different sections: Eyes, Hands, and Skin. The Eyes section is meant to explore the technologies of data, machine-aided perception, and analysis. In the Hands section, I examine our more physical technologies: I will be juxtaposing robots and human-like machinery to machines and functions that directly alter and affect humans. And in the last section, I ruminate over the various systems in place that support the cycle between innovation, shame, and dissatisfaction.

To get the full experience, including supplementary links, photos, audio and charts, please visit the online website at <u>www.machine-extremities.net</u>.

☞ SECTION: INTRODUCTION

1. Just as our desire for innovation stems from a place of growth, so too does it stem from a place of dissatisfaction with our current capabilities: Our technologies often encapsulate and expose the very dissatisfactions we are attempting to leave behind.

2. These dissatisfactions can often reflect specific feelings of shame we have within ourselves. While shame is not necessarily negative, it is a reactionary emotion that, if left unchecked, can become dangerous. Inadequacy highly-steeped in shame creates untethered dissatisfaction.

3. Untethered dissatisfaction can lead to technologies that place ourselves in a never-ending and unrealistic cycle of escaping shameful inadequacy via technological aids.

4. In turn, the trajectories of our technology become increasingly controlling, exploitative, neurotic and insidious as both creator and users cope with the cycle of dissatisfaction and shame.

5. By acknowledging the presence of these emotions within our technologies, we can start to better understand why such technologies that set out with good intentions, may turn sour– driving us further and further away from ourselves, our needs, and our initial goals.

6. This web publication suggests a humility-based design innovation framework to compliment and guide our feelings of shame and dissatisfaction, subsequently guiding our technologies and fostering well-rounded innovation

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Humility is:

- a low focus on the self/product
- an accurate sense of accomplishment, ability and worth
- acknowledgment of one's limitations, imperfections, mistakes, gaps in knowledge
- a teachable attitude
- oriented toward benefiting other

☞ <u>Humility Based Design Checklist</u>

☐ Realistic solutions based on both projected and perceived benefits and consequences of a product

☐ Focused on disconnecting from hi-technologies and the systems that support them when possible

☐ Acknowledgment that 'low' tech can be just as valuable as hi-tech

☐ Self/product indifferent innovation

☐ Readily acknowledging imperfections and mistakes

☐ Uplifting communities that are outside of a product's consumer-base, especially if those communities are affected or involved in the production of a product/system

☐ Finding value in smaller scale solutions

☐ Scaling at the speed of trust

☐ Scaling based upon manageability of mission goals

☐ Dethroning efficiency and instead focusing on specific and well defined goals

☐ Acknowledgement that a product is not limitless

☐ A product that thinks highly of its users and holds them to high standards

☐ Products that are actively listening and empathetic to consumer needs

☐ Products that openly acknowledge the social and economic systems it operates under and/or reinforces

☐ Products that have evolvable mindset

☐ Products that design slow for long term

☐ Products that do not rely upon trend

☐ Firms that emphasize complete transparency

This list is simultaneously non-exhaustive and contextual. If you are someone who intends to either create or engage with humility-based technology, utilize this list and supplementary information below to assess a given product, and whether or not it checks off enough boxes for you, or if it checks off the boxes that matter the most to you.

Objective desires ——

Our bodies and minds are wired to observe. To do almost anything is to have observed some iteration of it before. Even in action, our bodies ceaselessly gather sensory information to inform us as life renders before us.

We are creatures of input.

The mind stirs with a lifetime of information. A weight so heavy upon our shoulders: As natural as it is to take input, it is just as natural to express outward. To gesture, to talk, to draw, to write, to document.

We are creatures of output.

Desire to understand the world around us is one of the first relationships we enter as humans. However, underlying all this beauty of sensitivity and expression is the pure necessity of information. As Charles Eames states, “Beyond the age of information is the age of choices.” We know very well that the key to having increased choice and control over our lives is to gather information that we previously did not have. Information is indeed power. Our desire to collect and organize the information around us encapsulates aspects of our lives we previously did not have *enough* control over: natural trends, the quantification of property and goods, processing efficiency, human behavior, the list goes on. In this section I will be exploring our modern habit of documentation through data collection –understanding where and why a seemingly innocuous habit, exacerbated by technology, continues to paint a murky future for us. I will be assessing why we value data, data creation, data storage, and how the ways in which these systems operate affect users in turn.

“Vision in this technological feast becomes unregulated gluttony.” - Donna Haraway

Data collection is a long standing practice – in order to understand our relationship with data, we must think about why objectivity is valuable to us in the first place. One does not have to look very hard to see the importance of an empirical mindframe: whether it is applied to research, large scale decision

making, or even personal matters. However, in the words of science historians, Lorraine Daston and Peter Galison: Western "history of the various forms of objectivity might be told as how, why, and when various forms of subjectivity came to be seen as *dangerously* subjective" The danger here is not just misinformation, as one might expect, but instead it is perception of self. Epistemology has a long and ever-expanding history– but Daston and Galison's specific account of nineteenth century atlas makers (the time's pinnacle data analyzers and visualizers) striving to achieve objectivity with newfound technologies of precision (machines, photos, and digital images) was said to be "*a struggle of inward temptation*." This specific point in history, I argue, encapsulates and exemplifies the growing dissonance we witness today between information gathering for deeper understanding of the world and those around us, versus information gathering to grapple with control and dissatisfaction of self-image: resulting in dissatisfaction and desire for control of that around us.

