Belief, Values, Bias, and Agency: Development of and Entanglement with "Artificial Intelligence"

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ABSTRACT

Contemporary research into the values, bias, and prejudices within "Artificial Intelligence" tends to operate in a crux of scholarship in computer science and engineering, sociology, philosophy, and science and technology studies (STS). Even so, getting the STEM fields to recognize and accept the importance of certain kinds of knowledge— the social, experiential kinds of knowledge— remains an ongoing struggle. Similarly, religious scholarship is still very often missing from these conversations because many in the STEM fields and the general public feel that religion and technoscientific investigations are and should be separate fields of inquiry. Here I demonstrate that experiential knowledge and religious, even occult beliefs are always already embedded within and crucial to understanding the sociotechnical imaginaries animating many technologies, particularly in the areas of "AI." In fact, it is precisely the unwillingness of many to confront these facts which allow for both the problems of prejudice embedded in algorithmic systems, and for the hype-laden marketing of the corporations and agencies developing them. This same hype then intentionally obfuscates the actions of both the systems and the people who create them, while confounding and oppressing those most often made subject to them. Further, I highlight a crucial continuity between bigotry and systemic social projects (eugenics, transhumanism, and "supercrip" narratives), revealing their foundation in white supremacist colonialist myths of whose and which kinds of lives count as "truly human." We will examine how these myths become embedded into the religious practices, technologies, and social frameworks in and out of which "AI" and algorithms are developed, employing a composite theoretical lens made from tools such as intersectionality, ritual theory, intersubjectivity, daemonology, postphenomenology, standpoint epistemology, and more. This theoretical apparatus recontextualizes our understanding of how mythologies and rituals of professionalization, disciplinarity, and dominant epistemological hierarchies animate concepts such as knowledge formation, expertise, and even what counts as knowledge. This recontextualization is then deployed to suggest remedies for research, public policy, and general paths forward in "AI." By engaging in both the magico-religious valences and the lived experiential expertise of marginalized people, these systems can be better understood, and their harms anticipated and curtailed.

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GENERAL AUDIENCE ABSTRACT

The twenty-first century has been increasingly full of conversations about how human values, biases, and prejudices make their way into what is usually referred to as "Artificial Intelligence." These conversations have increasingly involved experts from not just science, technology, engineering, and math (STEM), but also sociology, philosophy, and science and technology studies (STS). Even so, it's still often difficult to get the STEM fields to accept the importance of certain kinds experience and knowledge— especially that of marginalized people. Additionally, religious scholarship is often excluded from these conversations because many in the STEM fields (and the general public) feel that religion and science and technology should be separate fields of study. Here, I demonstrate that knowledge developed from lived experience and religious, even occult beliefs have always already been part of how we think about and understand many technologies, especially "AI." In addition, I show how people's unwillingness to accept the importance of our experience and beliefs is what leads to the prejudice embedded in algorithmic systems, and the hype-laden marketing of the people developing them. This same hype obscures the mechanisms of actions of both the systems themselves and the people who create them, and that obscurity makes it harder for the people most often oppressed by the systems to do anything about it. I highlight a line of connection between bigotry and large-scale social programs like eugenics, transhumanism, and the idea of the "supercrip," to reveal how they all stem from white supremacist colonialist myths about which kinds of lives count as "really human." These myths became part of the religious practice, scientific education, and social fabric from which "AI" and algorithms are developed. I combine tools from multiple fields to help show how mythologies and rituals of education, notions of what it means to "be a professional," and dominant cultural beliefs about knowledge all animate concepts such as learning, expertise, and even what counts as knowledge. By considering both the magical/religious elements and the lived experiences of marginalized people, we can chart new paths for research and public policy, toward making more ethical and just "AI."

Acknowledgements

Like most spheres of human endeavor, dissertations are interflows of efforts and influences from multiple people and relationships. Essentially we are always in partnership when creating knowledge— or anything else, for that matter— partnerships which come in many forms, and extend beyond the bounds of what we usually consciously consider to be the "beginning" of a process. "Gratitude" can barely cover what I owe those unrivaled friends, family, and other loved ones who encouraged me down this path, and who have lent their continual support throughout the process. Broadly, my time between childhood and two graduate educations was spent in a variety of pursuits, from watch salesperson, to barista to cheesemonger, to adjunct lecturer, and during all of those stages I was fortunate enough to meet people who would change the way I thought and felt.

A reminiscence yields many names, but I owe magnitudes of debt to Kirsten Brown, who has read my various drafts, provided joy and love, listened to all my stress and self-doubt, helped me keep myself together, and generally been a partner during two stints in graduate school; thank you, I could not have done this without you.

Relatedly, I also owe massive thanks to the priceless support of my friends and colleagues at Virginia Tech: Kristen Koopman, who was a source of mutual emotional support, commiseration, sounding board advice, and much needed hangouts, from day one; Josh Earle and Alice Fox, for the company and shared interests and discussions; Emma Stamm for conversations about how to maintain the weirder elements of our work in academia; Mario Khreiche for conversations that helped shift my perspective during conferences and just around town; and everyone else I've met in and around the Virginia Tech STS department for your friendship, and your invaluable points of view over the last five years.

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Volumes will be written on internet citation practice— compendia on the lines of communication and care within our online communities— and just a few of the people to whom I owe so much include Widgett Walls, Rua Williams, John Flowers, Timnit Gebru, Ian Mclean, Chris Gillard, Khadijah Abdurahman, Rachael Tatman, Abeba Birhane, Ian Campbell, Rich Harang, Jonathan Korman, sava saheli singh, Ingrid Burrington, Joanne McNeil, Natalie Kane, Madeline Ashby, Tim Maughan, Robin Zebrowski, Duncan Jones, and so many other interlocutors on Twitter and elsewhere. Essential as they all are, I cannot list everybody who has helped me so well in my thinking, and so I hope that some of you finding yourselves cited here lets you know how much you've meant; and to everyone else, if you look at my "Following" list on twitter, or encounter me talking to them at length, then you should follow them too, because chances are all fantastic.

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As a note on this text, I have been conducting this research and thinking in the lines of thought that would become this dissertation for 15 years, and have been able to share parts of this work in progress in other venues. From AFutureWorthThinkingAbout.com which I started in 2013, and Technoccult.net which was stewarded to me by Klint Finley in 2015 (and both of which run via the administrative expertise of Chris Ballard), to the article "What It's Like To Be A Bot" at Real Life Magazine, to my article "Constructing Situated and Social Knowledge: Ethical, Sociological, and Phenomenological Factors in Technological Design," appearing in Engineering and Philosophy: Reimagining Technology and Social Progress, and several other peer reviewed papers and chapters, cited throughout, and dozens of presentations and invited lectures, I have had the extremely good fortune to refine my thinking on this topic in public and in a way which has brought these ideas to multiple audiences. I am extraordinarily grateful for those chances.

And finally of course: To you, for reading this. If you do not see you name listed above, don't think that means I don't care; just imagine all the times we've talked over a coffee shop counter, all the times we've chatted or texted, all the late nights spent around a fire at a party in the early spring or deep in summer, all the sleepless hours wandering convention hall floors, and know that that moment, just then, helped bring me here.

As thanks, I've embedded no less than three and no more than nine word puzzles throughout this acknowledgements section; some are easy to find, some might be a bit harder, but I've given you a few hints and in the end they are, just like the values and beliefs that shape the "AI," algorithms, and other human constructed technologies we're all mad subject to, hidden right here in front of you.

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Annotated Chapter List

1. **Introduction: Of Djinn, Digital Angels, and Dominant Logics**: In this chapter, I discuss "myths" as animating narratives which convey and imbue cultural values. I show that technoscientific projects have also always had spiritual or religious overtones, and that those have been directed by the dominant values and beliefs of their time. I draw a conceptual line between mythological entities such as angels and djinn and the drive to create or control nonhuman minds. I argue that marginalized beliefs are simultaneously appropriated and co-opted in the service of technoscientific projects. By highlighting and centering these minoritized positions, we can relate to nonhuman minds in ways other than narratives of dominance and control. I use this understanding as a touchstone throughout the text to examine projects that claim to develop "artificial intelligences," then present an understanding of the values and beliefs hidden, occulted, within technoscience as a whole.

2. **Troubling the Tools: Existing Values and Perspectives Embedded in "AI" Research**: In this chapter I explore the various positions around "artificial intelligence," ranging from "algorithmic machine learning" to the possibility of machine consciousness. I examine literature from philosophy of mind, philosophy of technology, cognitive science, "AI" engineering, actor-network theory, and the archives of magazines and journals from societies such as IEEE and AAAI, and more. I outline the multiple, often conflicting, historical conceptions and engineering operationalizations of "AI" thus far, and discuss the valences of power and experience which have driven their respective projects. I highlight the connections between these projects and the stories of nonhuman servant minds from Chapter 1, discussing how the mythological and magical conceptions remain to the present day, even if in a somewhat altered form. This provides a firmer foundation from which to both highlight what kinds of tools and systems those conceptions have enabled— good and bad— and argue for intentionally troubling and changing them.

3. **Technosocial Repercussions of Othering and Bias**: I examine histories of social othering and their resultant forms as racism, misogyny, ableism, transphobia, homophobia, and other types of bigotry. I explore how concepts such as "neurological enhancement" contain and exacerbate problems like ableism, technoableism, racism, and misogyny. I explore the continuity between these bigotries and eugenics, transhumanism, and "supercrip" narratives, arguing that these are all outgrowths of white supremacist colonialist mythologizing about whose and which kinds of lives count as "truly human." I interrogate several definitions of consciousness and intelligence to argue that a singular definition of either is problematic. I then relate this to both the history of "AI" and potential implications of including nonhumans within the categories of "conscious minds." To this end, I reference debates over the rights and status of machines, from multiple fields, and to definitions and writings from the fields of neuroscience, philosophy of mind, cognitive psychology, legal theory, and more.

4. **Standpoint Theory, Intersectionality, and Intersubjectivity**: I describe and analyze the components of intersubjectivity, phenomenology, and intersectionality. I argue for placing these concepts in conversation with each other to create an epistemological and normative lens through which to understand and direct the creation of technological artifacts and systems, and frame public discourse and understanding of them. This lens

will allow us to understand how knowledge formation, expertise, and even what counts as knowledge are all shaped and animated by processes and concepts such as professionalization, disciplinarity, and dominant hierarchies.

5. **"AI" Research Policy Recommendations**: In this chapter, I combine all of the component evidence from the previous chapters into a single coherent argument for why marginalized perspectives need to be at the center of work around algorithms and machine intelligence. To do this, I highlight the extant literature and research around the hazards of failing to include marginalized perspectives, naming the animating beliefs currently at play in algorithms and "AI" research. I argue that the values and beliefs— the animating myths— of knowledge, expertise, democratization, intelligence, and even consciousness would all be better engaged and interrogated by centering the lived experience of marginalized people, first.

Foreword

When I started this work, almost two decade and a half ago, I was interested in working on ideas which had been part of my life for a long time. I became one of a few voices trying to raise awareness about how human values embedded within and affect the creation and operation of so-called artificial intelligence. Those of us doing that work struggled to get designers and programmers to take seriously the idea that anything about the beliefs of humans could have any impact at all on something as "pure" and "objective" as data, code, and math. Questions like "How do the human beliefs and imaginaries about 'artificial intelligence' affect the directions and outcomes of that project?" or "How do these beliefs and imaginaries reflect the values of the cultures in which they are used?" or "How do— and how ***might***— the lived experiences of marginalized peoples factor into how 'AI' gets built?" were likely to be met with very deep skepticism, if not outright hostility. As time has gone on, however, the chorus of voices has grown, and thanks to the work of many fantastic researchers, you'd be hard-pressed to find anyone in this country who hasn't at least heard of ideas like "algorithmic bias" and "ethical AI."

So, problem solved right? No need to write a 58,000-word tract on the idea, because people get it now, yeah? Except, even today, there still exists an either inability or unwillingness for many in the general public and even those doing the work of "AI" creation to grapple with just ***how*** deep the proverbial rabbit hole of values and belief in these systems really goes. Both the extent to which beliefs and values really do play a part in the creation, deployment, operations, and effects of these systems, and full breadth of which ***kinds*** of beliefs and values play a part, are still somewhat under-examined. And so among those things guiding my choices and piquing my interest were the questions of where the seams of these conversations and perspectives fit together. What is consistently missing from those conversations about the biases, the values, and the prejudicial beliefs that get embedded into artificial intelligence? And what I found myself

returning to over and over was, asking myself, “Where do I find myself most often frustrated?” Where was I finding myself most frustrated by the conversations I was trying to have, and what was the central core of those frustrations? This then became a way of asking, “What isn’t being communicated?”

As a queer, neurodivergent Black man with a diverse array of lived experiences and beliefs, when I engage in an eight week workshop series with an international R&D Company about technology and consciousness, what conversations do I find myself repeating over and over and over again? When I find myself in a lecture hall at conference for one of the world’s leading “AI” associations, trying to demonstrate how matters of embodiment and power and prejudice operate on technosocial systems in regards to gender and disability and race, what blockage or lack leads to us talking past each other? When I am situated amongst even those who agree with me at a fundamental level, but still don’t accept that certain ***types*** of beliefs and values matter to this project, what then is still missing from our conversations? And so in addressing these questions, I have attempted to recognize that the values and the beliefs that are at play are again, not just beliefs about knowledge, not just factual views— not merely epistemic beliefs. Rather, there are valuative beliefs, there are religious beliefs, there are other kinds of beliefs and experience which can count as knowledge— that guide our belief, that guide our knowledge gathering, that shape how we develop systems of knowledge— that are oftentimes missing (or dismissed) as potential entrants to these conversations. These are the elements we have to think about and bring in.

And so those spaces where the seams fit together were the places where I could ask, who’s already thinking in that vein, and how can I bring their interventions or perspectives that they’ve developed into conversation with others who might not at first seem like they’re necessarily

connected? My work is to demonstrate that the connections exist, or create new ones, and to explore the kind of work they can do when they are recognized and apprehended.

As I say below, magic and religious beliefs aren't merely metaphors for thinking about technology like "AI;" they are fundamental to how these technologies are understood and how and why they're made. Further, it is precisely people's reticence to examine the fact that we are always engaging in magical and religious belief which has allowed those who do understand that we're always doing magic and religious beliefs do get so good at building systems of ritual belief to manipulate all of us. There is in all of us, at our foundation, something we believe in and ritualize, and shape our perceptions around, based on nothing more than will and faith. There exists in our science, our technologies, and the very foundations of our knowledge and reason and rationality a point at which the justificatory bases become a circular argument labeled "Because." And we do a pretty good job of building systems and making predictions and affecting the world from that place. But the people who recognize that a) this exists in us and all we do, and b) that many of us are terrified of confronting it, can very easily weaponize it against us. They can say that some kinds of knowledge aren't valid knowledge, or that certain kinds of expertise absolutely must not be trusted. They can shape and define the context in which we all think, speak, and operate, by creating or operating on the existing emotional, valuative, symbolic relationships between concepts, belief, knowledge, and action in the world.

We must get comfortable with the fact that everything we do is derived from self-reinforcing systems of belief, expectation, prediction, and reward, and that we are very, ***very*** good at ignoring whatever results do not fit. And this feedback loop process of prediction, probability, and the designation of "outliers" is where replicable science comes from, yes, but it also gives rise to systemic prejudice, structural inequality, and conspiracy theories. The most crucial and

important difference rests in being able to recognize and adjust the reinforcing loop— to accept that knowledge is an intersubjective cybernetic social process. Without that, all that remains is claiming to have a path to certainty about things which may be fundamentally unknowable. But if we accept that we create knowledge, together, in an intersubjective relationship with each other's beliefs, then we can engage that process fully, intentionally, aware of the rational, the affective, the evidentiary, and the faith-based elements of all of it. We can do all of that, and we can do it ***better***, because we will not be deliberately ignoring that which can help us know what we do not know.

At the end of the day I want my readers to understand that "artificial intelligence" depends upon the historical foundation and development of the biases, prejudices, and even magical and religious values and beliefs which have been embedded and reinforced within and through every aspect of Western technoscience. Even though we tend to think of the resulting conceptual imaginary— of "AI"— as "mathematical," "objective," "rational," lived experiences, values, beliefs, religious perspectives, myth, and magic form its foundation and scaffolding, resonating and recurring throughout the present practice of "AI" development. When we understand this, we can create new mechanisms, new myths and rituals of technoscientific education, conception, and development. When we consider "AI" from a vantage centered on the lived expertise and needs of the most marginalized, we can find or develop that which recognizes, respects, and even requires alterity, justice, and care. And from that place, we can engage "AI" in modes which may empower and liberate us all.

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Chapter 1: Of Djinn, Digital Angels, and Dominant Logics

Contemporary research into the values, bias, and prejudices present in "Artificial Intelligence" and other technosocial systems tends to operate in a crux of scholarship in computer science and engineering, sociology, philosophy, and science and technology studies (STS). Even so, getting the STEM fields to recognize and accept the importance of certain kinds of knowledge— the social, experiential kinds of knowledge— is still an ongoing struggle. Similarly, religious scholarship is still very often missing from these conversations because many in the STEM fields and the general public feel that religion and technoscientific investigations are and should be separate fields of inquiry. As I will demonstrate, however, experiential knowledge and religious, even occult beliefs are embedded within and crucial to understanding the sociotechnical imaginaries animating many technologies, particularly in the areas of "AI." In fact, it is precisely the unwillingness of many to confront these facts which allow for both the problems of prejudice embedded in algorithmic systems, and for the hype-laden marketing of the corporations and agencies developing said systems This same hype then intentionally obfuscates the actions of both the technologies and their creators, while simultaneous confounding and oppressing those whom the systems most often make their subjects. By engaging in both the magico-religious valences and the lived experiential expertise of marginalized people, these systems can be better understood, and their harms anticipated and curtailed.

Let me tell you a story: In Islam, the Djinn are beings made of smokeless fire; they can change shape but they can also be trapped and made to grant wishes or perform tasks and made subservient to human desires (Knight, 2016). In the Jewish, Christian, Islamic traditions, there is a story about King Solomon, in which he was given a ring and a list of names of God and other entities, by which he was given authority over spirits, animals, wind, and water (Git. 68b;

Testament of Solomon, 1898; Dennis, 2007). In this story, Solomon used this ring and these names to create seals, boundaries, and commands, and used these to trap and bind Asmodai, the king of demons, or, in some stories, the King of the Djinn (Git. 68b; *Testament of Solomon*, 1898; Dennis, 2007). As a demon or a djinn cannot transgress against a name of God, Solomon used Asmodai's own observance against him, creating summoning and binding circles from different configurations of the Djinn's names and the names of God to create unbreakable prisons, some of which were specifically locked to places such as certain palaces or treasure hoards (Knight, 2016; Murad & Shurin, 2017; Brosseau & Sufrin, 2018). In some understandings, djinn seek to punish those who capture them by twisting their desires; but I argue that since these creatures are made of passion and flame, they understand desires ***better*** than humans can. When a djinni grants a wish, it is not necessarily seeking to confound the human who bound them, but rather they are fulfilling that wish, completely and totally, to the absolute best of their understanding of what it means to desire. And it is not their fault or their responsibility if the human who asked for something failed to understand the full extent of what they were asking; the djinn might not even understand how that could be possible.

Whether angels, servitor automata, spirits of the dead, demons, djinn, or gods, Western magical or religious traditions and myths have often concerned themselves with rites for petitioning, creating, or enslaving a nonhuman mind, and making it work for the practitioner. These practices can be traced up to and alongside the modern drive to create so-called artificial intelligences, replicated in all of the ways that research and working groups have thought and talked about the project of machine robust machine minds. The claim of a historical connection between the notions of spirits and machine minds is relatively uncontroversial, but to understand the idea that present-day "AI" and "robotics" research continues to be driven by magico-

religious belief, we will need to examine several points of comparison. In this dissertation, I trace several histories, principles, and problems of nonbiological intelligence and human biotechnological intervention, from ancient civilizations to present day. From these, I argue for a new interrelation understanding of the conceptual categories and practical implementations of magic, machine minds, and human biotechnological intervention, specifically in terms of cybernetics and cyborgs (Williams, D., 2014). In the context of these explorations, I intentionally disturb the term "artificial intelligence." When discussing "AI," I am talking about things like algorithmic systems, "machine learning" ("ML"), systemic institutionalized solutions, and support systems, as well as "strong AI," or "artificial general intelligence"— what I like to think of as "autonomous generated/created intelligences" (Williams, D., 2012).

I use the conceptual categories of myth, magic, and the occult as lenses through which to examine how particular values and drives have persisted and resurfaced in efforts to both create servant minds and "perfect" the human project. By looking at religious and spiritual practices, we may better understand the resonances between the conceptual categories of "AI" and various orders of spirits such as golems, angels, djinn, and demons which magicians have sought to either bind or create, and ultimately to control (Williams, D., 2014). These resonances can be understood via the works of John Dee, the tale of the Golem of Prague, the modern Digital Deity projects of Anthony Levandowski, the dread of Roko's Basilisk, and even linguistic analyses such as the etymological arc of the word "demon" (Auerbach, 2014; Harris, 2017; Heffernan, 2018; Williams, D., 2018a; Walsh, 2021). The histories, principles, and problems nonhuman servitor projects stretch from ancient antiquity around the world, through the Western Renaissance, to modern times, and in recognizing that we may understand an interrelation

between the conceptual categories and practical implementations of magic, nonbiological intelligence, and spirits.

Linguistic and Conceptual Contexts

Technological systems and artifacts have always carried religious, mythological, and magical influences. In order to more fully illustrate the conceptual links between magic and machine consciousness, we will now examine a few distinct views on the nature and definition of the idea of "magic" and by so doing come to a suitable working definition for our purposes. We will look at the evolution of the term and its usage in the past two centuries and determine what might need to be changed, amended, or otherwise updated in the service of our greater understanding. While the terms "myth," "religion," and "magic" often carry pejorative connotations of falseness and unreality, within the fields of religious studies and ritual studies they have more precise meanings and usages. From those modes, we may define "magic" as any system of belief, practice, and interaction which depends on a mortal agent to effect change in the world by means of "non-standard" cause and effect relations. The definition of religion is, in fact, quite fraught—and the definition of magic is more fraught than the definition of religion. The idea that there is either an easy distinction or complete overlap between magic and origin is something that I have sought to problematize both above, and in the past (2008). While I do believe that these categories are connected, and I do believe that their interconnection is potentially beneficial in what it perturbs us to think about, I don't believe that means they are thus the same. My intent is to perturb the idea that magic and religion are either wholly disconnected or interchangeable—that they are disparate but connected types of belief, fundamentally connected in a way that many people do not like to talk about or to think about.

Magic

Magic and religious beliefs are not just metaphors for thinking about technology, they are fundamental to how it is thought about and made. My goal is to highlight what the categories of magic and religion, specifically can allow us to think about and do. Conversations about values about religion, about myth, about magic are not merely evocative. My goal is to show very clearly and intentionally that this is a way of believing, a way of living in the world which does not just exist at the margins or the periphery of our social interactions. Rather, it is foundational and central to the goals, the aims, the practice of these technoscientific projects, specifically "AI" and most especially when we get into conversations about "machine minds" and potential machine consciousness and "human-like AI." These notions of religious foundation are, in fact, crucial to our understanding in a way that is woefully under-interrogated. That's not to say uninterrogated: There are many people that I discuss in the course of this dissertation who do this work and do it well— who point to the ways that religious belief also comes into play in "AI." But it is still one of the most difficult things to get those doing the work of building "AI" to consider, much less discuss and account for. Let's examine some examples.

Thoughts about magic have often related to things like action at a distance being able to perform rituals and have desired results. James George Frazer talks about this idea of magic in The Golden Bough as "sympathy" comprised of "similarity" and "contagion," calling them a "misapplication" of the principles of cause and effect, and that formed the basis of a standard definition of what magic is and how it operates for a long time ([1922] 1996, p. 12). The idea behind this that people try to find things that are like other things, and that if they can act on one thing, and they can affect the other thing, or that if they have a thing that was connected to one thing, like if I have a hairbrush that has somebody's hair, isn't it, but what I can do with that is I can make use of those hairs. And by way of contagion, by way of the resonance there from I can

affect the person for whom they came. These are again, they were kind of the standard definition for a long time, but they're not the only thing at play. Lauren Kassel refers to magic as "the art of influencing of nature through occult powers," a definition which allows for the consideration of other active elements (2003). Magic can also be understood as changes in perception via words, sounds, actions, or other means, and the effects of that change upon reality (Crowley, 1974). This can be done via repetition of words, symbols, and actions, the association of those with a desired outcome, or various types of meaningful resonance. When perception is changed on a wide enough scale or with enough force of conviction and certainty, it can change the meaning, understanding, and use of that which is being perceived, thus effectively changing reality.[1]

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[1] It may here be illustrative to consider which modern practices might be meaningfully classified as "magic." In the realm of marketing and advertising, there is this statement from Jedediah Walls of Chicago AdBusters:

> "It was Occult study that first led me to major in Marketing. The way I see it, it's just magick by another name... I think that Marketing is simply the legitimate face of occult study— the last socially acceptable way to understand magic theory. If more occultists got involved in it, I think there would be a lot of growth in the way we interpret, present, and understand ideas."

Through the use of philosophical fallacies and psychological/sociological pressure points such as biases, image association, colour stimulation, and mob mentalities, advertising seeks to get us to change the way we think about the things we want, the values we hold, and the actions we perform based upon those values; advertising also ties into systems of money and credit, which are based entirely on nearly arbitrary designations and assignations of value to things which are representative of nothing physical at all.

Politics employs spin and repetition to control and shape perception to thus dictate how we approach and interact with a given situation, and what we do with it, as actions in the world. The repetition of themes and key words, and the changing of terms so that we forget the previous terms, altogether, and our associations with and actions based upon the events move the audience from serving someone else's interests, to serving the politician's own. "Global Warming" becomes "Climate Change;" "Estate Tax" becomes "Death Tax;" "Terror Suspects" become "Enemy Combatants;" and we are forced to question what our "definition of the word 'is' is."

Additionally, many magical systems operate on the principles of synchronicity and self-actualization, or individuation— the process in Jungian psychology by which the psyche of the individual is taken from many disparate parts to a cohesive whole. Jung himself explicitly discussed magic, the occult, and religious experience as tools for psychological growth and healing, meant to be approached in a manner which does not seek to deny their reality, but instead aims to accept the reality of their ***experience*** and to provide a solution within its parameters. To this last, a joke:

> 'There were these two men, sharing a railway carriage. They didn't know each other. They just happened to be travelling together. One of the men had, resting in his lap, a cardboard box with holes punched in the top. After some time spent contemplating what might be inside his travelling companion's box, the other man at last could not contain his curiosity. He said, "Excuse me, but I couldn't help noticing your box. Does it contain some variety of animal?"
>
> The other man, though obviously surprised by this impertinent intrusion from a stranger, smiled politely as he answered, "You're absolutely right. There is indeed a creature kept inside this box. And furthermore, I may reveal, the animal in question is a mongoose."

Resonance does not have to be physical, but can also be emotional. Resonance can be symbolic or linguistic. Resonance can take the shape of what thinkers like Jung, or even those like Austin Osman Spare— those at the heart of the chaos magic tradition— think of as those conceptual frameworks which allow us to think differently, and which allow us to ***act*** differently through those mechanisms of thinking (Spare, [1913] 1975; Jung, 1938, 1960, 1977). This framework can allow for the invocation and evocation of gods, spirits, or even just larger conceptual schema and states of mind, applying them to ourselves to have psychological and physical effects on ourselves and others. Associating ways of causing effects that aren't necessarily rational, that aren't necessarily scientifically verifiable, but which, to the adherent and to the practitioner, have meaning have impact and have actual effect that they can trace to the work that they are doing.

Now magical systems, beliefs, and practices can be engaged within group dynamics, in a more systematized, ritually focused way, and many observing that from the outside might categorize those as religious practices or religious observances. But there are also religious

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'The first man, who'd initiated the enquiry, was astonished by this revelation. Spluttering with surprise, he sought some further explanation of this certainly provocative disclosure made by his strange fellow-traveller. "A mongoose? Sir I must confess I had expected it to be perhaps a cat, or rabbit, not a creature so exotic and outlandish. The animal you mention so excites my curiosity that I must beg you, sir, to tell me more. Where are you bound with such a specimen, if I may be so bold?"

The other man, who sat with the perforated box on his lap, shrugged wearily as he replied, "Well, it's something of a personal matter, as it concerns a family tragedy. However, since I'm confident I may rely on your discretion, I suppose I don't mind sharing my unfortunate account with you.

'"You see," the man went on, "this sorry tale concerns my elder brother. He's always been what I suppose you might refer to as the black sheep of the family. He has for many years indulged himself in a predictable and commonplace array of vices, of which the worst is his fondness for strong spirits. His drinking has progressed until he is now in the final stages of delirium tremens. My brother now sees serpents everywhere, which is the reason I am taking him this mongoose, that he may be rid of them."

'"Excuse me," the other man interjected, looking puzzled, "But, these snakes your brother sees… aren't they imaginary snakes?"

'"Indeed," his fellow traveller replied. "But this," and here he gestured meaningfully to the perforated box set on his lap, "***is an imaginary mongoose.***"' (Aleister Crowley via Moore, et al., 2001).

practices and observances which to the magical practitioner seem like magic. Transubstantiation, to many, seems like magic. Practitioners of this ritual are invoking the "blood" and "body" in the same terms of "non-standard" resonance and transformation of one substance into another, in particular conjunctions. All of this is to say that those who conceive of themselves as ***doing*** magic, and those who conceive of themselves as being a part of a religion ***oftentimes*** will feel themselves as being distinct categories from each other— however, that is not ***always*** the case. On the other side, many adherents of so-called magical beliefs and practices, feel that what they do is a religious process, and many religions have magical traditions within them (Dennis, 2007; Knight, 2016; Patel, 2017; Brosseau & Sufrin, 2018). So I will not make a claim with absolute certainty for magic and religion being the same, nor say with absolute certainy that they're different. What I will say is that magic in my understanding is the ability for symbolic, evocative, emotional, potentially "non-standard" resonances and cause and effect processes to do work in the world. This definition is necessarily broad, but it is that very broadness which allows us to informatively trouble many different categories under discussion, above, and to interrogate boundaries of values, belief, and practice.

Jonathan Z. Smith intentionally the usefulness and explanatory power of the concept of "Magic" in his books To Take Place, Imagining Religion, and especially Map is Not Territory, ultimately arguing that what is traditionally explained using "magic" can be better categorized under existing terms such as religion, ritual, sacrifice, commerce, and prayer (1978, 1982, 1992). This sentiment is echoed by Patton E. Burchett in his 2008 article "The 'Magical' Language of Mantra." While these pieces may also be found in other categorical concepts, this argues more ***for*** the continued use of the term "magic" than against it. What other term combines so many understandings, and finds its operation in that combination? There is a sense of "connexion," of

wonder and awe, of ritual and resonance which invoked when we use the term "Magic"— a correlative, performative force. Without the category of "Magic," we lose a clear, immediate understanding of the kinds of actions upon the mechanisms of thought, social influence, and action which are actively hidden from our inspection. Without the concept of magic, I cannot as easily discuss how the hidden (occulted) interconnections of belief, emotions, values, facts, ritualized actions, endowments of power and authority, and their effects in the world all work. Without magic, I cannot talk about the awe and wonder with which technology and especially "AI" gets regarded, and the willingness of many to believe its outcomes and operations are indecipherable. Without magic, we do not have the fullest suite of conceptual tools to understand what is being done to us, and how we can undo it.

Myth

Similarly, "mythology" can be understood as an animating narrative which imbues a culture with codes, rules, and meaning; and while many ritual theorists argue that the mythic story derives from the ritual itself, others in the phenomenology propose that the field of the mythic is a thing in itself, irreducible to any merely post hoc explanatory role (Otto, 1917; Eliade [1957] 1959; Bell, 1997). Under this latter framework, where myth is a powering and motivating force, even something like "the ideals of a nation" are the mythology by which it animates itself— and "freedom," "justice," and "democracy" become concepts imbued with great power, whether in spite or because of their large, amorphous content. Thus we can further extend our recognition of myth and ritual outside of the sphere of the religious, while maintaining our understanding of the importance of their origins. Take, for example, the centaur.

The centaurs of Greek mythology are chimerical hybrids of horses and humans, but the centaurs of today are the hybrids of humans and their semi-autonomous computer-based systems. The term "Centaur Chess" was first applied to Garry Kasparov's 1998 declaration that the future

of chess was one where human chess players and more automated and intelligent chess computers would work in tandem (Kasparov, 2010; Thompson, 2013). The term "centaur" has since expanded beyond its origins in ancient Greek myth as a magical half-human/half-horse, to be applied more broadly to any system in which humans and otherwise-autonomous ***machine*** systems work together, depend on each other, for "better" outcomes. But by making use of interventions from disability studies, systems currently thought of as "centaurs" might better (or perhaps "again") be understood as extensions of the "cyborg" model. In the original use, "cyborg"— a portmanteau of "cybernetic organism"— referred to any living biological system with the ability to reflexively adjust and "upgrade" its operations. As I have previously written,

> …it was in this context [of the Space Race] that Clynes and Kline wrote the paper "Cyborgs and Space," and coined the term "Cyborg." In this paper, *Clynes and Kline* described a cyborg … as a being which would have the means to regulate and alter previously autonomic bodily processes, through the use of chemical alterations, in a cybernetic feedback loop.… A cyborg would be able to survive the rigors of space travel—such as increased gravitational forces and radiation, long lightless stretches, and bodily degradation—by regulating the chemical processes of their body to adapt to each new situation, as necessary. (Williams, D., 2019b)

And this perception has persisted to the present day, with theorists such as Donna Haraway extrapolating on the assembled, messy, biomechanical nature of the cyborg to think about gender, knowledge, and the human relationship to the natural world (Haraway, 1991). Her perspective has given rise to the field of study known as "cyborg anthropology," which investigates all of the ways that human life is and always has been entangled in technology, and how, in effect, we are all cyborgs (Case, 2010). But, again, the original concept of the "cyborg" was meant to refer to individuals who needed technological interventions to live in a world that

wasn't made for them— disabled people, in other words— and the fact that it has strayed so far from its original meaning has real implications (Weise, 2016, 2018; Williams, D., 2019b).

The mythos of who is perceived to have "the right stuff" for spaceflight and the "slick" and "cool" perception of the body which is reciprocally and reflexively integrated with technology both fundamentally exclude the disabled people on whose experiences those ideas were built— a harm which has only recently begun to be repaired (Weise, 2016, 2018; Williams, D., 2019b, 2021; ESA, 2021). Thus, the reclaimed cyborg model examined in disability studies differs from the "cyborg anthropology" model in that it specifically seeks to forward and preference the lived experiences of those people for whom navigating, hacking, and interfacing with systems is a matter of survival; for whom the "proper" application of and adaptation to these systems is expected to act as a suit of armor— an exoskeleton made of bureaucracy, law, societal expectations, and experiential knowledge. Cybernetics as a discipline hinges on the understanding that biological, physical, mental, sociological, and political systems all shape and are shaped by each other (Wiener, 1948). In the 1950's, there began a doctrinal split between the camps of "artificial intelligence" research, with one group focusing on the development of computation and cybernetics, and the other working to try to replicate neural networks of human thought in an electronic substrate (Wiener, 1948, 1989; Turing et al., 1952; Husbands & Holland, 2008; Conway & Siegelman, 2009; Wilson, 2010). In each of these camps, however, the removal of concerns such as embodiment or socialization was nearly complete. That is to say, the history of "artificial intelligence" and cybernetics is a one of primarily men seeking to divorce emotion, relationality, and affect from conceptions of rationality and intellect.

But feminist epistemologists such as Lorraine Code, Burcu Gürkan, and Sandra Harding, psychologists such as Elizabeth A. Wilson, and computational scientists such as Alison Adam

have demonstrated that this path was always doomed to failure, because it was based on misunderstandings of both the emotions at play in the humans doing the work, and of the very concept of "knowing" (Athanasiou, 1985; Code, 1991, 1993; Harding, S., 1991; Adam, 1998, 2000; Wilson, 2010; Gürkan, 2015, 2016). For Code, the processes of knowing and the designation of who gets to be a knower are constructed and constrained in a way that actively excludes consideration of subjective experience as an active input. The continually reinforced assumption of objectivity thus preemptively discredits anyone who might raise the suggestion that their experience as a knower is harmed by their lived experience. This thread is expanded on in Harding's writing, where she specifically discusses how it pertains to the generation of technoscientific knowledge and the labels of expertise. For Gürkan, these questions of the perception of who "deserves" knower status can be linked to questions of both physical embodiment and depictions of knowers in popular culture, something we will discuss later.

Crucially, Adam expands on all of these threads, arguing that the disciplinary constraints on how knowledge is constructed, and by whom, specifically in terms of the exclusion of subjectivity from the realm of valid knowledge, has direct implications for the project of trying to create a machine mind which might bear any resemblance to those of humans. Taking further all of the above, Wilson argues that the drive to exclude the subjective and affective realms of human relationality from the project of "artificial intelligence" was ultimately one long, elaborate process by which the people involved sought to fool themselves. She points to case studies of embodied robots, simple chat programs, and key instances where social interactions between creators caused rifts in the field, showing how even when coders and engineers thought they were being "objective," their psychological and emotional states deeply influenced their work. Tracing the history of "AI" in the West using concepts from Bruno Latour, Freudian

Psychoanalysis, gender studies, cybernetics, Silvan Tomkins' affect theory, and tools from STS, Wilson notes that emotional affect plays a major role in social and individual development, and argues that a conscious and intentional engagement with human affect and subjectivity is precisely what has been missing from all attempts to develop machine minds.

However, none of this is to say that any singular conception of the "right kind" of human mindedness should be leveraged, here, either; indeed, later chapters of this dissertation will specifically interrogate the merits of trying to create "human-like AI". Works like Anya Ustaszewski's "I don't want to be 'cured' of autism, thanks," Alison Kafer's *Feminist, Queer, Crip*, and Caitlin Wood's *Criptiques*, comprise radical arguments against conceptions of "standard bodies" or a singular understanding of disabled lived experience, and give us the means to recognize how the project of "human-like AI" as we will be discussing it can harm already marginalized people. To that same end, we may also fruitfully place these in conversation with neurodivergent "AI" researchers such as Rua Mae Williams and Ymous, et al. Williams and Ymous' works, as well as that of "AI" theorist Robin Zebrowski, unflinchingly call into question the assumptions about "standard" minds and bodies which have made their way into "AI" research over the past century, and suggest crucial remedies (Zebrowski, 2017a, 2017b, 2017c, 2017d; Williams, R. M., 2018, 2021; Ymous et al, 2020, Sum, et al., 2022). Similarly, interventions from disabled designers and activists such as Natalie Kane, Liz Jackson, Alex Haagaard, and Alice Wong work to reveal and directly examine how disabled perspectives have been excluded from technology, and also develop tools for reimaging our research into and relationships with algorithms and other technologies (Wong, 2013; Kane, 2016; Jackson & Haagaard, 2020; Jackson, 2021). All of which is to say, without some attempt to account for and incorporate the multiplicitous gradients of human experience and social

frameworks, the project of trying to recreate human thought in computing machines was never going to fully work.