It is stated that the moral remedies these atlas makers sought "were those of self-restraint [...]. Seventeenth century epistemology aspired to the viewpoint of angels; nineteenth century objectivity aspired to the self-discipline of saints." Based on this information, it could be said that a researcher has a natural inclination to assess its current processes for fault, and develop new ways to counteract inadequate methodologies. While this is most definitely true in select cases, it should also be noted that this moral aspect of objectivity is a landmark where we can begin to see feelings of dissatisfaction drive our actions. Throughout science we continue to see the value in *meticulous* objectivity which requires painstaking, "care and exactitude, infinite patience, unflagging perseverance, preternatural sensory acuity, and an insatiable appetite for work" rather than the temptations of subjectivity, considering it unpredictable, wild, messy and immaturity. The article states, "it is [...] a profoundly moralized vision, of self-command trumping over the temptations and fragilities of flesh and spirit." Thus, as we strive towards this ideal image of the perfect observer, we run away from anything less than what may paint us as unyielding angels, saints, and now cyborg patriots of objectivity.

Machine objectivity ———————————————————————————————————————

It was, of course, convenient and critical that at this time machines were increasingly becoming more and more relevant in research and documentation. Tools such as photographs, mechanically drawn images, polygraphs, and others made it,

“nineteenth century commonplace that machines were paragons of certain human virtues. Chief among these virtues were those associated with work: patience, indefatigable, ever alert machines would relieve human workers whose attention wandered, whose pace slackened, whose hand trembled. Scientists praised automatic recording devices and instruments in much the same terms. [...] It was not simply that these devices saved the labor of human observers; they surpassed human observers in the laboring virtues: they produced not just more observations but better observations”

With that in mind, by taking the morality of objectivity and the usage of machines to aid in our self-image of pious documenters, all of our objectivity is steeped in this subjective need to be perfect, to evade any sense of unkempt perspective, as this would only diminish the perceived gain of choice and *justification* of control, that we obtain when gathering more knowledge. Information leads to the age of choice and subsequent control; Perceived objectivity and moral superiority leads to the justification of that control, with machines becoming our perfectionist scapegoats.

It is in this way that we've dismissed genuine and deep curiosity in the wake of 'efficient perfection.' Rather than turning towards the subjects we wish to understand, we turn away from them. We grab the information we want. Then, we use that information to cope with what our inner-self are dissatisfied with (namely self-perception and the perception of others). It is one thing when this mentality is applied to weather, or crops, or unknown specimens – but, when one abuses what is small and insignificant to them, it eventually becomes second nature to exert that behavior wherever one may get away with it. A true painstaking task is to dedicate yourself to understanding one person; It is a shortcut to single out one specific data point from one billion subjects, often fueling ego rather than understanding.

Visibility and Agency ———

Data itself is not an evil entity. Neither is the act of collecting it, processing it, or utilizing it. Yet, the dangers and consequences of data collection can be seen right before our eyes. From headlines to word-of-mouth, to research papers and facebook group posts, it's no secret that our day-to-day data is constantly being collected. It is skewed, gnarled, contorted and reduced– knowingly and unknowingly. This data spans from obvious things, such as social media activity

and web browsing, to 'big data' breadcrumbs such as the geographic data off your credit card, home thermostats, smart devices, and more. These collection methods and processes exist in most crevices of our technology-dependent lives. Having started as surplus data solely for product improvement, to then become highly valued user behavior data in the age of surveillance capitalism, as coined by Professor Shoshanna Zuboff, which "unilaterally claims human experience as free raw material for translation into behavioral data."In our efforts to collect and document our lives and the lives of people around us, it seems it has been forgotten that, "knowing and being known is a mutual exchange," not something that can or should be done as a mechanical and removed observer. Now, we can start to see where this untethered dissatisfaction on the data collectors side is not isolated to themselves, instead it very directly can be seen seeping into the experiences of the user. The unequal positioning of the observer (data collectors) and the observed (technology user) is only one point in which shame can appear. There is an inherent lack of trust that the observer will accurately understand their subject. As Microsoft researchers Kate Crawford and Danah Boyd state: "There is a considerable difference between being in public and being public, which is rarely acknowledged by Big Data researchers." It is exactly here where technology incites shame as, "to be seen in a certain light carries the risk of feeling shame [if] invisibility has been foreclosed." Not only does this mentality set our technologies up for failure of empathy, technology users are the ones facing real consequences of innovator ego and ideals.

This messy amalgamation of modern-day documentation has resulted in hyperfocusing on specific bits of information (data bias), and the neurotic documentation of data (technology's memory) – based upon the focal points of those in power, who want to stay in power. As Manovich writes, there are "three classes of people in the realm of Big Data: 'those who create data, [...] those who have the means to collect it, and those who have expertise to analyze it.'" Data collection is a practice that should lead us to the improvement of our lives and the lives of the people around us. In many ways it has – However, it does not take one long for one to see that this is often not the case.