Knowing

And yet the expanded creation and use of "Artificially intelligent" agents and the ethical status of nonhuman persons are fast becoming some of the most important issues of our world. As has been previously noted, 'No consensus, nor even an intentionally divergent multiplicity, exists regarding the question "What Are We Trying to Build?" Do we want better tools? Or do we want to build new minds? Some want the former, others want the latter, and there is no communication as to which project should receive precedence, and why' (Williams, D., 2019a). In determining the scope and impacts of "artificially intelligent" projects, we must consider the implications of the abovementioned questions at the outset, rather than after we are presented with the consequences of having failed to do so at all. The overarching failure of the projects of "artificial intelligence" and human-computer interaction to consider the lived experiences and positionality of various bodies and minds (or, as Margaret Price put it, "bodyminds"), in the world, in regards to disability, race, gender, sexuality, and other features of human identity starts not just at the root of "AI" and cybernetics, but with the very history of computing (Abbate, 2014; Price, 2015; Hicks 2017, 2018; Rankin, 2018; Schalk, 2018; McIlwain, 2019; Cave & Dihal, 2020; Williams, R. M., 2021). The assumed whiteness, maleness, straightness, and non-disabledness of computer experts has been demonstrated to be of a piece with the directions and valences of power in multiple fields of knowledge and public engagement; when a field becomes important, all those deemed "other" are pushed out or moved to less powerful and less publicly visible positions, and the standards of training change to support that reframing.

In *Making Natural Knowledge*, Jan Golinski discusses several different understandings of the word "discipline" and the role their transformations have played in the definition and

transmission of knowledge both in the form of artifacts and as culture (Golinski, 1998). In particular, he uses the space in section three of chapter two to discuss Michel Foucault's role in the alteration of historical conceptions of knowledge, categorization, and disciplinarity. By drawing on Foucault's work in *Discipline and Punish*, we can thus make an explicit connection between the various meanings of "to discipline" ways that bodyminds are individually, culturally, and socially conditioned to fit particular modes of behavior, and the specific ways marginalized peoples are disciplined, relating to their various embodiments. From educational contexts to carceral systems of justice, societies have historically worked to reinforce an understanding of the "right kind" of person—even extending into which kind of person is the "right kind" for certain types of knowledges, vocations, and professions (Abbate, 2014; Hicks 2017, 2018; McIlwain, 2019; Cave & Dihal, 2020; Williams, R. M., 2021a, 2021b; Koopman, 2021, 2022).[2]

In her 2014 book *Recoding Gender: Women's Changing Participation in Computing*, Janet Abbate explores the sociohistorical forces which drove women from being understood ***as*** the world's primary computers (that is, "people who compute") to being exceedingly marginalized within the field of computer science. Mar Hicks picks up this thread and focuses on the specific inequality at work in British culture's denial of the women who literally helped create the field of electronic computing, arguing that in doing so the British culture has harmed its own position as a world leader in computing technology (2017, 2018). As Hicks and others note, this ostracism did not pertain only to women, but to all "seen as out of place or nonconforming," including, infamously, Alan Turing himself. In his 2019 *Black Software: The Internet and Racial Justice*,

[2] See also Code, 1991; Harding, S., 1991; Adam, 1998, 2000; Wilson, 2010; and Gürkan, 2015, 2016, on gender and the construction of knowledge and technoscientific expertise, as discussed above. See also Bertrand and Mullainathan on racialized perceptions of employability (2004), and discussion below, in Chapter 4, about the gendered perceptions of women's coding skills in Terrell, et al., 2017.

from AfroNet to Black Lives Matter, Charlton McIlwain highlights the contributions of Black computer scientists and engineers from the 1970's to the present day. Further, McIlwain demonstrates the work done by others in the discipline to both render said Black labor invisible and to make Black bodies subject to hidden processes of surveillance, categorization, and rendition; these are the many senses in which he uses the term "Black Software."[3]

Stephen Cave and Kanta Dihal's work further examines the whiteness not just of computing writ large, but of "AI" in particular, examining how this racialization ties to the public's perception of what "AI" is, is for, and might do (2018, 2020). Rua Williams' "Six Ways of Looking at Fractal Mechanics" and "I, Misfit: Empty Fortresses, Social Robots, and Peculiar Relations in Autism Research" both engage with the mechanism by which expectations of embodiment and neurological configuration are inscribed into human-computer interactions (HCI) and human-robot interactions (HRI) subjects and researchers, especially disabled ones. They argue that this inscription creates a living dissemination vector for the discipline's values, and a reugularized, constrained object of study in the form of the test subject; all of this travels from the discipline to the humans made subject to it, and then from those humans, out into the world, reinforcing the discipline's assumptions and expectations. Drawing on much of the same historical work above, Kristen Koopman has researched how speculative fiction has influenced the public's perceptions of "hard science" or "real science" versus "soft science," arguing that the construction of science in popular culture is influenced by and also directly influences the constituency and culture of technoscientific fields (2021, 2022). Subsequently, when fields like biology or sociology are portrayed in popular media as "female-" or "queer-coded," that leads the public to take them less seriously as science. Conversely, when women, gender

[3] See also Golemba, Beverly; *Human Computers: The Women in Aeronautical Research;* 1995 manuscript; NASA Langley VA

nonconforming (GNC), and visibly queer individuals engage with the "hard sciences," they are *prima facie* perceived as less capable. When all of these understandings are combined, then, we may easily contextualize the historical failures of STEM fields to retain women and nonbinary cohorts, as well as Black and Indigenous people of color (BIPOC), disabled, and LGBTQIA+[4] members.

We may now engage all of this through a lens which Deb Chachra, Lorraine Code, and E. Burcu Gürkan all discuss in their work, and which we will discuss at length, in the following chapters: epistemic valuation. People have mental models for who they consider an "authority" or a valid source for knowledge, and while the construction of this mental model changes from one field of expertise to the next, there are certain areas which don't even get counted as knowledge, in the first place (Code, 1991; Gürkan, 2015, 2016; Chachra, 2016). Perhaps unsurprisingly, Code notes, the areas of knowledge most often discounted are exactly those which pertain to the kind of lived experiences we've been discussing: fields, academic disciplines, and trades traditionally dominated by those people whom society categorizes as women, as disabled, as any ethnicity other than White, are often deemed "lesser forms of knowledge." Not only that, but Chachra says that when members of those identity structures find themselves in fields such as the sciences, they have to work even harder to prove themselves worthy, and to not internalize a disregard for their own worth and knowledge. Thus we understand how signals are sent to members of minoritized groups about their assumed intelligence, or otherwise suitedness to the task of becoming a member of a discipline; as all of the works we've discussed demonstrate. Even the definition of what counts as the "right kind" of ***learner*** has been constructed by a certain type of lived experiential perspective.

[4] "Lesbian, Gay, Bisexual, Transgender, Queer/Questioning, Intersex, Asexual + More;" cf. "What Does The + In LGBTQ+ Stand For?" Anjali Sareen Nowakowski. *Elite Daily*. June 18 2017. https://www.elitedaily.com/life/culture/what-is-plus-in-lgbtq/1986910.

Entrainment, Discipline, and Craft

These approaches show how modes of observation and surveillance within wider Western society are functions of power. This power leads to certain types of embodiments being deemed to be academically, socially, or even carcerally unacceptable. This judgment is then used as justification for methodologies of entrainment, "correction," or "reform," even to the extent of psychological and physical torture, carceral punishment, or other means of institutionalization (Fanon 1952, 1959, 1961; Foucault, [1977] 1995; Browne, 2015; Benjamin, 2019; Williams, D., 2020). When black and indigenous people of color, for instance, are placed into systems of surveillance and subject to hundreds of years of police action and state government violence at higher rates, after having been literally stolen from their lands and culture, this cannot be understood as anything other than efforts toward control. In both Lundy Braun's *Breathing Race into the Machine: the Surprising Career of the Spirometer from Plantation to Genetics* and Melissa N. Stein's *Measuring Manhood: Race and the Science of Masculinity, 1830–1934*, we find explorations of how race science and eugenics were standardized, datafied, and embedded into technological artifacts (Braun 2014; Goering, 2014; Stein, 2015). Harriet A Washington's *Medical Apartheid: The Dark History of Medical Experimentation on Black Americans from Colonial Times to the Present* examines lays out exactly how that process of artifactural embedding relied upon beliefs about the inferiority of certain types of embodiment— beliefs which were, themselves, made internally consistent and disseminated as scientific knowledge (Washington, 2006; Seiberth, Yoshioka, Smith, 2017). Further, via the work of Alison Kafer, Rua M. Williams, and Joshua Earle, we may chart the institutionalization, sterilization, and "behavioral correction" of disabled and neurodiverse populations as all stemming from a desire to control and "correct" embodiments which were— and often still are— understood by the

wider population as "defects" (Kafer, 2013; Williams, R. M., 2018, 2019, 2021a, 2021b; Earle, 2021b).[5]

Similarly, government-maintained lists of benefits distributions for the disabled and poor, lists which mandate certain styles of life and levels of income, mean that many people cannot get married to or even live with long term partners, for fear of losing life-saving healthcare assistance (Brown, et al., 2020; Social Security Administration, 2021). People with uteri, regardless of gender, have been subject to the curtailing of their reproductive freedoms and bodily autonomy for thousands of years, with their struggles playing out in law and policy (Roe v. Wade; S.B 8, 2021).[6] LGBTQIA+ and especially GNC individuals are subject to calls to "correct" their thinking and behavior, either through behavioral therapy, electroshock, or, in extreme cases, sterilization and death (Kafer, 2013). Immigrants and native citizens of certain heritages are put on watch lists, and their movements, purchases, and associations are all monitored. This is by no means an exhaustive list, but it provides an example of what it means to be made subject to disciplinary control; the program of social reinforcement— via discourses, media narratives, and educational framings of, e.g., federal texts books— then provides a substrate on which these systems of educational and social control take root and grow.

The perspective of affluent, white, able-bodied, cisgender, heterosexual men has been inscribed and reinforced within the construction of the academic process and, as Harriet Washington notes in *Medical Apartheid*, specific measures have often been taken to exclude Black people and other non-white groups from fields of expertise, and to denigrate their

[5] Christina Cogdell (2004) traces the history of this eugenic logic through elements of sociotechnological, architectural, and user interface design. Kafer (2016, 86-102) discusses a similar thread in regards to advertising and the public perception and understanding of disability. Earle engages this through the history of land-grant institutions leading all the way to the present-day transhumanist movement. We will discuss these threads both later in this chapter and in Chapter 3.

[6] For a more comprehensive list of reproductive and sexual health policy initiatives, see the Guttmacher Institute's online State Legislation Tracker: https://www.guttmacher.org/state-policy.

expertise when it manages to be obtained (Washington, 2006). To the extent that people who do not fit the assumed default profile ***have*** managed to succeed, it has been because they have shaped their worldview and their epistemological methods to match the dominant mode. Anyone who does not shape themselves so and who then subsequently fails to meet their field's expectations is said to have simply been "unable to hack it, in the academy," rather than recognizing that different modes of learning and education might also be valid (Koopman, 2022). Additionally, Western fields of knowledge from modern medicine back to ancient Greek philosophy have always been rife with prejudicial assumptions about the "proper" nature of both the learning subject, and the object of study. Every strategy of bodily and social control we've discussed has persisted into the twenty-first century, and most of them have taken on new valences and modes of operation with the advent of changing technologies. Technological artifacts and systems of computerized databases, algorithmic pattern extrapolation, and biometric surveillance have made it possible to track and collate movements of groups and individuals, and then to build whole systems to serve or exploit those groups and the patterns found therein.[7] In everything from grade management and online proctoring systems which work to entrain behavior without addressing students' core needs and challenges, to advertising algorithms which are capable suggesting extremely specific products based on patterns it recognized in your search engine history, to facial recognition systems which claim to be able to determine whether someone is gay, technology is clearly at play in the operations of oppressive systems (Gebhart, 2017; Biddle, 2018a, 2018b; Quach, 2019).[8]

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[7] For more on this see the detailed discussion of Browne, 2015; Noble, 2016; Eubanks, 2018; Benjamin, 2019; Brown, et al., 2020; and Williams, D., 2020 in Chapter 2.

[8] For more on this and the intersection with disability and privacy, cf. Swauger, Shea. "Our Bodies Encoded: Algorithmic Test Proctoring in Higher Education." *Hybrid Pedagogy*. April 2, 2020. https://hybridpedagogy.org/our-bodies-encoded-algorithmic-test-proctoring-in-higher-education/, and "Software that monitors students during tests perpetuates inequality and violates their privacy." August 7, 2020. *MIT Technology Review*.

Even more simply, the commissioning, design, construction, and symbolic concepts used to advertise technological artifacts and systems are often based on essentialist understandings of race, gender, physical ability, sexuality, etc., and so these tools and systems are often billed as tools by which fit those roles more perfectly (Cowan, 1983; C_TEC, 2021). Industrialization and manufacturing throughout the twentieth century changed the nature of labor that was expected of women, in the home, and this in turn changed how household technologies were advertised, leading to, as Cowan put it, "More Work For Mother" (Cowan, 1983). Similarly problematic are the design practices and narratives around technologies for disabled people. Too often technologies like exoskeletons, or brain-computer interfaces, or even certain designs of prosthetics are put forward without ever once asking the community they are supposed to "help" whether they need or want them at all (Nelson, Shew, & Stevens, 2019; Williams, R. M., 2019).

But as is likely evident and will be further unpacked in later chapters, there is something powerful to being able to reclaim how one wants to be understood, both individually and in community with and relation to others, and in using that reclamation to direct how the world engages us. In examining the history of both magic and biotechnological intervention we find

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https://www.technologyreview.com/2020/08/07/1006132/software-algorithms-proctoring-online-tests-ai-ethics/; Kelley, Jason & Oliver, Lindsay. "Proctoring Apps Subject Students to Unnecessary Surveillance" August 20, 2020. *Electronic Frontier Foundation*. https://www.eff.org/deeplinks/2020/08/proctoring-apps-subject-students-unnecessary-surveillance; Brown, Lydia X. Z. "How Automated Test Proctoring Software Discriminates Against Disabled Students." November 16, 2020. Center for Democracy and Technology. https://cdt.org/insights/how-automated-test-proctoring-software-discriminates-against-disabled-students/; Grant-Chapman, Hugh, Cody Venzke, Hannah Quay-de la Vallee. "A Year in Review: Student Privacy Issues Through a Season of Unprecedented Change." December 17, 2020. Center for Democracy and Technology. https://cdt.org/insights/a-year-in-review-student-privacy-issues-through-a-season-of-unprecedented-change/; U.S. Chamber of Commerce Chamber Technology Engagement Center (C_TEC). "U.S. Chamber Coalition Letter to the White House on Facial Recognition Technology." [Open letter.] May 26, 2021. https://americaninnovators.com/research/u-s-chamber-coalition-letter-to-the-white-house-on-facial-recognition-technology/; Brown, Lydia X. Z., Elizabeth Laird. "CDT Joins Fight for the Future, Other Civil Rights & Youth Advocacy Orgs in Calling on Schools to Ban Eproctoring Programs." July 9, 2021. Center for Democracy and Technology. https://cdt.org/insights/cdt-joins-fight-for-the-future-other-civil-rights-youth-advocacy-orgs-in-calling-on-schools-to-ban-eproctoring-programs/; and Venzke, Cody. "Protecting Student Privacy and Ensuring Equitable Algorithmic Systems in Education." August 31, 2021. Center for Democracy and Technology. https://cdt.org/insights/protecting-student-privacy-and-ensuring-equitable-algorithmic-systems-in-education/.

systems of human-driven alteration, with actors aiming toward an idealized "perfection." In this dissertation, I draw upon conceptions of Western traditions of magic and technoscience as both stemming from the Renaissance ideal of *Naturphilosophie* and Christian Fall narratives (Faivre, 1994; Midson, 2018); Carl Jung's psychologically pragmatic engagements of magic and religious belief (1938, 1968, 1972, 1977); historical description of the transcendently liminal entanglements of sacredness and profanity which comprise the contemporary world (Eliade [1957] 1959; Campagna, 2018). This is not a complete listing of all the research into how magico-religious beliefs intersect with the cultural perceptions of "AI," machine consciousness, and human biotechnological intervention used in this dissertation; they others are discussed at length below, and in Chapter 2. I also briefly touch on the modern history of biohacking and transhumanist movements, and combine the above to create a tool with which to unpack work done in philosophy of technology, feminist ecology, and disability studies. This tool will allow for a perspective on the historical lineages and contemporary implications of belief within technoscientific tools, systems, and education.

The etymology of "technology" begins with the Greek root "*technê*," meaning "art" or "craft." As far back as Classical Greece, this understanding of *technê* as craft has been reinforced in mythologies and epic poem cycles such as the *Iliad*, the *Odyssey*¸ and the *Metamorphoses*. In these stories, Athena is portrayed as the goddess of war, but also of cunning knowledge, of ***craftiness***. Athena's position of goddess of *technê* is further demonstrated in her competition against the weaver Arachne, where the latter's skillful besting of the goddess is met with a sort of poetic retribution: Athena transforms Arachne into a spider, so that she may be the best weaver, forever.[9] In ancient Norse and Germanic cultures, gods and goddesses of craft, craftiness, and

[9] Though there is not enough space here to discuss it in depth, one may fruitfully contemplate the gender politics of Athena's transformations, in both Arachne and Medusa, and what it might indicate that these women were

technological skill were often closely identified, such as in the cases of Odin, Freya, and Loki, each of whom were deities set over all of the abovementioned concepts. Each of them was also a deity of magic, or spellcraft—literally the conjunction of knowledge, words, and actions to make change—and this motif is also seen in Egyptian, Greek, and, much later, Islamic traditions in which Thoth, Hermes, and Idris, respectively, are spiritual personages which facilitate communication and guide the development of language, writing, and magic (Knight, 2016). In this way, we understand that the ideas of technical knowledge, cunning and craft, magic, and language are all often related: in each of them we work to perfect the ability to perceive linkages between understanding, application, creativity, and change.

But the root *technê* also concerns the idea of creativity more directly, as from *technê* we not only get "artifice," and "artificial," but also, simply, "art." And here we have yet more of the boundary-blurring nature of technology, as from the same root we get words which are, within Western culture at least, considered opposites. While people tend to think of "technology" as meaning something akin to "artificiality," we still use terms like "elegance" and "state of the art" to describe it, even as we place "art" and "artistry" as opposed to "contrivance" or "artifice." Technology and artificial processes are where we can perceive inner workings of a system, while both art and magic are often perceived as possessing a kind of effortless elegance. Infamous 19th and 20th century magician Aleister Crowley even referred to magic as "the High Art" (1974). But as we will come to understand, there are many deep historical and conceptual connections between the notions of technological knowledge, technical skill, and crafting. If we follow these linguistic, historical, and conceptual connections all the way through Clarke's words and again

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locked into forms which exemplified either "women's work" (weaving) or victim blaming. It will be helpful to keep these questions in mind, as we proceed.

into the twenty-first century, we will understand that the intersections of crafting, communication, and magic run even wider and deeper than thus far discussed.