As Daston and Galison state, machines are "patient and exact observers, blessed with sense more numerous and more perfect than our own, they work by themselves for the edification of science; they accumulate documents of an unimpeachable fidelity, which the mind easily grasps, making comparisons easy and memory enduring."The extent to which these data practices are continually and more pervasively being used only increases by the day. All of this information merely and briefly demonstrates the pervasiveness and capabilities of user data analysis. These technological feats, if standing by themselves, could illustrate a technologically competent and able future. However, the political and economic environment that these technological capabilities reside in, raise concern in a multitude of ways.

In the article "The Clocks Are Striking Thirteen," the author expresses the collective concern that there are numerous accounts of the Supreme Court largely overlooking the fourth amendment in lieu of modern-day 'digital searches.' They state, "when the government buys broker data without probable cause, it flouts our supermajority grant, surreptitiously subjects blameless citizens to "near perfect surveillance." Without the fourth amendment being wielded in the valid context of digital privacy, an increasing number of government abuse cases can be seen. This article was written just in 2024, and since then, the concerns raised have become evermore troubling in recent times.As recent current day events such as fluctuating immigration policy, increasing censorship, women's reproductive rights, gender orientation and more, the overlooking of the Fourth Amendment has the potential to put many citizens at risk, "recklessly expos[ing us to the possibility of] stalking, harassment, blackmail, public shaming, and arbitrary persecution for our familial, political, professional, religious, and sexual associations." Technology seldom resembles a tool for understanding anymore, instead acting as a tool of highly subjective control and exploitation.

Technology's memory ——

Just as data collection itself grapples with ideals of unyielding perfection, so too does technology's memory. It's no news that digital storage capabilities have revolutionized communication and systems of information, allowing for greater information accessibility and preservation. Technologies of storage are often viewed as extensions of our human brain. And further, as stated within the article 'Technologies of Memory,' "Embedded within much technological discourse is a Utopian, techno-centric belief in an infallible memory-machine, in contrast to

a notionally capricious, context-dependent and therefore fallible human memory." However, it is quite common knowledge at this point that digital storage is both a prevalent blessing and curse. Once something has been released onto the internet, it is near impossible to erase. Even if it were to be erased, as legislation is currently attempting, the act of getting it erased likely only adds to the issue via the Streisand Effect: “trying to suppress information can backfire by drawing attention to the information you are trying to suppress.” Not to mention other implications of such an act if it is not properly formatted to prevent abuse of it.

      With these daunting aspects in mind, coupled with knowing most user data is constantly being collected unknowingly, one could draw connections between the internet's memory capacity and being aware of one's own limitations in the presence of a seemingly omnipotent digital entity. Ubel states, “it was Nietzsche (1966b), whose parable of the Ugliest Man in Thus Spoke Zarathustra Tillich references, who averred that the very notion of an all-seeing God contributes to the production of shame.” While it's a bold statement to claim that digital memory could be compared to an all-seeing G-d, the effects of having media uploaded online, whether it be pictures, videos, text, audio, etc. creates a relationship between user and device where the user loses a major amount of agency and control. All the while also increasing feelings of being observed and scrutinized – with the very real possibility of it being used against you and outwardly condemned. The elusivity of expressing/exposing yourself and your identity through media and not knowing how it's being used, viewed, or perceived can cause tantamount uncertainty and shame. Moreover, in the case of technology's memory, the near-permanent aspect of the internet's memory results in a sense of *disintegrative* shame. Disintegrative shame is characterized by a permanence aspect (i.e. branding or maiming), this permanence leaves no room for redemption, as opposed to reintegrative shame which “does not push the shamed toward even worse patterns of behavior,' it does not isolate individuals, and it 'allows individuals to hold themselves accountable through the actions of others.'” It's not difficult to think of an example on the internet where an individual is canceled or ridiculed for any one aspect of their being. As Sheila Brown, author of 'The Criminology of Hybrids: Rethinking Crime and Law in Technosocial Networks', states, “... endlessly circulating, shifting, pixels affect real lives … real humiliations and human pains are generated; and real relations of (patriarchal) power and exploitation are reproduced and reinforced.”

      Technology's superior capacity for information storage is undeniable– so much so that humans increasingly rely on digital memory as an extension of their own. While a large aspect of digital storage is

its superior capabilities that far exceed that of its human creators, the way in which these technologies are developed take major influence from human behavior and cognition. For example, the term 'contextual computing' refers to, “[using] time, location and personal rhythm, task or activity, along with models of human memory practices, to help people manage their everyday lives via information storage and/or reminder.” On a more direct level, organizations such as IBM's Cognitive Computing group and the Lawrence Berkeley National Laboratory have been developing artificial human brains, creating brain-inspired computers to “build an efficient [artificial] memory system [...] inspired by how the brain actually works, [imitating] the plasticity of human synapses over time.” Similarly, modern day artificial intelligence uses 'neural networks,' often understood to be modeled after the organization of the human brain. However, one MIT news article urges people caution when comparing the human brain to neural networks as, “computing systems that appear to generate brain-like activity may be the result of researchers guiding them to a specific outcome.” Again, we continue to see this recurring theme of machine ability being 'objectively' superior to human ability, fueling the cycle of untethered dissatisfactions for innovators, and negatively affecting users in turn– all facilitated by a machine that attempts to obscure allegations of subjectivity.