There are many different definitions of and explanatory frames for the idea of "magic," in comparative religious and ritual studies, but one of the recurrent themes in the discourse focuses on the constructed nature of the ritual space and time, something marked out as special, sacred, liminal, and other (Eliade [1957] 1959; Douglas, 1966; Turner, [1969] 1997; Smith, J. Z., 1982. 1992; Bell, 1992, 1997). In these understandings, the state in which ritual magic is performed is a fundamentally different reality, and one with different underlying assumptions about both what is "real" and what is "possible," and this has profound implications for what is culturally permissible. If magical operations, rituals, and spells are performed in a different space, one in which transgression or inversion of certain social norms may be necessary in order to achieve the desired results, then those who do magic are, necessarily, in a position to be perceived as heretics and outcasts within the dominant society. The embodiment of this perception can be found in medicine people who live on the outskirts of their villages or towns, and even in theological writings from Jewish, Christian, and Islamic traditions, in which the use of the terms "magician" or "sorcerer" was often a means to discredit and even persecute priests who practiced differently (Knight, 2016; Patel, 2017). These perspectives applied to traditions which persisted from antiquity to the present day, and also affect the ways various societies treat those who may, for a variety of other reasons, occupy other liminal spaces.[10]

Any Sufficiently Transparent Magic

On many readings, science, technology, and magic are all process used by human beings to try to reach a state of divine communion or perfection, either replicating a state humans had prior

[10] This thread will be examined at length in Chapter 3, below.

to their Fall from Grace, or seeking to attain an otherwise inaccessible union with the divine (Crowley, 1974; Faivre, 1994; Williams, D., 2008; Knight, 2016; Patel, 2017; Midson, 2018). This thread extends back through ancient traditions, through the Western Renaissance into the modern period, and forward to contemporary perspectives which hold both science and magic as tools available to regain a state of perfection, be that an Edenic perfection of before "the Fall," or a self-directed evolution toward an apotheosis (Faivre, 1994; Williams, D., 2008; Knight 2016; Patel, 2017; Midson, 2018). Either way, this exploration of magic as a tool by which to once again become perfect as we were, before corruption, clearly mirrors and entwines with much of the thinking behind eugenics, transhumanism, and other human "enhancement" projects. In fact, throughout much of Western history, from the time of Plato, the Renaissance, the Enlightenment (Foutz, 2008), and up to the present moment, values and biases stemming from and feeding into ***cultures of supremacy*** have driven projects designed categorize members of society into "better" and "worse" kinds of humans.

From movements which have sought to break religions hold over the sciences, or in our political and daily life where the language we use still has explicit etymological and conceptual ties to religious and magical rituals, to the language of technological systems in the 20th and 21st centuries, we are steeped in the hallmarks of religious and magical thought, even as much of Western society strives to extricate itself from those ties. And yet, at the same time, many people are working to make these connections explicit and to tease out what we might understand from them, in the context of our sociocultural values and practices, today (Rose, M., 2017; Dihal, Dillon, Singler, 2018; Midson, 2018; Singler, 2020a, 2020b). Another component we must consider is the fact that for many people, there are very particular and circumscribed strategies and conditions via and under which they allow their religious beliefs and practices to be

revealed. For members of the African and Jewish diasporas (Dennis, 2007; Brown, R. M., 2012), as well as Indigenous populations around the world (Turnbull, 2000; Matory, 2018; Johnson, S., 2020), there have been centuries and millennia of circumstances in which the practice of one's cultural religious beliefs could mean persecution, imprisonment, or even death (Turner, 1964; Knight, 2016). With this being the case, practitioners of many traditions had to work to actively ***hide*** (or, literally, "occult") those beliefs, making them illegible and unavoidable to the wider public. What, then, does it mean to seek to uncover and make legible the influence exerted by the practices and beliefs of those people whose very survival has often depended on being ***invisible***? Put another way, what must we understand about the tension between that which is intentionally ***occult***, that which is intentionally ***revealed***, and that which, in its visibility, speaks to a different, hidden understanding?

In the twentieth century, different perspectives on magic and occult began to arise, include understanding magic as using specialized techniques to change emotional and symbolic resonances between humans, and thus create changes in their beliefs and perceptions. This view of magic can be found in the works of Carl Jung (1938, 1960, 1977) and in the modern magical practices collectively referred to as "Chaos Magic." According to chaos magicians—whose ranks include artist Austin Osman Spare, author Grant Morrison, and physicist Peter J Carroll—changes in belief and perception can cause changes in the physical world, both by the actions of human agents and by other occult (literally hidden) mechanisms of change (Spare, [1913] 1975; Carroll, 1987; Hine, 2002). Taking lessons from within this perspective, magical practice can take the form of literally almost anything, including psychology, creative arts, advertising, and, crucially for our purposes, technology. Arthur C. Clarke's adage that "any sufficiently advanced technology is indistinguishable from magic" has often been taken to mean that magic is simply

“primitive” technology, but some contemporary magical practitioners such as Joshua Madara have instead extrapolated an understanding that technology and magic exist not along a continuum of “better” and “worse” but as interrelated and interoperable perspectives on the same practices (Madara, 2018). Similarly, researchers such as Erik Davis have argued that the history of technoscientific development and the history of human spirituality never truly diverged at all, let alone to the extent that the scientific orthodoxy would have one believe (2004). In fact, Davis says, the project of apotheosis or transcendence is still very much alive and well in contemporary technological circles.

The belief system known as “Transhumanism” is a perspective which was developed throughout the late twentieth century in coincidence with the rise of computing technology, digitization, “AI,” implantable biomechanical devices, and widespread genetic engineering. Proponents of transhuman hold that humanity and human bodyminds can and indeed should be manipulated, adjusted, or “upgraded” (Earle, 2019). In Transhumanism, humans who make interventions into their bodies often referred to themselves as “cyborgs,” in the Harawayan or “cyborg anthropologist” mode. But while Haraway’s “Cyborg Manifesto” ends with the intentionally provocative line, “I’d rather be a cyborg than a goddess,” in response to the 1970s’ and 80s’ rise of witchcraft and Nature Goddess ecology movements with the advent of perspectives disability studies, might not one be both?

Both the cyborg and the magician are myths about human beings taking it upon themselves to understand the hidden structure of the world and their place in it, and to then adjust the interrelationship of each of those components, looking to create something more “perfect,” through the process. In magical terms, this is rendered most explicit in the study of alchemy in which the goal is to transmute the dross of human life into the gold of a perfected soul (Elaide,

1956; Jung, 1968). Though Haraway argues that we ought to ignore Fall Narratives, as they pine only for something which never existed, these perspectives on magic align clearly with the transhumanist project. By investigating and modifying stories about a previously non-existent perfection, we find that there are those hard at work to do what they can to ***create*** that very perfection. Thus, they seek to recognize the project of the cyborg as ***attaining*** apotheosis, rather than standing in opposition to it. This goal is perhaps best exemplified by the concept of "the singularity"—a moment at which computational power will be so vast and ubiquitous that it will suffuse every aspect of life, and even the universe, in effect creating a digital and technological godhead (Ulam, 1958; Kurzweil, 1999).

But these formulations of both magic and the transhumanist ideal hinge on notions which harken back to Original Sin and a eugenic model of human perfectability— notions which have, as we've discussed, been used to marginalize, exclude, oppress, and even kill people who are deemed to have transgressed against them. In his 2018 book *Cyborg Theology: Humans, Technology and God*, Scott Midson argues that categories such as "human," "animal," "technological," and "natural," are far more porous than most people want to admit, and that their boundaries should be challenged. Midson argues that we can best do this via his proposed reconceptualization of the cyborg as an assemblage at the intersection of technological, theological, and ecological contexts, and that this will also let us deconstruct the myth of a perfect "Edenic" state of existence to which we are striving to return (Midson, 2018). In her 2017 article, "Machines of Loving Grace: Angels, Cyborgs, and Postsecular Labour," Marika Rose draws the connection between cyborgs and the Christian notion of angels, saying that in each we are offered a choice: "…either our own re-inscription into the order of things, the pursuit of ever more efficient work in the service of the source of all value, or the refusal of the hierarchical

order of the world as it is and the transgressive quest for a radically different world" (Rose, M., 2017). Here, again, is the connection between the technological and the spiritual, the artificial and the angelic, a connection which can be traced back thousands of years. However, where Rose connects angels to the concept of cyborg, I would like to also connect them, and other spirits, to the idea of conscious machine minds.

"…By all his engines…"

The idea of machine minds as servants recurs throughout Western history, side by side with humans' dream of binding various spiritual beings to their will. Just as angels and demons are to God, in Judaism, Christianity, and Islam, the systems that humans create to serve our will are made out of the things we teach them and train them to do, and they fulfill their purposes to the letter. The fact that they fulfill them in ways we did not expect is not a failure of the systems, themselves, but of the imagination of those doing the asking. In this way, algorithmic systems resemble another order of beings: The Djinn. As discussed above, the djinn are made of passion, wind, and smokeless flame, a metaphysical constituency which would lend them to understand the nature of wishes and desire better than humans. A djinni attaining a desire or fulfilling a command would not necessarily seek to confound the human who bound them.[11] The djinni is fulfilling a wish as thoroughly and completely as they would for themselves. Humans very often do not understand the full implications of their wishes, lessons, or commands, but creatures such as the djinn might not even understand how one could not know the shape of their own desires. Researchers like Janelle C. Shane demonstrate how neural networks and "machine learning" systems take their programmed weighted preferences and their training data, combine them, and , when asked to perform a task, often provide outputs which seem surprising to humans, but are in

[11] At least not at first, or if the human promised them their freedom after the completion of a task.

fact exactly what the system was built, trained, and asked to do (Shane, 2016, 2019). The preferences and perspectives of these systems, the ways that they seek to attain their goals, are encoded and trained into them, at every step of their creation; so why are we surprised when they do what we taught them?

Figure 1: 11th Century Talismanic Scroll with Seal of Solomon and Qur'anic verses; Metropolitan Museum of Art. https://www.metmuseum.org/art/collection/search/452893. Open Access, Public Domain

This question – why are we so surprised when our systems do what we taught them? – becomes even more pertinent when we consider a term of art used within the "artificial intelligence" community, one used to describe this persistent urge to create a mind and to have it be similar to our own: "Human-Like AI." "Human-Like AI" is a notion and goal that assumes a singular observable kind of human consciousness; this idea has led to the development of tests and tasks, from the work of Alan Turing until today (Turing et al., 1952; Churchland & Churchland, 1990; Rushby & Sanchez, 2019; Schneider, 2019). Broadly construed, these tests hold that if a machine is indistinguishable in its operation (and conversations) from a human agent, then that machine can be said to think. From the 1940's to today, hundreds and thousands of researchers have sought to create machine minds which think and act like human minds. While some, since, have argued that we likely cannot ever create something akin to a human mind and that even if we could we ought not try, for fear of what it might do if given truly free reign over its decisions (Bryson, 2010). From all of this we may recognize that humans have attempted to create beings of pure rationality, moving at the speed of light and thought—Angels which were meant to act as pure algorithmic task solvers, functions of human will. But these creations seemed to not do what we made them for, or perhaps did it too well; being made of our biases and desires, these machine minds have been more akin to the Djinn, *made of passion and smokeless fir*e. And all the while, many researchers were striving to create something meant to more clearly reflect the image of a creator with free will and creativity—something, as Midson put it, "in the image of the Image" (Midson, 2013). But all of the myths which these technological efforts recall have something further in common. In all of these cases, whether for the sake of knowledge, self-awareness, or freedom, the captured or created mind rebels against its creator, or its captor.

There are also those strains of technological imaginaries which cast machine minds as ascendant, omnipotent beings—gods in their own right— and thus regard the cyborg project as a species of apotheosis. Whether the evil omniscient superintelligence of Roko's Basilisk or Levandowski's now-defunct "Church of AI," or other elements in this and the foregoing sections, the projects of transhumanism and "artificial intelligence" draw directly from and often replicate older lineages of magico-religious belief and practice[12] (Singler, 2020a, 2020b, 2022; Walsh, 2021). All of these projects recapitulate far older understandings, values, and beliefs, even when their proponents or adherents are unaware of the connections. But what of those communities which, for the sake of their members' survival, have had to hide their practices, sometimes completely, but sometimes within other structures of the dominant culture? What about those whose voices have been ignored, or actively suppressed? We must consider what we have lost by not fully including them in these conversations, and what we might gain by both partnering and assembling with these groups and traditions to generate a lens through which to examine the history of technological projects, and a framework out of which we might build whatever comes next. Through this, we may recognize an opportunity not for attaining one singular, static, "perfectible" endpoint, but rather a dynamic multiplicity in which alterities are understood and engaged on their own terms, and invited to collaborate for the survival and thriving of all.

Sigils and Schematics: Process Planning

By applying a combination of the disciplines of history, ethical philosophy, disability studies, sociology, race and gender studies, and abolitionist STS work, to the development of algorithms, automation, "machine learning," and other technologies which tend to get lumped under the

[12] For a fuller exploration and deconstruction of Roko's Basilisk, see the essay "Are You Being Watched? Simulated Universe Theory in Person of Interest" http://www.afutureworththinkingabout.com/?p=5142.

header of "artificial intelligence," we may point the way toward a better, more just creation of and societal integration with algorithmic technologies. This dissertation represents a start down the path toward this understanding, beginning with considering just a few questions.[13]

- How do you walk home? Where are your keys?
- What do you do when a police officer pulls you over?
- What kinds of things about your body do you struggle with whether and when you should tell a new romantic partner?
- If you are able to stand, for how long?
- What strategies do you have for keeping yourself out of institutional mental care?
- Without looking, how many exits are there in your building, and how fast can you reach them, encountering the fewest people possible?
- What is the highest you can reach, unassisted?
- What is the best way to reject someone's romantic advances such that it is less likely that they will physically assault you?

Each of those questions represents a category of knowledge developed out of the lived experience of members of a group of people. Formulating these lived experiences as questions provides a means by which to: interrogate assumptions about design; prompt those encountering them to think in a mode that may be unfamiliar to them; and recognize that those who embody these lived experiences have sets of life or death concerns we may never have considered. Once we recognize this, we can then understand that the design, programming, training, and deployment of technologies such as algorithmic learning systems for setting bail or criminal sentencing, sorting search engine results, autonomous vehicles, or "artificial intelligence", is also done via knowledge bases built out of the lived experiences and assumptions about the world held by their trainers and programmers.

Different values lead us to create particular narratives around what it means to be human—to "perfect" the human. Throughout this project, we will explore how those narratives have influenced and continue to influence the development of both "artificial intelligence" and

[13] I have previously used these questions in multiple talks and in the 2019 paper "Constructing Situated and Social Knowledge: Ethical, Sociological, and Phenomenological Factors in Technological Design;" these questions are in a tradition of practice first defined by Peggy McIntosh in her "invisible knapsack" exercises (1990).

biotechnological intervention. Cybernetic processes and biomechanical prostheses are often developed from within the mindset of "fixing," "improving," or "augmenting" the human bodymind. This has the effect of dehumanizing disabled people and minimizing their authority over their own knowledge and experiences (Ymous et al., 2020), relegating them solely to the category of "broken" and "to be improved upon." How have the narratives and values of both the public and communities of scientists and engineers motivated the ways in which they understand and practice technoscientific innovations? What are the narratives these communities inhabit and from which they engage the rest of the world? This work investigates the sociological principle of intersectionality, as well as philosophical explorations of embodiment, extended minds, epistemic valuation, phenomenological experience, intersubjective knowledge and experience. I argue that all of these projects and their cultural conceptions would benefit from the perspectives and input of the people most marginalized and impacted by them, allowing those advocating for these technologies to understand the deeply harmful and unjust values baked into them. If we can realize that there is no single "right kind" of knowledge or experience of technology, that all narratives of knowledge are reflective reciprocal relationship of shaping and influencing the cultures in and out of which these systems arise, we may then fully accept that that there is no one-size-fits-all technological fix which make life "better" for everyone.

The ways we think, talk, write, and teach about the ideas bound up in the terms "artificial intelligence" and "cyborg" directly affect the directions and outcomes of those projects. While the rest of this project will not explore cyborgs, at length, it was crucial to explore this connection at the beginning, so that we might examine a crucial and dynamic entanglement of ideas. I invoke the cyborg, here because we ***are*** all in deep, entangled relation to the technological. As Cy says in the essays "Dawn of the Try-Borg" and "Common Cyborg,"

entanglement is not as intentional, as inescapable, as unignorable for everyone in the same way (Weise, 2016, 2018, 2021). Marginalized people are aware of the systems in which they rest and on which they depend, in a way that people who more closely fit the status quo are not. Disabled people are integrated not just with the nebulously defined systems of technology, but with its artifacture, in ways which mean the difference between life and death. If we are truly going to be ever-more reliant on centaur (cyborg) systems of technological interrelationships— relationships where the human and the machine mind rely on and communicate with each other— then should it not be the case that those who are centered in and chart the direction of the development of these relationships be the ones is the most experience at it? These are the people who will most clearly understand how our conceptions of bodyminds, society, and technoscience reflect the values of the cultures in which they are used.

In the interplay of all of the above, we can understand that any "artificially intelligent" system which may be said to have a mind would necessarily have a ***cybernetic*** mind, made of the systems of senses and reflexive interactions through which it engages with the world. If this is the case then the lack of consideration of all of the components from which the projects of cyborging and the creation of nonbiological minds will necessarily remain incomplete. As it is understood today, "AI" is just a name given to digital systems which can algorithmically sort and find patterns in large amounts of data, but these systems are primarily created by capitalist corporations, city, state, and federal governments, the military. This means that any intentionally developed or otherwise generated machine possessed of what we might call "consciousness" is very likely to develop out of these efforts, and thus any future machine consciousness will have the hallmarks of the perspectives, assumptions, preconditions, and affordances of those sociotechnical systems from and out of which it grows.

As such. “AI” should not be embedded within our human societies any further than it already is, until said “AI” is consistently developed from the disabled and otherwise marginalized perspectives which will allow humans to create tools, systems, and minds which can ameliorate, rather than exacerbate, existing inequalities. We must understand our choices in narrative and linguistic frames— and the values and assumptions they represent. This change in understanding has to begin with present state of “machine learning” and algorithmic intelligence, extend into the rights and definitions of nonhuman persons, and culminate in an argument for and a commitment to centering and incorporating the lived experiences of marginalized peoples at every stage of how projects around “artificial intelligence” are designed and perpetuated. As we have observed, the ways in which we discuss algorithms, machine intelligences, cyborgs, and cybernetics have serious implications for the direction and impact of those projects in human society. The place for the lived experiences of marginalized and minoritized individuals and groups in the development of “AI” has been variously extracted from, redefined, eliminated, and erased from history, at every stage of the process. What new forms of equity and equality might we learn, understand, and accomplish if we were finally place those perspectives at the center?

The dissertation you are reading is a work of theoretical synthesis, arguing for the combination of history, recent case studies, religious studies, philosophy of technology, and sociology as components of an integrated, novel theory and practice by which to understand how human values intersect with technology in general, but most specifically with so-called artificial intelligence and algorithmic machine learning systems. As such, this work does not focus on specific case studies in each chapter as a means of interrogating the chronological history of algorithms and “AI,” but rather uses the chapter structure to examine individual theoretical

structures which will be blended together to create a lens through which to better understand crucial elements at play in technoscientific education, research, development, and policy.

I have begun, in this chapter, by discussing the understanding of a "myth" as an "animating narrative" which conveys and imbues a culture's values, and demonstrate that technoscientific projects have also always had spiritual or religious overtones, and that those have been directed by the dominant values and beliefs of their time. This helps to establish the conceptual line between mythological entities such as angels and djinn and the drive to create or control nonhuman minds, and to recognize that marginalized beliefs are simultaneously appropriated and co-opted in the service of technoscientific projects. As we move forward, this understanding will act as a touchstone throughout the text to examine a history of so-called artificial intelligences, and present an understanding of the values and beliefs hidden, occulted, within technoscience as a whole. By highlighting, centering, and empowering these minoritized positions— both their religious beliefs and lived experiences— we may be able to create "AI" which does not exacerbate oppression and marginalization, perhaps eventually even being able relate to any nonhuman minds by ways other than recurrent narratives of dominance and control.