     While the internet has a seemingly limitless capacity to store information, it can be seen that storage (just like human memory) is not a passive thing, as “what is remembered individually and collectively depends in part on technologies of memory and the associated socio-technical practices, which are changing radically.” Storage, while all-seeing, is still biased: it's a “constant negotiation of determining value and worth of information and archiving and forgetting that which might be important but not needed.” Coupling this information with the fact we've come to rely on technological memory as an extension of our own, technologies of information flows should not be perceived as objective, or matter-of-fact. As our technologies become increasingly more obfuscated about how they handle data storage and circulation, the digital world becomes a breeding ground for uncertainty, distrust and judgment.

Implications and Adding Humility ——————————————————————————————————

What's been spoken about so far hardly even touches the surface of the shameful and aggressive nature of interacting with technology on a personal level. Cathy O'Neil, author of the novel, "The Shame Machine: Who Profits in the Age of Humiliation" states: "By pitting us against each other in these endless shame spirals, Big Tech has successfully prevented us from building solidarity and punching up against the actual enemy, which is them. The first step is for us to critically observe their manipulations and call them what they are: shame machines." Social technologies should be "a story about establishing and nurturing personal connections at scale." Yet this is seemingly not the case. As Natalie Wynn, creator of the YouTube channel 'ContraPoints', puts it, social media is "... a habit that is making me hate myself, and it's making me unfairly contemptuous towards others." Shame has immense power to positively impact a community and regulate social behavior based upon the collective values; Yet social media is often seen to be unproductive at best, and disintegrative at worst.

To conclude, a key point I'd specifically like to call attention to is the comparability between the mechanics of control and shame. Both hold the key to agency, for users and innovators alike. Likewise, both hinge on the presence of visibility (internal or external): "Visibility, and the control it allows, defines all work sites, regardless of what is being manufactured or supplied. Vision is power, and infrastructure is built for and by a world that believes in this philosophy: its image is carefully controlled and constructed, and the capacity for watching and being watched becomes its own infrastructure." If information is key to choice and subsequent control, we can begin to see the slippery slope that these elements lie upon, resulting in neurotic documentation of data, and hyperfocusing on specific points based on the focals points of those in power, who want to stay in power. This issue of power is one that is not new nor novel, as A href="https://www.youtube.com/watch?v=LcHM2Rj4JXQ">Alexander Stein puts it, the unfortunate truth of this reality is that trying to change the wrong-doer is often futile. However, we can instead aim our focus on those who are not consciously falling prey to the systems in place, and those who are willing to implement smaller scale experimentation, research, and solutions. By acknowledging the presence of shame within our technologies, we can start to better understand why technologies that set out with good intentions, may turn sour, driving us further and further away from ourselves and initial goals.

☞ SECTION: THE HANDS

Fashioning replicas of ourselves ───────────────────────────────────

When we look at a door, the door knob is an indication that the door can be opened. Depending on the type of door knob, one can get a sense of how we might use it: e.g. push it down, pull it forward, twist it right, unlatch it horizontally, and so on. In interaction design terms, this is a common example of describing 'affordances.' Affordances are "characteristics or properties of an object that suggest how it can be used. It shows a user that an object can be interacted with." It should be noted that an affordance is not merely a 'property' or attribute of an object. Instead an affordance is, "defined in the relation between the user and the object." In this sense, an affordance declares the various possibilities of action between the user and the object. A button is to be pressed, a lever is to be pulled, a keyboard is to be typed on. Pretty simple. Modern usage of highly engineered affordances have resulted in user manuals being objects of the past, as replacement technologies increasingly aim for seamless ubiquity. As Apple puts it: "If you can point, you can use a macintosh" or, "I think, therefore iMac."

But what's happening as our machines are getting more complex and fluid? When interfaces turn into almost-blank screens that will respond to anything; when minimalism sleek is the standard, and when human body interfaces become increasingly normalized. When it's to the point that our machines are just verisimilitude looking back at us, the affordances become unimaginably large, while also becoming increasingly familiar.

In the same way that our habit to collect data and share information stem from a desire for growth yet simultaneously encapsulate dissatisfactions we attempt to leave behind, so too do the tools, machines, functions, algorithms and physical products that we create. With that in mind it is an integral thing to approach all our technologies we are using, or creating, with this at the forefront of our minds: "growth has become this unmarked

category granted magical powers. As growth remains the common sense, [...] a cascade of unseen consequences, side effects, also become second nature." It is no fault that we strive to improve ourselves and the environment around us through technological advancement– yet we must consider and acknowledge the real pitfalls and losses that come with gain. Mere tools such as cups, lenses, thread, etc. have very clear use cases, and thus very clear functions that might compensate for any dissatisfaction. What inadequacies do our sleek, high-technologies reflect and reveal about us? What are we attempting to leave behind with innovation such as virtual reality, cyborgs, thinking computers, simulation technologies, etc.? …Why do our tools look like humans?

Alexander Stein states that technology is "a human enterprise devised, driven, and shaped not only by experimentation and innovation, but by our interests, hopes, fears, foibles, and fantasies." While technology has come a long way in such a short amount of time, again and again we are dazzled by its potential, ignoring many shortcomings. If a shortcoming is identified, it is usually handled with yet another technology that suffers the same cycle.As we ourselves cope with dissatisfaction, so too do our technologies. The issue I identify in this section is the exertion of control leading to mega-hi-technologies: It can be argued that when we cannot control ourselves, the people around us or the environment around us, we attempt to make something we can control. The more and more we have distaste for ourselves, the people around us, and the world around us –the more we continue to create technologies to 'handle' it. In the same way we increasingly engineer our perspectives with data and systems and algorithms, we also continue to engineer our realities as well.

What this seems to have manifested into is the habit of looking towards the machine to reprieve us from our dissatisfaction, only to see a human looking back at you. In this section I will be examining how untethered dissatisfaction has resulted in the creation of overly controllable humans of both wire and flesh. When we begin to have issues differentiating the two, not only are we using a faulty outlet for our grappling with the human condition, but to micromanage technology is to micromanage ourselves, and vice versa.

Thinking Machines and Cyborgs ———————————————————————————————————

Brian Christan, winner of the Turing Test's *Most Human Human Award* ruminates, "Who would have imagined that the computer's earliest achievements would be in the domain of logical analysis [...] That it could fly a plane and guide a missile before it could ride a bike? That it could create plausible preludes in the style of Bach before it could make plausible small talk? That

it could translate before it could paraphrase? That it could spin half-discernible essays on postmodern theory before it could be shown a chair and say, as most toddlers can, "chair"?" Within the past two years, everywhere you look within the media, AI is seen as a groundbreaking and unprecedented innovation. Large language models (LLMs) are currently being used to solve problems in seemingly every aspect of modern life, its main selling point seems to be its 'humanness.' While LLMs are viewed as a highly competent human-like technology that (supposedly) can solve many of man's modern-day problems, I find these discrepancies in its abilities, pointed out by Brian Christain above, both fascinating and uncanny.

Following Christian's train of thought, AI technologies have seemingly found a shortcut to human nature – being trained to match the competence of a PhD level psychologist, to be a emotionally mature companion, to be a moderator conscientious of human values, to do sentiment analysis for large-scale organization initiatives, to be an emotional support friend, and so much more. AI apparently does this all without learning first-hand what it means to recognize the smile of a parent, know what it is to share snacks with a friend, learn to listen to a close friends and family in distress, learn to recognize when someone might need help, learn first hand the theory of mind, and to ultimately grapple with concepts of solipsism: lessons of perception and care that are learned early on through the direct experience of human development.

Amidst a 'loneliness epidemic' within the US, we can directly see this modern habit developing. In hopes of alleviating social isolation, virtual companion solutions are becoming more and more prevalent. Even if we know these chatbots are faulty at their core, their mirage is still alluring: Investment predictions show that the global adoptions of companion AI applications will likely reach a popularity level similar to social media and online gaming. Within the relationship between ourselves and the humanoid robots we continue to create, the theme of dissatisfaction and shame is continuously strung throughout.

One could argue that humans have become more inclined to interact with anthropomorphized technology as "Anthropomorphism is more positively related to adoption when one's need for human interaction is high. Anthropomorphic chatbots may be more readily adopted because they mimic human service agents and are thus perceived as easier to use." Furthermore, comparing human-to-human interaction and human-to-robot interaction, it can be argued that some have come to find comfort in automated interaction as opposed to human interaction. Recent research has found that some individuals held preference towards automated services over human services in embarrassing scenarios. Individuals may feel more comfortable using automated systems to talk about sensitive personal information, they may feel more compelled to ask a chatbot questions that

otherwise may be viewed as ignorant or awkward. In this sense,feelings of shame may be averted due to these emerging technologies, as a user is talking to a chatbot rather than an actual person.

It is in many ways that our technologies allow us to cope with the shame of everyday life. Whilst this has positive benefits, such as allowing people to get help and social support that otherwise may not be available to them. However, our technologies should not condition users to come to expect unilateral and ultimate customization of reality and social interaction to our every whim. As psychotherapist, Esther Perel, contemplates, "What worries me is how digitally facilitated connections are lowering our expectations and competence in the intimacy between humans." Social bots continue to become more human-like as time progresses. However, when humans are aware they are talking to sophisticated robots there often an intrinsic knowing of difference in being. Specifically, in the case of robots or chatbots, "you don't converse with Google, or with most computer systems; you depose them."

With this dissonance in mind, it makes sense that any shame one might feel in a human-to-human social interaction dissipates when one of the humans is replaced by a machine: "We simply do not feel ashamed if, for instance, we are criticized or laughed at on account of our behavior by others whom we do not respect." I argue that it is because of this that We should never "substitute a computer system for a human function that involves interpersonal respect, understanding and love." This quote comes from Joseph Weizenhaum, who became one of science's most outspoken opponents of AI research and ended up discontinuing his own natural language processing computer program, called Eliza, in the 1960's. For Weizenbaum, "we cannot humanise AI because AI is irreducibly non-human. What you can do, however, is not make computers do (or mean) too much".