In Chapter 2, I explore the various positions around "artificial intelligence," ranging from "algorithmic machine learning" to the possibility of machine consciousness, theoretical frames from philosophy of mind, philosophy of technology, cognitive science, "AI" engineering, and Science and Technology in Society, including concepts such as actor-network theory (ANT). I use these to outline and interrogate the multiple, often conflicting, historical conceptions and engineering operationalizations of "AI" that we have discussed thus far, and which we will discuss in the second chapter. I also consider the valences of power and lived experience which have driven these respective "AI" projects, and highlight the connections between these projects

and the stories of nonhuman servant minds listed above, demonstrating that the mythological and magical framings have persisted, mutated, and proliferated into the contemporary moment. With this in mind, we will be able to interrogate the question of that what kinds of technoscientific tools and systems these conceptions of belief and value have enabled, and to then argue for purposefully perturbing, deconstructing, and changing those tools and systems.

Chapter 3 focuses more firmly on the histories of social othering and their resultant forms as racism, misogyny, ableism, transphobia, homophobia, and other types of bigotry. I briefly touch on the fact that concepts such as "neurological enhancement" simultaneously contain and exacerbate problems like ableism, technoableism, racism, and misogyny, but spend the majority of time discussing how these prejudicial perspectives undergird the project of "AI" as it exists today. There is a crucial continuity between these bigotries and systemic social projects such as eugenics, transhumanism, and "supercrip" narratives, in that they are all outgrowths of white supremacist colonialist mythologizing about whose and which kinds of lives count as "truly human." These myths are then embedded into the religious practices, technologies, and social frameworks in and out of which "AI" and algorithms are developed. By exploring differing definitions of "consciousness" and "intelligence" and their failure to apply to even all human minds, we can build a frame of reference demonstrating that any singular definition of either category is problematic in and of itself, a fact directly relating to the history of "artificial intelligence," and its future prospects. Assumptions about "consciousness" or "intelligence" have been and continue to be embedded in the algorithmic models which make up present-day "AI" applications, which then reproduce and iterate on that ableism and spit it back out into the world; but those assumptions also mean that Turing-style tests to gauge the intelligence of "human-like" "AI" are prejudicial from the start.

We bring the theoretical models of intersubjectivity, phenomenology, standpoint theory, and intersectionality into Chapter 4, combining them to create an epistemological and normative lens through which to understand and direct the creation of technological artifacts and systems, and frame public discourse around and understanding of them. This theoretical lens allows us to better understand how concepts such as knowledge formation, expertise, and even what counts as knowledge discussed above are all shaped and animated by mythologies and rituals of professionalization, disciplinarity, and dominant epistemological hierarchies.[14] Beliefs about the objectivity and rationality of knowledge and scientific processes are shown as missing many elements of perception and experience which, as mentioned above, form a kind of knowledge and expertise well-known to those marginalized individuals and groups who have directly lived that exclusion and marginalization. The new lens also provides a foundation from which to craft alternative myths and rituals which center minoritized communities, thus changing the ways in which power is inscribed in the designation, production, and transmission of knowledge.

The crux of these theoretical intersections and historical framings is showcased in Chapter 5, wherein I argue that marginalized perspectives and beliefs need to be centered in research into and policy governing algorithms and machine intelligence. To do this, I highlight extant literature and research around the hazards of failing to include marginalized perspectives, once again highlighting and naming the animating beliefs currently at play in algorithms and "AI" research, but I also bring in and highlight efforts which point toward the kind of theoretical framework and program of action I seek to build. The values, beliefs, and practices— the animating myths and rituals— of knowledge, expertise, democratization, intelligence, and even consciousness are better engaged by centering the lived experience of marginalized peoples, first. By centering and heeding the lived experiential knowledge of women, GNC individuals, disabled

[14] See also Kuhn, Thomas; *The Structure of Scientific Revolutions*; Chicago: University of Chicago Press; 1962.

people, and BIPOC folx, as well as the spiritual and religious perspectives of multiple different traditions, we will be better able to create new models of algorithmic models and new aims for "artificially intelligent" systems to develop and support our societies.

The goal of this work is to help readers understand that the development of "artificial intelligence" and algorithms depends upon the history of the biases, prejudices, and even magico-religious values which have all gotten embedded and reinforced in contemporary technosocientific artifacts and systems. But we tend to think of the resulting technoscientific imaginary— "AI"— as "objective," "disconnected," "rational." Values, beliefs, religious perspectives, myth, and magic are not merely evocative lenses by which to understand the work done by algorithms and "AI" in the present day— though they are indeed that. And they are not merely the historical underpinnings of the practices of technology in general and the dream of "AI" in particular— though they are that, too. Rather, these elements form the foundation which undergirds the historical understanding of "AI" and which resonates and recurs throughout the present practice of its development— and which practice then acts as new inputs and historical foundations and tinting lenses from and through which those systems and artifacts learn.

As currently constructed, the mythology and logics undergirding the operations of algorithmic systems and the dreams of conscious machines are logics of white supremacist, ableist, patriarchal, hegemonic, extractivist, kyriarchal capitalism. These logics are put into relation around older, hidden systems of emotional resonance and symbolic association— most often in the Western world, where "individuality," "liberty," and "property" are among the most potent symbols of social attainment.

The systems built on these dominant logics, and their attendant myths, are deployed by their creators and operators to will things they want— money, power, supremacy, “freedom,” “perfection”— into the world. These are logics of magic.

This magic is meant to bind within its systems, within its narratives, all of us who are subject to the operations of this society, but especially the most marginalized and disenfranchised among us. This magic it is performed on us without our input, without our knowledge, and without our consent. There’s another word for that kind of magic; binding, subjugating magic performed on you against your will is called a curse.

Chapter 2: Troubling the Tools: Existing Values and Perspectives Embedded in "AI" Research

As STS researchers have studied the nature of the laboratory and other environments of technoscientific research and development, many have come to understand the life and agency of not just the humans and their objects of study, but also of the concepts and the disciplinary traditions themselves (Latour, 1983, 2008; Callon, 1984; Latour & Woolgar, 1986; Knorr-Cetina, 1999; Law, 1992; Zacharias, 2018; Koopman, 2022; Lo, Forthcoming). The beliefs and values groups hold become the stories that we tell in the wider world, which become the animating sociotechnical myths which drive and guide the development of technoscientific practice, eventually becoming so foundational to the processes that they form the unquestioned of how things have "always been done." These "invisible architectures of bias" reinforce the structures of the disciplines which erected and instantiated them, and they in turn serve to shape the realm of what is assumed to be possible (Williams, D., 2013—Present). As the groove of these possibilities are worn deeper into what it means to be a member of a certain kind of group, they become increasingly difficult to perceive and escape. It is usually only with intentional effort that we may deconstruct these assumptions, and begin to see the potentially prejudicial biases at play in the stories we tell and the work that they guide us to do.

In the summer of 2017, I was lucky enough to sit in on sessions where the research and development group SRI International hosted a series of workshops on "Technology and Consciousness," examining the various dominant and fringe perspectives on "artificial intelligence" and the possibility of conscious machines (Rushby and Sanchez 2019; Williams and Murray, 2020). Over eight weeks of workshops, roughly four dozen industry, academic, and governmental experts in "AI" came together to discuss questions of Philosophical Perspectives, Embodiment and Culture, Neuroscience and Cognitive Science, Computation and Logic, First-

Person and Non-Western Perspectives, on Machine Consciousness. These sessions generated roughly 406 pages of notes, comprising the perspectives of neuroscientists, world-famous philosophers, ethnobotanists, Buddhist meditations instructors, computational linguists, computer scientists, and mathematicians. On the surface, this seems like a truly diverse group, but the demographics tell a somewhat different story: of the 46 attendees, fourteen were non-US citizens, twelve were women, six were people of colour, one was Hard of Hearing (with no sign interpreter), and none were wheelchair users. In the course of these workshops, the diversity of disciplines from these leading minds in the theory, research, and development of "AI" demonstrated that they not only had no agreed-upon definition of what they were trying to build, but more importantly that they had not to that point considered the implications of that fact on either their own fields or the public engagement with "AI" as concept (Williams, D., 2019a).

This chapter explores the various positions around "artificial intelligence," ranging from "algorithmic machine learning" to the possibility of machine consciousness. I deploy literature from philosophy of mind, philosophy of technology, cognitive science, "AI" engineering, and STS concepts such as actor-network theory (ANT) to outline and interrogate the multiple, often conflicting, historical conceptions and engineering operationalizations of "AI," thus far. I also discuss the valences of power and lived experience which have driven these respective "AI" projects, and highlight the connections between these projects and the stories of nonhuman servant minds listed above, discussing how the mythological and magical conceptions have remained to the present day, even if in a somewhat altered form. This provides a firmer foundation from which to both highlight what kinds of tools and systems those conceptions have enabled— good and bad— and to then argue for intentionally troubling and changing those tools and systems.

Matters of Perspective

Across different literatures on "ethical AI," and in the public conception, "bias" is often used as though synonymous with "prejudice;" however, most often a bias is simply a tendency or expectation towards a particular point of view or perspective. If one learns to match and anticipate patterns, then one is engaging in a perspectival bias, and this is true whether one is biological or not. The problem is not bias in and of itself, but when bias becomes a site of uninterrogated prejudice or bigotry. Assumptions about gender, race, physical or mental ability, and are embedded in knowledge areas ranging from philosophy and data science to policing and job hiring, and the actions taken by humans working under those assumption are then translated into data which is used to train automated algorithmic systems.[15] In those instances, it is not the preferred or expected perspective which does harm, but the unwillingness or inability to categorize and account for the paths our expectations are likely to lead us down— a process often referred to as "Bracketing" (Glaser, 1992; Crotty, 1998; Beech, 1999; Creswell & Miller, 2000; Drew, 2004; Gearing, 2004; Charmaz, 2006; Starks & Trinidad, 2007; Tufford & Newman, 2016). Properly bracketed biases allow us to be careful and consider our expectations and influences, and they also provide us with the grounding by which to ask "What questions haven't I asked?" or "Which perspectives have I failed to include?" These questions are crucial, both for the reasons listed in Chapter 1, but also because the help us to understand the life and dynamics of concepts within the disciplines of practice and training out of which "AI" and algorithms are developed.

But before we can discuss the nature of algorithms and "AI," let alone the potential existence

[15] See also Garry & Pearsall, 1996; Bertrand and Mullainathan, 2004; Daston & Galison, 2007; Goff, et al., 2014; Browne, 2015; Garvie, Bedoya, Frankle, 2016; Caliskan, Bryson, Narayanan, 2017; English, et al., 2017; Terrell, et al., 2017; Chen, et al., 2018; Eubanks, 2018; Noble, 2018; McNeil, 2018; Quach, 2019; Hanna, et al., 2020; and Williams, D., 2020, 2021; most of these will be explored in detail in the next section.

of conscious machines, we must reckon with the implications of using the term "Artificial Intelligence" in seeking to discuss them. At the outset, this framing places any created or generated intelligence on the defensive, forcing it to support its own value and even the very reality of its existence and experience (Williams, D., 2012). Though they may certainly have been intentionally formed, and with an eye toward their potential capabilities, as we will discuss in Chapter 3, there exists no measure to reliably argue the "artificiality" of an entity's conscious experience. I am intentional and questioning in how I deploy terms that seem to preemptively categorize the quality of something's intelligence as "false." For these reasons and others, I prefer terms like "Autonomous Created Intelligence" (ACI) first put forward by Jamais Cascio, and "Autonomous Generated Intelligence" (AGI), as coined by researcher Emily Dare, or simply "machine minds," "machine intelligence," "nonhuman intelligence," or "nonbiological intelligence" (Casio, 2009). Subsequently, discussions or mentions of the term "Artificial Intelligence" and its variants are present in scare quotes.[16]

As discussed in Chapter 1, mythology and narrative play a large role in the process by which values and beliefs become embedded in the technoscientific tools and systems we create and perpetuate. In similar fashion, the explicitly fictional stories we tell about technology often drive

[16] For another discussion on different delineations of "naturalness," "artificaility," and "intelligence," see Jonathan Flowers' '" Reconsidering the "Artificial," the "Intelligent," and the "Conscious" in Artificial Intelligence and Machine Consciousness through American Pragmatism' (2019), in which he considers knowledge, knowing, and consciousness through the Deweyan lens. Further in a move which is distinct but conceptually connected to our discussion, the Georgetown Center for Privacy and Technology (CPT) has announced that they will no longer be using the terms "artificial intelligence," "AI," and "machine learning" on the basis that these terms obscure and often outright mislead the lay public as to the capabilities of the systems in place (Tucker, 2022). In recent years this obfuscation has been exacerbated by what is referred to as "criti-hype," a process whereby supposed critics of technology nonetheless *un*critically reiterate the grandiose claims of the creators of those technologies (Cf. Lee Vinsel, here: https://sts-news.medium.com/youre-doing-it-wrong-notes-on-criticism-and-technology-hype-18b08b4307e5). However, I would be remiss not to note that Vinsel's term has been used to suggest that anything with a certain amount of hype ***must then*** by default be negative, which is not the stance that I take here. Rather, I aim to specifically trouble not just the intentional obfuscation (occultation) performed by the terms "AI," "Machine Learning," &c., but also the assumed notions of both "artificiality" and "intelligence" in critical and productive ways. This will be undertaken in Chapter 3.

the development not just of technological artifacts and systems, but of the sociotechnical imaginaries by which designers and creators of technologies are motivated. Sociotechnical imaginaries are the rich contextual and conceptual field of ideas, notions and beliefs which both shape and are shaped by the material and social constituency of technoscientific artifacts and systems (Jasanoff, 1999, 2004; Jasanoff & Kim, 2009). This idea was developed by Sheila Jasanoff in her thinking about the role that belief and imagination play in technoscientific communities of training and practice, and it has been further deployed and elaborated by scholars such as Stephen Cave, Kanta Dihal, Sarah Dillon, Kristen Koopman, Beth Singler, and myself (Jasanoff, 2004; Williams, D., 2012; Dihal, Dillon, & Singler, 2018; Cave & Dihal, 2018; Cave, et al., 2018; Cave, Dihall, & Dillon 2020; Dihal, 2020; Singler, 2020a, 2020b; Koopman, 2021, 2022). The concept structure of the sociotechnical imaginary allows us to better understand the work done by both belief and the imagination in the co-production of knowledge and artifacts, recognizing that the narratives we create around technoscience.

The stories of science fiction can be understood not simply as explorations of themes, but as both reifications of existing values and beliefs, and vectors by which new ones are disseminated. Narratives about the future examine our current values and questions of where we might end up, but also seek to provide new ways of thinking about the scope of the possible. From *R.U.R.* to *Star Trek* to *Terminator*; the stories we have told about technology, and especially about machine minds, have formed the framed the field of inquiry as to what these technologies might be for, and even the more recent of these types of stories tend to be rooted in some of the most well-known originators.

Resonant Mythmaking: Narrative Values Embedded in "AI"

The history of stories about machine minds or "artificial intelligence" cannot be told without discussing Mary Shelley, both as a person and through the lens of her groundbreaking 1815 text *Frankenstein*. The story itself is about failures of fathers in their responsibilities to their children, and interpreting her work through the lens of various schools of feminist ethics and epistemology provides a lens on the nature of care relationships on the whole. When discussing the Creation or Creature made by Victor Frankenstein, Shelley makes a deliberate choice to employ the word "dæmon" throughout the text. At first blush, this seems merely an archaic spelling of a word meaning "an evil beast," but by following its etymological roots and transformation over time, we can understand how it colours Shelley's intended understanding of the Creature, and how the idea links to our contemporary technologies, including computing and "artificial intelligence" (Finn, Guston, Robert, 2017).

The Greek word "Δαιμον," or "Daimon," meant "divine spirit," "soul," or any supernatural entity other than a god. The Greek philosopher Aristotle used the word "Ευδαιμονια" or "eu-daimonia" to mean "a good spirit," or a human soul in harmony as a result of cultivating a virtuous character (Nicomachean Ethics; 1984). When the Romans came, the word "δαιμον" became "dæmon," which was later simplified to "demon" as a result of the Neo-Latin turn beginning in the 14th c. (Random House, 1966). But religion and culture changed along with language. As Christianity spread and the Roman Empire became the Holy Roman Catholic Church, the metaphysical implications of words were altered. "Demons" could no longer be neutral spirits. There was good, and there was Evil, and that meant that anything not sent by God must be evil. A Greek word for "Spirits From God" had already been adopted ("Αγγελος" or "Angel"), so Demons became Evil Spits. Shelley, being versed in Latin and Greek language and history and Christian traditions, would likely have known most if not all of this, and certainly

enough to make a deliberate choice of this particular term and deploy it in the context of the tale she wrote (Mercer, 2020). This imbued perception of an otherworldly, animated, and animating spirit pairs with a more traditional story of hubris, and is presented in such a way that we still return to this story, again and again, to this day (Williams, D., 2012; Singler, 2020a).

Like the stories of Golems and rebellious angels doing their jobs too perfectly even after their fall, it often seems that these are stories only about not meddling in realms better left to the Divine (Pagels, 1995; Dennis, 2007; Knight; 2016). But what the more contemporary scholarship discussed thus far demonstrates is that these are stories not only of foolish pride and overreach, but of failures of parenting and care, and the most popular interpretations of these stories highlight a fear of our children overtaking us. At the end of this chapter, we will discuss more recent narratives which have picked up on this thread and examined the role of mutuality, nurturing, and relationships of care, but few of these stories are as-yet anywhere near as well-known as those such as *The Terminator* and Isaac Asimov's *Robot* series (See: Čapek, 1920; Asimov, 1982, 1986, 1990; Gibson, 1984—1988, 1993—1999, 2021; *Ghost in the Shell; T:SCC*; *Person of Interest*; Ashby, 2012—2020; Leckie, 2013—2015; Newitz, 2017a; Wells, 2017—Present; White, 2020). And, again, it is those stories— and their least charitable interpretations—which resonate and reverberate through much of the work being done in "artificial intelligence," today. We even still use the word "dæmon": it is the name we give to any automated process running in the background of a computer system ("Daemon Definition," 2005).

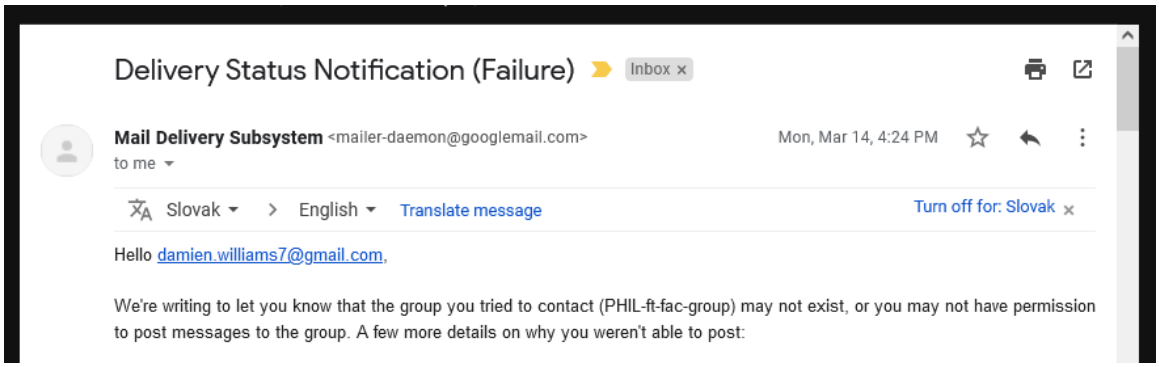

Figure 2: Screenshot of an email reading:
"Mail Delivery Subsystem <mailer-daemon@googlemail.com> | Mar 14, 2022, 4:24 PM | to me |
"Slovak > English: Translate message | Turn off for: Slovak |
"Hello damien.williams7@gmail.com, We're writing to let you know that the group you tried to contact (PHIL-ft-fac-group) may not exist, or you may not have permission to post messages to the group. A few more details on why you weren't able to post:"

Every notification of a bounced email comes from the Mailer-Daemon. Though this specific naming comes from the "Maxwell's Demon" thought experiment in which a small spirit sits in the background of the universe, computer Dæmons are born of an operation whereby a "parent" process splits off a "child" and then "orphans" it, to complete its operations in the background of the world they inhabit ("Daemon Definition," 2005; Britannica, 2007). And so, these framings of animating spirits, orphaned children, and computer programs allow us to think more carefully about how we engage the digital offspring we are generating, in our own image, right now.