With all this information, again we are faced with the question of how technologies that resemble ourselves affect users. One might argue that it's a bit far-fetched to assume humans would be so silly as to confuse fully sentient humans to humanoid servants, treating both with a decreased sense of respect and

empathy. It's less concern over whether or not humans will outwardly confuse humans for machines, but instead concern for a mentality such as this to become increasingly pervasive and normal. Implications of such mentality can be seen resulting in natural language chatbots behaviorally nudging users, and users continuously relying upon such technologies regardless of the broader consequences for convenience, societal norms, and the seemingly inescapableness of AI technologies as a whole. All of this stemming from unmanageable and untethered dissatisfaction of the people around us, because they were not efficient enough, smart enough, beautiful enough, and not controllable enough.

Self-surveillance and technologies of human altercation ——————————————————————

Our own being-ness is not isolated from the developments of human-esque technologies stated above. Not only does human-like technologies change the landscape of our realities, but it also changes humans themselves. As automation becomes more commonplace and sophisticated, an argument is being made that this will free us from menial jobs and labor. As our technologies are manifesting into humanistic, superiorly skilled creatures for whom we command, it seems as these technologies advance, human counterparts are expected to keep up as well. As our technologies upgrade, so does the relative definition of what 'efficiency' is.

Take for example excerpts from the 1917 published book "Applied motion study: a collection of papers on the efficient method to industrial preparedness." The authors state,

> "There is no waste of any kind in the world that equals the waste from needless, ill-directed, and ineffective motions, and their resulting unnecessary fatigue. Because this is true, there is no industrial opportunity that offers a richer return than the elimination of needless motions, and the transformation of ill-directed and ineffective motions into efficient activity."

The book further suggests, span class="requiemQ"> "The men themselves become more efficient. They become specialists, skilled workers. They learn the motion-study method of attack, and are thus more fit to undertake any type of work. They learn to think in elementary motions, and to eliminate waste in every activity of their lives." The application of motion studies may utilize tools and methods such as motion pictures and charts, videos, time measuring, external observers, and self-reporting. With that being said, it seems that dissatisfaction of efficiency and productivity not only manifests in the creation of technological aids, but it also

manifests in the training and modification of human behavior. While the authors of Applied Motion idealize that applied motion studies and execution will result in, "a greater number of promotions, more cooperation, more reading and study of the science of management, and higher wages earned with greater ease" – Not only does this turn out to be an inaccurate prediction of modern jobs due to the increased risk and multifaceted implications of being replaced by AI, but I argue the consequences of applying any type of standardization to humans often negate any perceived gain.

Let's switch gears for a moment to look at disability design studies. Kat Holmes, designer and technologist focused on disability technology ruminates that, there seems to be an imposed shame on disabled individuals, communicated through our very technologies. While technologies built for disabled individuals are in many cases an extraordinarily beneficial thing for the recipient, it should not go unnoticed that these technologies may state through their function that the user 'is or is not abnormal,' and either 'does or does not require a device that will help them fit the status quo.' For example, to replace a missing arm with a mechanical arm may hold undertones of accusation: "The emphasis on restoring the visual features of a body so that the loss and difference, the before and after, might be undetectable, can preclude the alternate possibilities that individual experience and proclivities might suggest." The lesson to be gathered here is that standardization for the sake of imposed norms of those who control technologies, closes many other doors of possibilities for individuals."There is a natural inclination to use yourself as a shortcut to make assumptions about the people that you're designing for." When paying attention to the way that various marginalized communities are being treated by the people, systems, and technologies in power, you can start to get a better sense of what a technology is overlooking. One person interviewed by Jillian Weise: "The insurance company could pull my data and decide whether I have used my leg enough to justify the next one." In this case, by getting a device to help you live, you are sacrificing an extreme level of privacy and control.

 Combining the idea of innovator ego, dissatisfaction of control, and increased expectations for human ability based upon unrealistic expectations of a perfect human cyborg, and cyborg humans: Not only are technologies used to impose their viewpoints onto users, but the control methods being used by technology companies are becoming increasingly more direct. It is through both these subsets of technology that we see control being exerted to reinforce ideals that users did not consentfully subscribe to. Not only do these technologies have social

and cultural implications, but they also hold real control. This mentality of technology not only targets those who are considered disabled, but all individuals. In the words of Hari Kunzru,

         "The cyborg age is here and now, everywhere there's a car or a phone or a VCR. Being a cyborg isn't about how many bits of silicon you have under your skin or how many prosthetics your body contains. It's about Donna Haraway going to the gym, looking at a shelf of carbo-loaded bodybuilding foods, checking out the Nautilus machines, and realizing that she's in a place that wouldn't exist without the idea of the body as a high-performance machine. It's about athletic shoes."

      And further, "Winning the Olympics in the cyborg era isn't just about running fast. It's about "the interaction of medicine, diet, training practices, clothing and equipment manufacture, visualization and timekeeping." The recurring theme here is utilizing seemingly helpful technologies to spread belief about what it means to be human on every level. These ideas and this information isn't just for those who are considered disabled. When perfection is the goal, everyone is subject to shame and pressured to change."Technology is not neutral. We're inside of what we make, and it's inside of us. We're living in a world of connections - and it matters which ones get made and unmade."

Our replicas are funny looking ——————————————————————————————

      When we increasingly begin to see ourselves within our technologies, what does that say about our perception of ourselves? Artist, Tobias Bradford, whose medium revolves around replicating human qualities onto machines, states "it is quite a primal thing to [...] project human qualities onto objects, especially the ones that specifically sort of invite that interpretation through various means– either that they are anthropomorphic in nature physically or that they act in anthropomorphic ways– as in like something seeming chaotic or unexpected or you know, sentient." Questions to continue to grapple with include: How may seeing animal/humanistic mannerism and behavior within our technology impact the way in which we interact with those machines, and how in turn may that affect us? If the choices of our creators increasingly look like the creators themselves, or aim to alter, modify, and upgrade humanity — what does that look like in our technology,

and how does that change technology's users and subsequently our environment?" It is here where things get murky: In all of these attempts to see ourselves within our creations, these replicas become that of control as innovators and the money behind innovation hyperfocus on inner dissatisfaction and the assumption that their users desire exactly what they desire.

        There is a very cyclical nature to this whole dance with our replicas: As author Sara Hendren puts it, "A body –any body– will take its cues, bend the available resources, and invent its being with the matter around it." And likewise, any mind, perspective, emotion and manner of interacting with those around us become an increasingly larger aspect of our technologies of tomorrow. It seems the very action of applying standardization of humans for the sake of efficiency undos humanness itself. It is one thing to make a replica out of love, it is another thing to make a replica out of ego. As our technologies move closer and closer to becoming replicas, it seems the further we stray from ourselves. Not only this, but hi-technologies often undermine and overlook already existing technologies or cycles that work (just to come back to them later on often). Or tramples them, for perceived value of time-saving efficiency. The trajectories of our technology have become increasingly controlling, exploitative, neurotic and insidious as both creator and users cope with a never-ending cycle of shame and dissatisfaction, projecting them onto our high technologies, before having those technologies insight never ending modifications of ourselves.
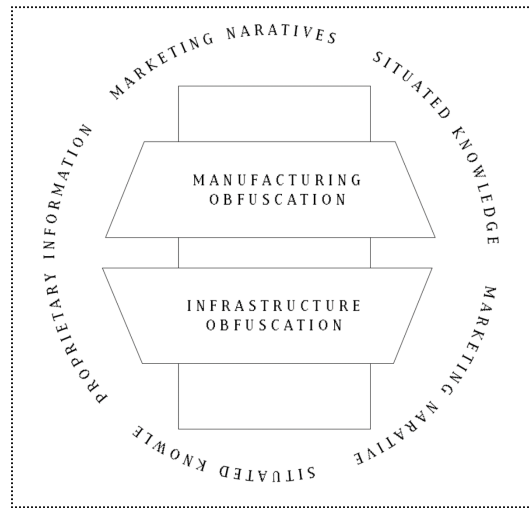
Encompassing it all ——

"People will come to love their oppression, to adore the technologies that undo their capacities to think"

     Neil Postman wrote in his 2011 book 'Technopoly: The Surrender of Culture to Technology,' : "We are currently surrounded by throngs of zealous ... one-eyed prophets who see only what new technologies can do and are incapable of imagining what they will undo. We might call such people Technophiles. They gaze on technology as a lover does on his beloved, seeing it as without blemish and entertaining no apprehension for the future." (span class="karmaQ">As time has gone on, we see this relationship continue to manifest itself further and further, – not only this mentality, but systems being put in place to continue to foster and protect this relationship we continue to desire to cultivate. In this last section, I aim to explore the various systems in place that have come to be integral to upkeep the technologies of untethered dissatisfaction and shame with which we see today. In Lisa Park's article "The Politics of Infrastructural Visibility," she states

     "We are socialized to know so little about the infrastructures that surround us, even though many of us use mobile phones each day. Would our

experience of mobile telephony change if we knew more about the architectures of signal distribution? It is difficult to say, but we certainly would have a different relation to technology if we understood it as something more elaborate and expansive than something that rings in our purse or vibrates in our pocket."

In this fast-paced world of technology, who has time to look under the hood? Who even has access to looking under the hood? And who has the power to change these inner workings that are just out of public sight. As our technologies become sleek, obscured and out of reach. We might see this recurring trend within the clean metal encasements of our personal devices that don't allow for any tampering, manufacturing practices being removed from the western user's view, or cable stations being held on islands that are out of sight from the majority of the user's sight. It is because of this that,

"It is important to devise other ways of visualizing and developing literacy about infrastructures and the relations that take shape through and around them. Are there ways of representing cell towers that will encourage citizens to participate in sustained discussions and decisions about network ownership, development, and access? What is it about infrastructure that is aesthetically unappealing? What form should infrastructure sites assume? Should they be visible or invisible?"(Link)

It seems any holdbacks of a technology are masked, and instead we are sold the ideology of limitlessness and pioneering the future in attempts to guarantee continuity, with knowledge that capitalism is built off promises of future return. As we attempt to find solace in techno-solutionism, a futile and cyclical ideal, we attempt to compensate in other forms, such as design and manipulation tactics, etc. It's not a bad thing to have an innovation that you believe in, and do all you can to 'sell' your idea to others. However, a line must be drawn between ideals and grappling with delusion. Take for example lithium, and the contrasting reality of ideals encompassing the technology: Samir Bhowmik –professor of New Media, Infrastructures and Environment at the Aalto School of Arts– states,

"The imaginaries engendered by the lithium industry are

presented as synonymous with growth, clean energy, and a movement away from reliance on fossil fuels. But on further analysis, these representations are largely immaterial and dimensionless, making the true scope and scale of lithium-based energy systems impossible to grasp. [...] The visual culture of lithium is clouded in utopian dreams and abstractions of energy sufficiency." This pervasive branding accompanied by feelings of general acceptance that technology has unsavory cost seems to allow unethical practices to continue."