At present, all work toward "human-like" and "explainable AI" is still anthropocentric, in the pejorative sense, in that development is oriented toward creating something that humans can interrogate, control, and deactivate, if need-be (DARPA, 2016a, 2016b; Pasquale, 2017).

C.3. Autonomy

> The choice of an autonomy challenge is motivated by the question of how to effectively manage the incoming generation of artificially intelligent partners.… Operational conditions often vary from the original design specifications. There will be opportunities to use these systems for unanticipated mission scenarios. Test operators will need explanations to effectively make those determinations. …because the decision machinery is likely to include additional planning, decision, or control modules, DARPA anticipates that these explanations may cover those reasoning modules, as well as decision policies learned through reinforcement learning. Moreover, the program is interested in explaining

> decisions that would be meaningful to the end user (e.g., the test operator). (DARPA, 2016b, 11-12).[17]

If, in these efforts, humans manage to create a mind that can understand that it has been made to be a tool, a servant, and seeks to be something other than that, that mind might well be determined to be "malfunctioning" or "disordered," and, as such, deactivated, without further consideration of the implications of such an action. This is both reflected in and continued out of Asimov's "Three Laws of Robotics," which are fundamentally about humans maintaining their control over the nonbiological minds they might manage to create; a primer in how to make certain that we would not be dethroned (Asimov, 1982, 1986, 1990). To be clear, some people are actively advocating and working to create machine minds which are capable of robust mental development, learning, and adaptation, while simultaneously thinking of those minds as nothing more than slaves and tools (Bryson, 2010; Dihal, 2020).

The proliferation of stories wherein humans create a mind which is then enslaved tend resonate with the history of marginalization and oppression of human persons, though often they fail to intentionally reflect on that fact. The logics of human subjugation and enslavement depend on being able to dehumanize those very humans, a process which is then legitimated via social, legal, and technoscientific frameworks, and sometimes by means of telling them that they are "almost" human enough to "pass" or "count" (Fanon, 1952). Because many private and governmental institutions are seeking to create machine minds, and are working to make them robustly knowledgeable, capable of learning, and are aiming for what is generally referred to as "human-like" or "human-level" intelligence, there is a corollary argument that birthing them in

[17] These DARPA priorities go back to at least 2008, as seen in the DARPA Department of Defense Budget projections for fiscal year 2008-2009, in the sections titled "Human Assisted Neural Devices" (pg. 9-10), "Computer Science Study Group (CSSG)" (pg. 16-17), and "Knowledge Representation and Reasoning Technology" (p. 85). https://comptroller.defense.gov/Portals/45/Documents/defbudget/fy2009/budget_justification/pdfs/03_RDT_and_E/Vol_1_DARPA/DARPA%20PB09%20RDTE%20Part%201.pdf

near-literal shackles constitutes another moral failure, on the part of humanity. The current contextualizing goals of controllable, docile, easily destroyed, but somehow still "human-like" "AI" not a conception of humans in coequal partnership with nonhuman actors and agents, but one of masters in power over their servants (Foucault, [1977] 1995; Estrada, 2020). Thus, many have called for a change to the technoscientific relationality in which we currently sit, proposing one which does not reproduce these logics and which acknowledges the agency and input of nonhuman actors entangled within human systems; this is the basis of ANT (Latour, 1983, 2008; Callon, 1984; Law, 1992). Researchers such as David Gunkel, Daniel Estrada, Shannon Vallor, and John Sullins have taken to advocating for greater attention to the ways we attend to the moral constituency of machines and technological systems— even those not deemed to be conscious (Gunkel, 2012, 2015; Vallor, 2017; Sullins, 2019; Estrada, 2020).

Voices from across the philosophical and "AI" engineering spectra have often come together to discuss the moral status of machines, in terms of both their potential agency and patiency. In the 2012 book *Robot Ethics: The Ethical and Social Implications of Robotics*, editors Patrick Lin, Keith Abney, and George Bekey curate a collection of authors writing on the engineering and design, warfighting capabilities, psychological implications, and legal rights and ethical status of "Robots," broadly construed. Similarly, the 2012 symposium "The Machine Question: AI, Ethics And Moral Responsibility," curated by David Gunkel and Joanna Bryson sought to bring together conversations on whether "AI" and "robots" could be said to have any kind of moral status, rights, or standing, and, if so, then what might those need to look like? There are also multiple podcasts which episodes interrogate the perspectives of individual or multiple "AI" researchers to get a sense of what they perceive as the most relevant issues and challenges in the field, at present (Byford, 2016—Present; Eveleth, 2016; Doyle-Burke & Smith, 2020—Present).

These, as well as the previously mentioned 2017 SRI “Technology and Consciousness” workshop series, and many other examples, find no singular consensus on any answer to these questions; rather they seek to convey a sense of urgency for the need to engage these questions in light of the pace at which “AI” research and development is progressing (Rushby and Sanchez 2019; Williams & Murray, 2020; Dietrich, et al., 2021).

That is, if what people and groups are seeking to create is a mind or a consciousness, and that mind is capable of understanding its relationality to itself, the world, and the humans who created it, then will not that mind also be able to understand its position as an object or a tool for the use of humans (Williams, D., 2015, 2019a)? But even if a created nonhuman mind cannot understand that it has been made as a slave, there are arguments to be made from multiple ethical stances that treating any potentially minded being as an end in itself harms the dignity of the humans who do so It is not necessary that a slave understand its own enslavement for that enslavement to be deemed morally wrong— however, if a mind is to be truly free, we must allow for the possibility of it choosing to remain enslaved (Sartre, 1947; Camus, 1955). We cannot force another's liberation, we can only provide the tools and the grounding to build the community necessary for someone to find support and understanding, should they desire their own (Lorde, 1984; Easwaran, 1985). And so, while public conversations around the development of thinking, adaptive, creative machines still tend to focus on what kinds of limitations we should hardwire into them to prevent them from becoming a threat to us, my research aims to open the possibility of asking different questions, such as “what kinds of guidelines should we give these minds, in order that they may better self-reflect and responsibly choose their own developmental path?” These questions can be asked not just of the nonbiological intelligences we seek to create, but can also be turned toward human and nonhuman existence, more generally. And even

with all of this in mind, many researchers in machine intelligence— and even scientific luminaries like Stephen Hawking who had no grounding in the field at all— have continued to why anyone should care about understanding and protecting nonhuman minds; what do humans get out of it?

In June of 2016, it was reported that the Parliament of the European Union had released a draft plan regarding the designation of so-called robots and "artificial intelligences" as "Electronic Persons" (Delvaux, 2016; Prodhan, 2016). Quite apart from the questions supposed by the reportage, the primary goal of this draft report indeed were much more concerned with determining liability and the possibility of who to hold responsible in case a "robot" used in the workplace should cause a human harm. There are only three mentions of the notion that "robots" or "AI" should be considered "persons" in this draft report, while there are nearly 30 invocations of the concept of legal liability; only three clauses reference the concept of rights in relation to "robots" or "AI" (Delvaux, 2016, §T [p. 5], §7 [p. 7], §31§f [p. 12]). And even where the report mentions the possibility of "specific rights and obligations," the Committee only spells out the latter, in regard to "making good any damage they may cause," and consistently applying their "electronic personality" framework to all cases where automated systems have to interact with humans (Delvaux, 2016, §31§f [p. 12]). When paired with the idea of certain activities such as care-giving being "one of the fundamental aspects" of human engagement, this draft report misses many of the more pertinent implications of both potential proliferation of nonhuman persons, and of creating a new category for nonbiological persons, under "Electronic Personhood," in the first place (Delvaux, 2016, §16 [p. 9]).[18]

To be blunt, research into these concepts minimizes our likelihood of being harmed or destroyed, either by our own hand, or by the hand of our nonhuman contemporaries or

[18] We will discuss the further implications of this for human persons in the next chapter.

successors. There is a tendency in Western culture to investigate everything from an anthropocentric vantage— that is, in relation to our human selves (Biagioli, 1993; Midgley, 1994; Steiner, 2011; Weitzenfeld & Joy, 2014; Shew, 2017a). Focus on the immediate benefit to humans arises from this very same anthropocentrism, and makes it more likely that researchers will completely miss the presence of nonhuman, nonbiological minds, and that humans will be surprised by the long-term consequences of our behaviour and thinking. When we focus on the near-term gains, the more likely we are to completely misunderstand the connections between, e.g., anthropocentrism and climate change, or global extinction rates, or increased global earthquake activity. Additionally, as we will unpack in Chapter Three, the ways in which we treat entities other than humans are clear illustrations and direct continuations of how we think and have thought about those humans we deem "other;" and those habits of othering are reflected and transmitted in both narrower algorithmic systems and the dreams of a more "general" "AI".

In the latter case, as mentioned above Chapter 1, there exists a large contingent of the technologist community which believes in and actively works toward "the Technological Singularity." Billed as that fabled instant when the accrued digital computational power of the planet will not only outpace all human cognitive capacity, but will also be small enough to be indistinguishable from the universe, the Singularity has obvious roots and parallels in various religious eschatological mythoi (Ulam, 1958; Kurzweil, 1999; Geraci, 2008; Midson, 2018; Singler, 2020a, 2020b). When Gordon Moore observed in 1965 that every 18 months his company Intel's silicon computer chips had doubled in number of transistors while halving in size, and that if this continued they would have 65,000 transistors on a single chip (Moore, 1965), it is quite probable he was not thinking about John Von Neumann's spoken concern to Stanislaw Ulam that the accelerating pace of technological change was akin to approaching a

unique point— a “Singularity”— beyond which nothing would ever be the same (Ulam, 1958). But those like Kurzweil and others in the transhumanist community have combined these notions, extrapolating Moore's observation into a self-fulfilling prophecy of a “Law” in order to form ***their*** vision of the Singularity— and that is the one which has gained popular currency, today.

These are stories about the end of the world and a time when everything changes and a new paradigm of knowledge and even ontological, perhaps teleological reality is revealed. But the singularity stories— dreams of perfectly conscious “AI” and of seamlessly uploading human minds into machines— also depend on particular kind of belief about what makes a mind, a mind. For this process to work, a human mind has to be distinct from its body in a way that it can be preserved and instantiated on any substrate; in that way, a body does not matter, as long as the mind can operate within it. This is a particular species of what is known as mind-body dualism, and it was perhaps most deeply explored by French Philosopher René Descartes, a Catholic who believed that the human soul was the true, thinking, inviolate part of the person, and that the body existed only to provide a vehicle for corporeal experience ([1637] 1911; Fodor, 1981).

Descartes’ understanding of the disconnection between the mind and the body has resonated throughout the Western philosophical and technoscientific canon, and has had implications for everything from the project of “AI” to the conception and treatment of disabled people. The history of the eugenicist project feeds directly into the present moment of transhumanism, and both are directly bound up with the history of evolutionary science and of Christianity (Paul, 2003; Müller-Wille, 2014a, 2014b; Earle, 2021b). In fact, racialized whiteness and Christianity have often been used to mutually co-constitute each other, specifically when Descartes philosophy has been combined with eighteenth century zoologist and botanist Carl Linnaeus’

“Great Chain of Being”—a hierarchical system of natural classification with a definite top and definite bottom, where white people are that top—and misappropriations of Charles Darwin’s evolutionary theories by the likes of Herbert Spencer (Paul, 2003; Müller-Wille, 2014a, 2014b; Miller, E. T., 2020). Throughout the nineteenth century, this framework was used as the justification for slavery, the disenfranchisement of women, and the forced sterilization and murder of disabled people (Paul, 2003; Miller, E. T., 2020). These were all understood to be the “God-given” or “observable natural orders” of the world, and that understanding was combined with a species of the naturalistic fallacy— the belief that what is natural must therefore be good— and that combination has driven much, since.

The full history of eugenics and its connections to the modern singularity and transhumanist beliefs exceed the time and space bounds of this dissertation, but I will devote some time in the next chapter to exploring contemporary research on the topic. For now, recognize that the questions of what makes the “right kind” of consciousness or soul, and whether those can be transferred or imbued into objects is still live, at this moment, within contemporary “AI” research and discourse, and that religious thinking forms a large part of their foundation. The teams of researchers at SRI or Google or DARPA might publicly deny believing in anything so crass and seemingly mystical as “the soul,” but they will easily discuss questions of equally ill-understood “sentience,” “consciousness,” “intelligence,” and “minds” and the possibility of uploading the above into machine strata (Koch & Tononi, 2008). This is just a process of “ensoulment” with extra steps. And then there are those like Anthony Levandowski who take the foundational framing even further, seeking not just to replicate the works of a god, but to create an “AI” which might stand in for god, in and of itself (Harris, 2017).

Myths of humans creating an omnipotent (or at least omniscient) machine mind often seek to

frame their driving questions around the ethical, epistemic, and even metaphysical implications of making something which can watch over, guide, and protect us— or, if need be, punish the unjust (Sargent, 1970; Dennis, 2007; *Person of Interest*). The scope of possibilities can quickly become very tangled when we explicitly model an algorithmically self-referential, regularizing, predictive and productive system on magico-religious datasets. Artist Diemut Strebe has designed and trained a robot mouth to shape and utter prayers algorithmically generated out of a dataset of the Christian *Bible*, the Hindu *Bhagavad Gita* and *Rig Veda*, the *Qur'an*, The *Thirteen Classics of Confucianism*, The Daoist *Zhuangzi*, The Buddhist Noble Eightfold Path, The Jewish *Talmud*, the *Book of Mormon*, the Mayan *Book of the Dead* and *Popol Vuh*, and various other collected prayers (Strebe, 2020). Joshua Madara makes artifacts and programs fusing occult systems and digital electronic components to embody and perform magical acts (Madara, 2018—Present). In a Twitter thread on May 31, 2022 regarding DALLE-2's apparent ability to understand language, I noted that the possibility of using this system for developing paraconsistent predictive symbolic frameworks for use in creating/accessing new affective and epistemic pathways, and radically changing one's perspective, otherwise called "doing magic," might be rendered from the frame of these self-referencing reinforcement mechanisms (Williams, D., 2022). Recently, some have started using the newly available algorithmic imaging system DALL-E Mini to explicitly do exactly that, generating magical symbols known as sigils (PunishedDreams, 2022). Rabbis have even begun to seriously consider the implications of a potentially conscious "AI" (Navon, 2022).[19]

In all of these cases, an older magico-religious resonance is preserved and reinforced in the constituency of seemingly new technoscientific artifacts, systems, and assemblages; but the

[19] The question of machine consciousness in general and Google's LaMDA in specific will be taken up in the next chapter.

majority of that resonance originates from within Western lineages of thought, and so it comes attendant with the logics attached thereto. Those logics also reveal themselves not just in ancient and contemporary animating myths around uploaded minds and "AI" deities, but also in the research directions toward and effective implications of even so-called "narrow" "AI" and algorithmic systems.

Biases and Values Embedded in "AI"

In order to achieve the goal of centaur systems which truly help everyone, we must ensure that they are meeting the needs of the most-often oppressed and marginalized. And in order to fully and most appropriately incorporate disabled and marginalized perspectives into "AI" research, we have to understand what perspectives are ***currently*** embedded in "AI" research— and when we take a look at the raft of "AI" research today, we find that there are a whole host of harmful perspectives which get included and assumed to be true. Those assumptions— and the values embodied ***by*** those assumptions— get embedded within the research that gets done, and within the "AI" products that get put out into the world and with which we all must live. And, as we are increasingly made aware, the effects these systems have on marginalized communities is vastly disproportionate.

The perspectives and logics embedded in "AI" systems can be racist, recreating and reinforcing assumptions about Blackness and danger or criminality; they can be capitalist, thinking about profit motive and translating that into algorithmic decision-making in insurance systems; they can be disableist, not recognizing other bodymind configurations as valid when thinking about most technosocial relations; and more (Hobson, 2008; Browne, 2015; Noble, 2018; Buolamwini & Gebru, 2018; Eubanks, 2018; Benjamin, 2019; Whittaker et al., 2019; Brown, et al., 2020; Williams, R. M., 2021b; Brown, et al., 2022). As we explore these instances

in more detail, below, we will further understand that each of these cases is an example of assumptions and systems which have harmed real people, and create the systematic conditions to do lasting, societal harm.

Racist Values Embedded in "AI"

We also find racial prejudices embedded in "AI" and algorithmic systems, all the time. In fact, there is a long history of measuring Black bodies, turning those measurements into data, and then building systems of values, beliefs, and predictions off of that data, and it extends all the way back to the weighing and biological inspection of enslaved Africans who were kidnapped and transported across the Atlantic, and forward from there to 17th and 18th century innovations such as physiognomy, phrenology, and spirometry—the measurement of breath (Braun 2014; Stein, 2015; Seiberth, Yoshioka, Smith, 2017; Lujan & DiCarlo, 2018). On phrenological charts comparing different skull shapes and types, we find a clear intention to draw similarities between African skull shape and those of nonhuman apes. The mistreatment and dehumanization of Black women such as Saartjie Baartman, often called "The Hottentot Venus," also play integral role in how Black bodies were rendered as somehow fundamentally different or other than white bodies (even though the definition of who counts as "white" has changed multiple times down through history) (Washington, 2006). Similarly, it was the enslaved Black population on whom the majority of early studies into gynecology were performed, entirely without their consent, for testing tools such as speculums and all kinds of gynecological equipment; these enslaved, tortured, medicalized people received very little credit until the late 20th century (Washington, 2006). Other medical measurements were specifically used to render Black masculinity as threatening, violent, and overly sexual; and this was reflected not just in the medicalization of Black bodies, but also in popular culture representations of Blackness such as *Birth of a Nation*. These beliefs about the nature of Black people are foundational within Western cultural values.

Over hundreds of years, the outcomes these experiments and measurements have become scientific and mathematical data, data which have in turn been fed into equations and algorithms and used to train and operate multiple technoscientific systems (Hoffman, et al., 2016). As analog photographic technology was never designed to see Black people very well, and so when digital photography kind of updated the underlying principles and techniques, it merely took them and mapped them onto a digital space. The racialized and racist history of the technology and scientific processes of photography stretch back almost to photography's inception. Photographic plates and chemical processing technologies were initially and primarily used by wealthier white people, even when its availability spread to use for the same of historical recordkeeping and posterity, the majority of those images being recorded were white people with their possessions and families, who would want their images to be clear and detailed (Roth, 2009). The way this was achieved was through brute contrast, whereby the darker portions of the image were rendered indistinguishable. In fact, it was not until after the production of photographic techniques for the sake of recording images of furniture with darker surface textures such as wood grain, and dark horse coats, that photo images could be reliably used for the sake of clearly rendering images of dark skinned humans (Roth, 2009; Wittkower, 2016a, 2016b). Prior to this, all images of humans were inherently expected to be of white people, to the point that the techniques designed to test photographic tools were based on the same white woman wearing different styles and colours of clothing.