We can also see this shown through Liam Young's video "We Power Our Future With the Breastmilk of Volcanoes," as he juxtaposes how Elon Musk talks about lithium, versus drone footage of Bolivian Salt Lakes and the Atacama Desert. <span="carQ">Due to the flimsy trust that has been built between consumers and manufacturers, it's more important than ever to call attention towards the systems and processes in place that come before technology's point-of-sale at the cash register. It is often a use of language and connotation that allows big tech's true practices to slip through the cracks. This language can remove consumers from the physical and material nature of their technology – another example being the hoax of 'wireless' tech: "connectivity is neither as untethered nor ethereal as wifi implies." Instead it is a highly physical process and system that requires massive amounts of labor, materials, and land. "'When we imagine a network these days,' Anna Munster observes, 'it is hard to stave off the flood of visualizations … that populate our contemporary connectionist imaginary.'" Thus, the article suggests "we should wonder more about the "patterns of mind" tied to those representational techniques."

Even "cloud computing is a form of dissociation from the materiality of data, that creates distance from the impact of cloud consumption in deliberate, albeit dangerous, ways," resulting in the refusal of boundaries between human and environment. Yet another example is Apple being notorious for "always highlight[ing] its design origins in Cupertino (every Apple product comes with a piece of paper that states "designed in Cupertino, California") rather than its actual production culture in China in order to preserve the image of an artisanal product, a strategy which makes it especially and enduringly globally desirable." And through marketing tactics they've created a reputation showing that "Sure the iPhone is pricey, but it is "worth it"

because it is emphatically not a toy for the idle rich, but rather a tool for industrious "makers" who use it to broadcast updates, photos, and other data." Taking this all into account, wherever a promotional material may lean into, we can see what we want consumers to shift their eyes from. "We are beguiled by misleading marketing narratives to suspend disbelief and impute prodigious human-ish capabilities which are nonexistent. We mistake engineering achievements for independent thought and linguistic agency." We must not buy into the narratives: instead of listening to their words, we must listen to their actions and the systems it affects.

Another system in place I would like to call attention to is the Dispossession Cycle, as explained by Shoshanna Zuboff, illustrating one way in which big tech sustains its guarantee of continuity via legislative manipulation in addition to marketing tactics.

Stage One: Incursion: The first stage of successful dispossession is initiated by unilateral incursion into undefended space: your laptop, your phone, a web page, the street where you live, an e-mail to your friend, your walk in the park, browsing online for a birthday gift, sharing photos of your kids, your interests and tastes, your digestion, your tears, your attention, your feelings, your face.

Stage Two: Habituation: Second stage the aim is habituation: Whereas lawsuits and investigations unwind at the tedious pace of democratic institutions, Google continues the development of its contested practices at high velocity. The incursion itself, once unthinkable, slowly worms its way into the ordinary. It gradually comes to seem inevitable. New dependencies develop. Populations grow numb, it becomes more difficult for individuals and groups to complain.

Stage Three: Adaptation: In a third stage of the cycle, when Google is occasionally forced to alter its practices, its executives and engineers produce superficial but tactically effective adaptations that satisfy the immediate demands of government authorities, court rulings, and public opinion. Cultivate new rhetoric, methods, and design elements that redirect contested supply operations just enough so that they appear to be compliant with social and legal demands.

Stage four: Redirection tactics to make their actions and products more appealing, focusing on really selling aspects of the product that will benefit the population, and redirecting attention away from the negative sides of their operation.

We see again and again, big tech companies such as Google, Amazon, Uber, Apple, Facebook, and others continuously flex that their innovation moves at a speed faster than legislation. It is increasingly clear that "the rules of the innovation game are changing and the question remains whether it is the radical innovation that leads to radical changes or if it is only the first, though necessary, step in the change process." Knowing many practices that technology images in are wrong, we see many big tech companies using in-place systems to justify them, rather than empathy and common sense, we see technology companies scrambling to steel their innovations (and subsequently, their ego) in order to guarantee its survival. By acknowledging the presence of shame within our technologies, we can start to better understand why technologies that set out with good intentions, may turn sour, driving us further and further away from ourselves and initial goals. By having these difficult conversations about the padding of these shame systems, we can start to understand why obvious shame starts to turn into suppression and normalization. With these "mysterious influencing machines." and systems overtaking every aspect of our lives, we should remember the humble idea that awareness is the backbone of user agency and a balanced consumer-company relationship in the neoliberal age.

"But it is much later in the game now, and ignorance of the score is inexcusable. To be unaware that a technology comes equipped with a program for social change, to maintain that technology is neutral, to make the assumption that technology is always a friend to culture is, at this late hour, stupidity plain and simple." ― Neil Postman

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