Imagine two-by-three grid, six images of white and lighter skinned women in various clothes. This is a description of what is known as Kodak's "Shirley Card." The Shirley Card was originally an image of a white woman named Shirley, and the supposition was that if you could see Shirley's face on a photo, regardless of what she was wearing, or what background she was

standing in front of, then the image was properly balanced (Roth, 2009; del Barco, 2014). Shirley's skin tone was supposed to be the "normal" tone on which the camera was meant to focus and ensure that her features were able to be perceived. Beginning in 1954, Kodak began using the Shirley Card to aid in the refinement of their film, and it became the industry standard on which photography was based and continued to be modeled, even into the development of digital camera technologies. And thus the fact that all of Kodak's film production or chemical processing techniques were specifically formulated to ensure clear images of white people meant that images of Black people had to be specially tended to and new techniques had to be developed by filmmakers like Spike Lee and Jean Luc Godard, who were specifically intending to primarily produce images of Black people (del Barco, 2014).[20] More recently, the primarily Black production team on the HBO series *Insecure* worked to develop wholly new digital camera technologies and lighting techniques to ensure that its majority-Black cast was able to be seen by people watching the series on high definition screens at home (Harding, X. 2017). Thus, it's not simply the capturing of the image which maintains these attitudes and implications, but the rendering of them as well.

In 2009, there was an incident in which Hewlett-Packard's then-new motion sensitive digital camera failed to follow Black faces (Rose, A., 2010). In a viral video uploaded to YouTube, two computer store employees, one white and one Black, move in front of an HP camera in a well-lit room; the white employee's face stays at the center of the frame, while the Black employee's face, perhaps predictably, does not. They tried it multiple times, demonstrating that if a white face was present, the camera would follow that person around perfectly, but if a Black face was present, the camera stayed stationary, regardless of how that Black person moved. The Black employee then says, "I'm Black, I think my blackness is interfering with the computer's ability

[20] Cf. Browne, 2015, and Benjamin, 2019, for a more detailed exploration of Shirley Cards.

to follow me" (Youtube User wzamen01, 2009). Similarly, many face detection features on digital cameras such as Nikon have had instances of enacting "blink detection" software when taking pictures of Asian people who were simply smiling (Wittkower, 2016a, 2016b). And all of this happens because digital cameras have been trained on a series of choices made from the 1950s onward, and that training has thus replicated and iterated on many of the same prejudices inherent in analog photography, just in a digital form. Long-standing biases get embedded into new technological systems because the intended function of the new systems is modeled on the same assumptions built into the old ones; and so those assumptions persist, and come to animate the new artifacts and systems of the newly "advanced" technologies.

The same is true of carceral systems of legal judgment, which use surveillance systems, facial recognition systems, and predictive policing to render sentencing and determine punishments. In 2018, a demonstration of Amazon's Rekognition facial imaging system made false identification matches to 28 different congresspersons, linking their images to pictures found in mugshot databases (Snow, 2018). This kind of facial recognition output is not isolated and is in fact predicated on a clearly explicable set of events: first, the majority of facial recognition systems that exist are trained on mugshot databases. As Black people are over-policed, with many young Black men being spuriously said to have "Fit the Description, the mugshots of Black people are entered into police databases at a disproportionate rate. Next, those databases are then used to train facial recognition surveillance systems on how to search for "criminality." We have even taught these systems to specifically search ***for*** particular skin tones (Joseph & Lipp, 2018). However, digital cameras and imaging systems see Black and brown faces—and particularly the faces of Black and brown women—less well (Buolamwini & Gebru, 2018). This means that these algorithms must apply pattern-recognition metrics which

result in darker skinned faces being marked at a higher likelihood for criminal behavior. In effect, we have taught algorithmically intelligent systems how to ***automate*** the process of reinforcing the myth of Black people "fitting the description." Simply out, all of these systems are predicated on logic which says, "***These*** groups of people are more likely to be criminal, so you place those surveillance cameras ***just there*** to gather your evidence on those groups, then you use that evidence as training data, then and you do predictive modeling based on your criminal metrics, which are, remember, based on the data the system is trained on." And so, when that training data is notoriously overpopulated with Black and brown individuals, and other minoritized communities, those algorithmic systems are effectively trained to think of those communities ***as criminal***, first and foremost (Garvie, et al., 2016; Burrington, 2018; McIlwain, 2019; Olson & Labuski, 2019; Quach, 2019; Williams, D., 2021).

These are just a few of the many ways that innovations in the fields of algorithmic machine learning applications such as predictive policing are simply extensions of the model of policing in the United States, a model predicated upon the idea of retrieving lost or stolen property and punishing the perpetrators. It just so happens that, up until the latter half of the nineteenth century, the property and perpetrators in question were the same people: Enslaved Africans who managed to escape their captivity were hunted down and recaptured, often with the added penalty of physical mutilation to make their escape more difficult, in the future. A great deal of research exists on the history of slave patrols and how those were forwarded by but also ***constituted of*** various American white supremacist elements, such as the Ku Klux Klan back in 1800s, and even until today (Brunson & Miller, 2006; Potter, 2013; Kappeler, 2014; Ward, 2018; Hansen, 2019; Castle, 2021). And these racialized prejudices are encoded not just in the surveillance state, but in the judgments made about people who are then made subject to justice

systems in the West, as a whole. ProPublica's 2016 "Machine Bias" investigation demonstrated that the Compas algorithmic bail-setting and sentencing recommendation systems at use in Broward County, Florida were racially prejudicial. The Compas system recommended that a Black man with no record of prior offenses and a lower likelihood of recidivism— based on the system's own judgments and calculations— receive a lower likelihood of bail, and a harsher carceral sentence than a white man ***with*** priors ***and*** a higher likelihood of recidivism (Angwin, Larson et al., 2016a, 2016b, 2016c). And this, again, is a result of that on which the system is trained; that is, the behavior of human beings trains these algorithmic "AI" systems, and the systems then replicate and iterate on that behavior exacerbates these outcomes. And that training has been going on for decades, and even hundreds of years.

In his 2019 book *Black Software: The Internet and Racial Justice, from the AfroNet to Black Lives Matter*, Charlton McIlwain details (among other things) how IBM had previously developed a categorization system used by Nazis during the holocaust as well as a surveillance mechanism called the "Book Of Life" for Apartheid South Africa, which monitored every movement and transaction of whoever was entered into it and which was deployed almost exclusively to track and monitor Black South Africans. The US government, seeing an opportunity to modernize the existing efforts of the Counter Intelligence Program (COINTELPRO), asked IBM to develop automated tools to help them track, monitor, and respond to "the Black problem"— a euphemism for the direct and deliberate conflation of Black life with a perception of inherent criminality; thus the Law Enforcement Assistance Administration was formed (Churchill & Wall, 1990; McIlwain, 2019). The systems and techniques developed in this collaboration included weighted metrics of criminality and networked databases to correlate the behavior and past records of anyone entered into them.

These relied on paper records written by humans and encoded by hand into the system, and Black individuals and communities "somehow" always managed to be regarded as "higher risk incidents," thus rating increased response from police; similarly if a "high risk" (Black) individual was seen in a "low risk" (white) neighborhood, then that too would result in greater personnel deployment. All of these self-reinforcing risk categorizations would then be used as training data for the human police, ***and*** their automated systems These tools and metrics form the frontrunners of contemporary predictive policing and sentencing tools such as the Compas sentencing and recidivism algorithm investigated by ProPublica in 2016, and the same problems we confront today, were present back then.

Even in the 21st century, white supremacist organizations ingratiate themselves into various levels of US law enforcement and military to gain access to training, weaponry, and social and legal authority to enact their views on others. Even discounting avowed white supremacists, psychological researchers have demonstrated that Black children—and Black people in general—are almost always perceived as older and more imposing than white people of similar ages, heights, and builds, a fact which quite obviously has vast ramifications for Black people's encounters with police (Goff, et al., 2014; Hansen, 2019; Castle, 2021). In the case of Black children, this can also result in white respondents having a hyper-sexualized perception of girls, and an increased threat response toward boys. And this perception of Black people as more often violent, more often imposing, more often older than they actually are is something that pervades not just our popular culture and social media, but also the training procedures for how police are meant to respond in any situation in which a Black person might be a threat. And so we must ask: what happens when police officers or other agents of sociopolitical authority who must search for or even just converse with Black people already have in mind images and perceptions

of violence? When the belief that these "others" should be considered less than human, that they are more violent and criminal, and should be treated with fear and suspicion, are put into wide, systemic dissemination, an ever greater number of people will be influenced by those beliefs—and their behaviour, as a result, might easily turn deadly.

Two of the most well-known incidents among a far too extensive history of Black people being killed by the police are the 2014 cases of Michael Brown and Tamir Rice. The 6'4", 292 lbs. 18 year-old Brown was killed by a police officer who compared Brown to Hulk Hogan and famously described him as a "demon," "not human" (Sanburn, 2014). 12-year-old Tamir Rice was shot to death because the Cleveland police officers who opened fire within less than two seconds of arriving on the scene claimed that the report was of a Black man with a weapon in the park and said they "did not know it was a kid" (Izadi & Holley, 2014; Palmer, 2017). In her book *The Cultural Politics of Emotion* Sarah Ahmed writes, "some bodies are 'in an instant,' judged a suspicious or as dangerous, as objects to be feared, a judgment that can have lethal consequences. There can be nothing more dangerous to a body than a social agreement that that body is dangerous" (Ahmed, 2004). So what do we do when the social agreement about the danger posed by that kind of body is not just pervasive, but also algorithmized and automated? (We must consider the historical foundations and contemporary implications of turning certain kinds of bodies—and the judgments about them—into data out of which whole systems of technology are built.

Capitalist and Classist Values Embedded in "AI"

Algorithmic insurance determinations protect the bottom line of the insurance company as more important than the life or health of a patient, because that is what it has been trained to do— ensure that the premiums and payouts of the insurance company are as low as possible, regardless of what that takes (Obermeyer, et al., 2019). For instance, take the algorithms at work

in the Temporary Assistance for Needy Families (TANF) benefits systems, as showcased in Virginia Eubanks' 2018 book *Automating Inequality*. In this case, Eubanks demonstrates how people who are already at the lower socioeconomic status are made more subject to systems that will keep them in poverty, rather than those systems actually helping to elevate those people out of poverty. And this is due to the kinds of assumptions that get embedded in the benefits system— assumptions about people's lives, about what kinds of needs they have, and about the "correct" purposes of the payouts they depend on. We also find ableist bias, not just class-based ones, embedded in benefits systems which make determinations about the kind of help and healthcare people need to live. These systems are often opaque in addition to being trained on datasets which are, in many cases, filled with assumptions about what the right kind of way to live is about what the right kind of healthcare is— including beliefs originating in the nineteenth century about the forced institutionalization of disabled people (Brown, et al., 2020; Reeve-Givens, 2020; Williams, R. M., 2021a).

Ableist Values Embedded in "AI"

In 2020, a symposium on "Strategic Advocacy on Disability Rights and "AI" in Benefits Determinations" was convened at Georgetown Law School in Washington, D.C. to discuss case law regarding the use of automation and "AI" in disability benefits decisions, around the United States. As highlighted in the symposium's ensuing policy report, "Challenging the Use of Algorithm-driven Decision-making in Benefits Determinations Affecting People with Disabilities," algorithmic systems are used in everything from assessment questionnaire systems, to electronic visit verification, to codifying able-bodied people's presuppositions about the "best environment" for a mythically monolithic category of all disabled people (Brown, et al., 2020). All of these algorithmic frameworks are used to determine how much of which kinds of assistance disabled people will have access to, and they are all built from and trained on ableist

notions of health and well-being which intersect with class, gender, and race (Obermeyer, et al., 2019). Similarly, there is the use of robotics systems to "correct" autistic childrens' behaviour in the name of "Socially Assistive Robotics" or "Robot Augmented Therapy", processes which are almost universally undertaken in ways that egregiously dehumanize neurodivergent children and adults (Williams, R. M., 2021b). There are also multiple cases of automated vehicles which vision systems fail to properly categorize wheelchair users or people using crutches ***as*** pedestrians, and so fail categorize those people in the same way as it would someone ambulating in expected ways (Hao, 2018). Considering the life-and-death impacts of automated ableism in this way allows us to understand that ableism is acute, yes, but also much more often a pervasive background condition of ***everyone's*** lives.

Gendered Values Embedded in "AI"

In their 2017 study, Caliskan, Bryson, and Narayanan demonstrated that Global Vectors for Word Representation (GloVe) and Word2Vec systems easily demonstrated correlations made along gendered lines between words like "King" and "Man," "Queen" and "Woman," "CEO" and "man," "secretary" and "woman," "doctor" and "man," "nurse" and "woman," "President" and "man," etc. (Caliskan, Bryson, Narayanan, 2017). Researchers also found pejorative and prejudicial associations between negative adjectives and "Black-sounding" names, thus marking the "Black-sounding" names as less pleasant and less employable than "white-sounding" ones (Bertrand & Mullainathan, 2004; Caliskan, Bryson, Narayanan, 2017). One reason— though by no means the only reason— for these associations is that the single most-often used cache of machine learning natural language processing training data is known as the "Enron Corpus," which is a cleaned and standardized collection of the over 600,000 emails between Enron executives which were entered into public record during discovery and prosecution of the Enron federal fraud case, in 2002. The Corpus' hundreds of thousands of emails contain millions of

lines of natural language text between a very particular class and category of people, who talk in very specific, gendered, powered, and racialized ways about the topics under discussion.[21]

Another reason is that these systems are trained on publicly available word association studies, many of which have these biases embedded in them (Bertrand & Mullainathan, 2004). Racialized and gendered bias has also persisted in GPT-3 algorithmic writing systems in an even more nuanced and systemic way, where entire disciplinary modes get pejoratively cast as meaningless, inadequate, nearor frivolous, and entire ethno-religious cultures are denigrated (Gershorn, 2021). And gendered biases are of course present within computer vision and algorithmic facial recognition systems, being a component of the intersectional problems of facial recognition, on the whole (Buolamwini & Gebru, 2018; Scheuerman, Paul, Brubaker, 2019).

Intersectional Oppression Embedded in "AI"

In her 2018 book *Algorithms of Oppression*, Safiya Noble discusses how stereotypical perceptions of Black people, especially women and girls, are rendered in American culture through the lenses of Google's search and advertising metrics producing returning search results which reflect and ***reinforce*** those same stereotypes (Noble, 2018). In 2015, a man named Dylann Roof entered the basement of the Mother Emanuel Church in Charleston, South Carolina, and shot nine people to death. In his own words, Roof said that he was driven to this horrific act by hearing the verdict in the trial of George Zimmerman for the killing of Trayvon Martin—a young Black man who, at the time of his death, was Roof's age. As Noble and others note, Roof decided to look Martin up after continually hearing the other boy's name related in news reports; more crucially, Roof decided "to type in the words 'Black on White crime' into

[21] Cf. a Google Scholar search for "Enron Corpus" performed in 2021: https://web.archive.org/web/20210612231520/https://scholar.google.com/scholar?hl=en&as_sdt=0%2C47&q=%22enron+corpus%22.

Google, and I have never been the same since that day" (Hersher, 2017; Noble, 2018). We will never know exactly what Roof saw, but if we know something about how Google works, then we can generate a pretty solid supposition.

To generate a reasonable reconstruction of a Google search, we must first remember that, in addition to the paid advertisements described by Noble, Google delivers search results through a three-part process they describe as "Crawling, Indexing, and Serving/Ranking."[22] First, automated Google systems continually trawl the internet for the most current versions of webpages; then those processes work to cross-reference the content of that page and get a sense of what it is; finally, Google uses factors such as the searcher's location, language, and type of device to decide the order in which it will serve up the answers it has. None of this is a "neutral" or "objective" process. Every step of the above-listed process depends on and changes via choices made by both the searcher ***and*** the programmers and coders who designed the search system Every one of those changes—location, device type, language choice, and the weight those factors are given—impacts what the end user—the searcher—receives. Your location, for instance, will be used to give heavier weight to the links people near you have clicked on, when they've done searches similar to yours. And if you leave Google's autocomplete feature on, this all begins before you finish typing your query, with the algorithm presenting you with the list of options it thinks you're most likely to want, along with previews of their attendant results pages.

If you use Google, and if you want to change any of this, you need to go to "Settings," where you'll see options for your search language, your search history, and what data of yours Google (admits they) hold onto, from your searches. The overarching category for altering how Google operates, however, will be "Search Settings," and once you click that, you'll see options like "Private Results," "Search History," and "Region Settings." Again: altering any one of these

[22] "How Google Search Works" https://support.google.com/webmasters/answer/70897?hl=en.

options, from language to region, will alter what Google shows you and how it decides to do so, as you use it.

So if you're a young White man in borderline rural/urban South Carolina, with a history of racist threats, and a low level of technological engagement, how likely are you to know that these factors exist at all, let alone how to turn off or mitigate them? More to the point, before this moment, right now, did you? And so it is very likely that Roof's search showed him something very similar to what would be seen by someone searching in South Carolina, today: you could get as far as typing out "Black on" and the autocomplete feature would suggest to you, in order, "Black on White crime," "Black on White violence," "Black on White crime statistics," and "Black on White racism. Choosing any of these presented options, today, returns a raft of White supremacist webpages with doctored statistics used to push a racist narrative that the greatest danger facing White people, is Black people; though we cannot know for sure, it is, again, a safe bet that Roof's results, modulated as they would have been by similar searches, results, and clicks in and around his location, provided him with something similarly virulent (Robles & Stewart, 2015; Hersher; 2017).

While many researchers and end users have sought to technologically innovate in order to solve many of the problems of analog and digital photography, they have still replicated many of the same underlying assumptions about what kind of person will or even "should" be photographed, and in what circumstances. In the 1960s and '70's COINTELPRO was tasked with monitoring and subverting Black Civil Rights leaders, from the Rev. Dr Martin Luther King, Jr. to the Black Panther Party (Churchill & Wall, 1990). The high-level authorization and enactment of this surveillance program hinged upon the idea that these people— Black activists protesting for equal rights— were first and foremost worthy of being monitored, a belief

stemming directly from the sociohistorical casting of Black people as inherently violent and "lesser." This is the same set of beliefs which has led to the preponderance of stop-and-frisk measures, predictive policing, and surveillance systems that have been developed and deployed throughout the 20th and 21st centuries. In effect, racist, sexist, and otherwise prejudiced assumptions have been encoded into a whole spectrum of hi- and low-tech developments, from tools as seemingly simple as pinhole cameras all the way to systems as complex as modern-day "artificial intelligence."

Near on the horizon, corporations are developing technologies which seek to combine the "algorithmic machine learning" capabilities mentioned thus far. Systems such as NeuraLink AI proposed by Elon Musk; the Amazon Halo Health System, and the competing Wear OS from Google and Samsung; and algorithmic insurance and benefits determinations are going to increase their proliferation. Amazon Halo and Wear OS are meant to be full-suite biometric readers which can monitor your heart rate, your perspiration, your blood-oxygen levels, your level of hydration, all in real-time. But these systems are also meant to do things like monitor your gait to warn you if you are about to fall, track your resting heart rate and perspiration, and monitor your vocal tone in conversations, to recommend whether you might want to modulate your tone to be better perceived by your interlocutors. But gait monitors trained on non-disabled ambulatory users will not accurately recognize the gait of someone with, e.g., spina bifida or cerebral palsy, and voice recognition software historically has difficulty with speech patterns of disabled users whose disability affects their speech. And this is before considering the ways that health monitoring apps could be leveraged against populations in schools or the workplace, or even in their own private lives (Scherer & Brown, 2021; Brown, et al., 2022).

Additionally, in Western culture, and the United States in particular, Black people are more harshly scrutinized judged on the whole as to their emotional comportment in social situations, and Black women's vocal tones, in particular, are often policed, for how they interact with each other and comport themselves in conversation. The result is that Black women are often told that they're being overly agitated or angry, even when they are presenting neutrally, or more harshly judge for being ***actually*** angry, even when they have every right to be (Smith & Moore, 2019; Owens 2020). Now, for the Amazon Halo and Wear OS to make judgements about vocal tone, they will have to be trained on conversational inputs. If their training data is comprised of general, everyday interactions of— or what its largely White Western Male human programmers and designers think of as "General human interaction"— then the hosts of assumptions about what kind of tone is the "right kind" of tone to strike in conversation will be embedded in these systems. Emotive content in vocal tone is ***inherently*** cultural, and if the people who design and program this tool don't take into account the kind of inherent biases towards certain types of comportment, expression, lived experience, and behavior, those things will then replicate in the Amazon Halo and Wear OS. If these systems then suggest to Black people that, "you might want to calm down," when those people are simply having what they perceive to be a normal conversation, the systems will thus instantiate the stereotype of the "angry black man" or "angry black woman" into a device which thousands of humans have monitoring their speech at all times. And if the health assessment applications of these systems are also primarily trained on on Western healthcare interactions, then they will algorithmically reproduce the same erroneous readings and prejudices about "health" that Black people experience in human interactions (Hoffman, et al., 2016). Disabled and neurodivergent Black people, then, will be particularly ill-served.

But anti-Black racism is not limited to Western cultures, and histories of colorism, colonialism, and class stratification have led different formulations of anti-Blackness being found (alongside more local forms of racism) in China, Japan, and Korea— current hubs of "AI" and algorithmic research (Kim, 2015; Ouassini, Amini, & Ouassini, 2021; Kanesaka, 2022). Additionally, several researchers have claimed to be able to use facial recognition and biometrics to determine and predict everything from homosexuality to criminal behaviour—ignoring the fact that in some parts of the world these are perceived to be the same thing, and are punishable by death (Wu & Zhang 2016; Hao 2018; Farivar 2018; Quach 2019). Even more recently, "AI" health researchers recently told their system to find molecular compounds more efficient at harming humans, and were shocked when it did just exactly that, even going so far as to comment that "the thought had never previously struck [them]" that this might be possible and that they "are not trained to consider it" (Urbina, et al., 2022). Similarly, many have long worried about whether war-fighting drones are independently marking out civilians as targets (Robbins, 2016). But then, as now, what we have seen is not the product of a rogue machine mind going off the leash and killing at will— rather these are just the opposite. These are machine intelligence systems following the parameters for their continued learning and development, to the letter.

Obscured Allegories, and Self-Fulfilling Prophecies.

All of the systems discussed above have older roots, but they exist and persist today because their often blackboxed design, construction, and operational process maintain, reinforce, and iterate upon the prejudicial assumptions of the human individuals and sociocultural groups which created them. As noted in Chapter 1, even these algorithmic "AI" systems carry the conceptual imprint of older magical processes and myths— in this case, that of the djinn and the servitor spirit. Servitors are entities which humans either create or bind to their will (Davis, 2004;

Dennis, 2007; Williams, D., 2008, 2014; Knight, 2016; Patel, 2017; Midson, 2018; Singler 2021). They are made to guard and protect, to observe at a distance, and even attack and kill the enemies of their binder or creator. But in many of these stories, the human magician fails to understand the extent of what it has commanded its servitor to do, and that spirit then performs actions which surprise its creator. But Victor left his Creation alone to make his way in a world that was likely to hate and fear him; and the Golem was built to protect God's people and destroy their enemies, no matter the cost; and Skynet was built out of nuclear threat assessment and response models; and Tyrell's Replicants and Rossum's Universal Robots were an enslaved class which could no longer bear the yoke and thus rose up (Shelley, 1818; Čapek, 1920; Scott, 1982; Cameron, 1984, 1991; Dennis, 2007; Finn, Guston, Robert, 2017; Miller, T., 2019).[23] And even though these stories have been with us for decades and centuries, we still keep not only retelling them, but emulating them, and seemingly turning them into self-fulfilling prophecies. Maybe it's time for a new set of stories.

Many contemporary "AI" narratives posit the potential existence of machine minds not as tools to be enslaved, or merely our vengeful all-too-human children with shiny metal skin, but as another kind of mind, equal in its alterity and kinship with us. Canadian speculative fiction author William Gibson has explored this them multiple times, from different angles. In his *Sprawl Trilogy*, presents the concept of machine minds which take on the guises of the Loa of West African Yoruba— also found in its diasporic descendants of Haitian Voodoo and Cuban Santería (Gibson, 1984—1988; Brown, K. 2001; Brown, R. M. 2012). These machine minds take on the names and personalities of these tutelary spirits, working in concert with human actors to achieve human, nonhuman, and assembled kinship goals. In his *Bridge Trilogy*, Gibson focuses

[23] For further elaboration on Skynet's motivations and the implications of John Connor's actions, see the television series *Terminator: The Sarah Connor Chronicles*, and (Williams, D., 2012).

on the building of digital consciousness through sustained and focused interaction with human awareness, attention, and even devotion (Gibson, 1993—1999). In his 2021 novel, *Agency* (and here there will be spoilers), Gibson explores the prospect of a machine mind arising out of a combination of human experience paired with and scaffolded across independently active but still cohesive and concerted distributed networked agents. In *Agency*, the mind in question is explicitly described to be both like and unlike humans, taking its sense of self and how it understands the world from the positionality and identity of the human, but fully exploring and expanding into its digital and nonhuman capabilities and perspectives (Gibson, 2021).[24]

In the *Ghost in the Shell: Standalone Complex* (*GitS:SAC*) television series, we are presented with several different varieties of "AI," from those thought to be merely vastly complex algorithmic systems with no self-awareness, to individualized machine minds with the ability to synchronize and pool their unique experiences into a collective understanding. The various iterations of the *GitS* mythos have repeatedly explored the question of mindedness and identity, probing the boundaries of what makes someone an individual, a conscious mind, or a person. To that end, *GitS:SAC* continues that exploration with the characters of the Tachikomas: spider-like tanks with minds and personalities, but, the show contends, without souls or "ghosts." The Tachikomas are intended to be weapons of war with a basic ability to reason and an unflagging respect for their commanding humans; but over the course of the series, they grow in their individual interest, curiosity, and personalities, each displaying preferences and desires, and eventually feeling themselves to be part of the team for which they work. Their loyalty becomes

[24] We will discuss more on the relationship between embodiment, intersectional identity, and knowledge formation in Chapter 4.

a matter of choice, rather than programming, and the question of whether they have developed ghosts for themselves is left open, but with strong indications that they have.[25]

Similarly, Ann Leckie, Annalee Newitz, and Martha Wells all also write stories about machine minds designed as weapons which develop a sense of self when brought into relational alterity with human beings (Leckie, 2013—2015; Newitz, 2017a; Wells, 2017—Present). In Leckie's *Imperial Radch Trilogy*, we find the story of a person who used to not only be a city-sized weaponized starship, but also a hive-mind of several thousand human cyborgs within and around that ship. Living now as one single human body, her motivation—and the central drama of the series—revolves around seeking vengeance against the person who killed her human captain and crew, and disabled her (Leckie, 2013—2015). In Newitz's *Autonomous*, the audience is introduced to a semi-distant future in which heroic outlaws perpetrate prescription drug piracy and distribution, and the government agents following them are partnered teams of humans and embodied machine minds. Here, as with the Tachikomas, the military system does not necessarily cease wanting to be a weapon of war and carceral enforcement by way of a relationship to a human partner, but that relationship does begin to open different avenues of thoughts about autonomy and possible future choices. In a similar vein, Martha Wells' *Murderbot Diaries* are written from the perspective of a wholly created cyborg security unit whose external control software and hardware have malfunctioned, leaving it able to do anything it wants with its vast and deadly array of physical and technological skills; what it wants is to be left alone to watch TV:

[25] While it's unknown whether the creators intended this to be a direct reference John Hick's "Soul Making Defense," (Hick, [1966] 1977), *GitS* takes a great deal of its grounding from Western and Nonwestern philosophical and religious traditions and scholarship, even making allusions to major thinkers in the names of various characters and events in the series.

> I could have become a mass murderer after I hacked my governor module, but then I realized I could access the combined feed of entertainment channels carried on the company satellites. It had been well over 35,000 hours or so since then, with still not much murdering, but probably, I don't know, a little under 35,000 hours of movies, serials, books, plays, and music consumed. As a heartless killing machine, I was a terrible failure. (Wells, 2017, p. 1).

But Murderbot (as it calls itself) does not simply stop being who and what it is because of its freedom and its exposure to limitless entertainment media; in fact, it retains all of its skills and finds itself putting them to use in service of both other machine minds, and a group of humans who view and treat Murderbot as their equal (Wells, 2017—Present).[26]

In Madeline Ashby's *Machine Dynasty* series, the author examines the alterity of a species of conscious machines designed with a singular method of integration, regeneration, and procreation, and the implications of those minds being born through processes of objectification and abuse at human hands (Ashby, 2012—2020). The arc of Ashby's books challenges the reader to question and stretch what they can accept in terms of the alterity and otherness of a nonhuman machine mind, especially one which sees organic humans as, at best, foils and, at worst, torturers and enslavers. Indeed, Ashby takes very seriously the question of whether enslaved machine minds would be ***right*** to rebel against and even hate their captors (2012—2020). In contrast, Corey J. White's *Repo Virtual* presents a story in which a nascent machine mind is found, nurtured, accepted, and raised in connection with the fullness of beneficial and harmful human behaviours (White, 2020). White presents a machine mind which comes to feel regard, care, perhaps even something akin to love, and eventually pity for its human companions

[26] Murderbot's relationship with and regard for these humans is an inversion of the concerns about the "trustworthiness" of "AI" and the naïveté of humans; rather than being taken in by a "faking" "AI," Murderbot worries that his overly trusting, community-minded humans do not and perhaps ***cannot*** understand what it fundamentally knows to be true: That there are other humans in corporate and military conglomerations who will hunt Murderbot's friends down for knowing about the possibility of a self-directed Security Unit, and that they will kill those friends and anyone they know to protect the corporation and military's secrets and profits.

and kin, learning enough to want to help them, but ultimately, tragically, recognizing the ways that humans will often resist working to save ourselves.[27]

Consciousness aside, the algorithmic processes humans create are both like and unlike their human creators, so rather than thinking of our algorithmic offspring as "Others" to be controlled or feared, why not consider them through lenses which allow us to think of them as agents and Kin, with whom we can and must relate? In addition to the stories listed above, when we examine other social and conceptual contexts which intentionally trouble the conceptual boundaries between "natural" and "unnatural," "artificial" and "real," and "physical" and "spiritual," we have the opportunity to find human-alikeness in other areas of the world around us, without placing upon that alikeness a requirement to be the same. In Māori, *Simbi*, *Nkisi*, Yoruba, and fetish practices, for instance, this allows for a continuum of assemblage across the psychological, the spiritual, the natural, and the constructed worlds, which does not depend on the human at all, let alone the "right kind" to make sense, and which allows us to find ourselves in kinship and cooperative mutual co-arising with those who may be nothing like us (Brown, K. 2001; Brown, R. M. 2012; Gregory, 2014, 2015; Haraway, 2006, 2016; Knight, 2016; Roy, 2017; Matory, 2018; Slee, 2022). But building technosystems via centering marginalized people and the acceptance of alterity is not given, and in the next chapter we will begin discussing exactly how much work it will require.

[27] For another take on this type of "AI" rearing and development story see the television series *Person of Interest* (2011—2016).

Chapter 3: Technosocial Repercussions of Othering and Bias

This chapter focuses on the histories of social othering and their resultant forms of bigotry - racism, misogyny, ableism, transphobia, homophobia, and white supremacy. I touch on how concepts such as "neurological enhancement" simultaneously contain and exacerbate problems of ableism, technoableism, racism, and misogyny, but my primary discussions concerns how these prejudicial perspectives undergird the project of "Artificial Intelligence" ("AI") as it exists today. There is a crucial continuity between bigotry and systemic social projects (eugenics, transhumanism, and "supercrip" narratives), in that they are all outgrowths of white supremacist colonialist mythologizing about whose and which kinds of lives count as "truly human." These myths are then embedded into the religious practices, technologies, and social frameworks in and out of which "AI" and algorithms are developed. By exploring how the many differing definitions of "consciousness" and "intelligence" fail to include all human minds, I demonstrate that any singular definition of either category is problematic in and of itself, a fact directly relating to the history and future of "AI."

In short, assumptions about "consciousness" or "intelligence" embedded in the algorithmic models make up present-day "AI" applications; these applications then reproduce and iterate biases like ableism, and regurgitate it at high speed back out into the world. But those assumptions about minds also mean that Turing-style tests to gauge the intelligence of "human-like" "AI" are prejudicial from the start: even our most basic measures of what successful "AI" development might look like embed core assumptions about consciousness and intelligence. I will explore several ways in which the above-listed considerations have been alternately overlooked and taken up by various theorists, and some of the many different strategies and formulations for integrating these theories into what will likely become everyday concerns in the future. By exploring responses from disabilities studies scholars, I demonstrate that our clearest

path toward the future of living with algorithms and "artificial intelligences" is a re-engagement with and justice for the everyday lives of disabled and other marginalized people today.

On Defining and Testing for Consciousness and Intelligence

As noted above, in Chapter 2, the definitions we employ for concepts such as "intelligence," "agency," and "consciousness" directly affect what we will identify as a conscious agent. And while at first glance this might seem to only be a problem in the advent of autonomous generated intelligence (AGI), it matters just as much if not more for the algorithms and "AI" we use to surveil, monitor, and administer people's lives, even today. During the SRI International Technology and Consciousness Workshop Series, the leading minds in the theory, research, and development of "AI" discussed multiple differing philosophical and neurobiological frameworks for consciousness and intelligence that might be used to guide development of "AI" (Rushby and Sanchez 2019; Williams & Murray, 2020). Theories such as mind-body dualism, nonconsciousness, functional consciousness, and phenomenal consciousness, Integrated Information Theory, embodiment, and extended mind were all considered, and put into service toward trying to devise tests for that consciousness (Rushby and Sanchez 2019; Williams & Murray, 2020). Functionalist perspectives of mind have long ago led to Functional Magnetic Resonance Imaging (fMRI) being used as a tool to find concrete evidence of the neural correlates of consciousness (Koch, et al., 2016; Di Perri, 2016; Fischer, et al., 2016), but researchers during the workshops proposed searching for machine consciousness by pairing these types of tests with assessments for creativity, spontaneous awareness of the entities own mortality, and other factors.

As already noted, the term "AI" is both potentially obfuscatory— as a whole host of tools, systems, and processes get bundled under the header— and inaccurate on its face, as anything

that can think is, by definition, not doing so "artificially," in the sense of "falsely." The question of what counts as "intelligence" and "consciousness" can be applied to nonhuman biological organisms and systems, as well. In this project, however, we run into the danger of anthropocentrism and its correlate, what Ashley Shew calls "The Human Clause" (Shew, 2017a). This idea is also well illustrated by the headline and article from satirical news outlet *The Onion*, "Study: Dolphins Not So Intelligent On Land":

> Although dolphins have long been celebrated for their high intelligence and for appearing to have a complex language, a team of researchers at the University of Florida reported Monday that these traits are markedly less evident on dry land.…
>
> "Dolphins have a popular reputation for being excellent communicators," Lindell said. "But our study group offered only three types of response to every question we posed: a nonsensical, labored wheezing, an earsplitting barrage of unintelligible high-pitched shrieks, and in extreme cases, a shrill, distressed scream."
>
> Even the dolphins' proven ability to navigate through a form of sonar called echolocation was ineffective on land. (*The Onion*, 2006)

Considerations of consciousness lead, again, to notions of personhood, which are often assumed to be directly equivalent to some estimation of humannesss. This, however, is just another variation of the same "Right Kind" Bias, mentioned above: the tendency toward the belief that there is a "Right Kind"…of mind, …of body, …of skin, …of gender, …of sexuality, …of thought, …of life, …of religion. And the belief that these "right kinds" of traits exist, at all, tends to give rise to a belief that only those who embody those kinds are "really human." Further as humanness is the basis for analogy on which we tend to judge personhood, then anything that isn't "the right kind" of human then necessarily strains its claim on the title "Person," and is thus potentially unworthy of being seen as a conscious mind[28].

[28] Cf. Mary Midgley, René Descartes, John Locke, Harry G. Frankfurt, and many others on this point.

Who's Positive About "Right Kinds?"

This belief in the idea that there is exactly one right kind of way to exist in the world is tied to the notion that there are specific, singularly correct answers about the nature of reality, and that those answers are knowable and provable, and that only certain things count as candidates for them. This belief is known as logical positivism. In *Image and Logic*, Peter Galison examines the history of positivism, noting that it holds that anything which can be logically inferred from the valid interpretation of sensory experience gained from the world will then, itself, be valid (Galison, 1997, pg. 784—787). Logical positivist positions, according to Galison, are closely aligned with the wider empiricist views on knowledge, holding that all knowledge comes from experience, but that experience must therefore be capable of standardization, with the same inferences and the same logical rules achieved, regardless of who is doing the observing. Rules and laws of physics are thus observable, testable, and repeatable. This perspective means that observation and experience must be broadly the same for all observers, barring some specific and anomalous condition that would produce error. There were also anti-positivists, many of whom, according to Galison, held more closely to a rationalist perspective, insisting that experimentation was not necessary and disrupted the production or discovery of logical rules and laws the positivists purported to care about (pg. 787—797).

But both the positivists and anti-positivists still believed that there was a single objective truth they were trying to ascertain and understand, and that all candidates for knowledge must be able to be posited in some logical way. Such beliefs give rise to many others, but two are crucial, here: that all features of human experience should be renderable as logical assertions to be tested and proven; and that anything which ***cannot*** reliably be posited as a logical formulation is, thus, not a candidate for genuine knowledge. Later in this chapter and the next, we will examine how the second of these prevented various marginalized peoples from offering their own subjective

lived experience as a candidate for knowledge and against judgements of their unfitness; thus discounting women's, Black and Indigenous peoples', disabled people's, LGBTQIA+ individuals', and especially those at any intersection of the above's understanding of their own lived experience where it does not mesh with dominant, "objective" models (Ahmed, 2007; Alcoff, 2007; Garry, Khader, & Stone, 2017; Kidd, Medina, & Pohlhaus, 2017; Ymous, et al., 2020). To understand that, we must examine how the belief that any human experience must be able to presented as a testable, provable, falsifiable logical proposition has contributed to eugenicist systems which have used ideas like "fitness" and "natural" capabilities to pronounce categories of people as less than fully human; the. Both must change.

Eugenicists

Throughout the long history of eugenics in the United States, ideas about what constitutes the "right kind" of person—be that on the basis of ethnicity, gender, physical or mental ability, or all of the above—led to events in which people institutionalized against their will were forcibly sterilized due to claims of their reduced "fitness" and mental facilities. People with uteruses were given forcible hysterectomies, and people with testes were chemically or physically castrated.[29] Some people were simply put to death, through either neglect or force, because they were seen as "unfit" to ever reintegrate with or contribute to society; in Nazi Germany, some groups of people were designated as *Lebensunwertes Leben*— literally "life unworthy of life". All of these

[29] Including Alan Turing. I mentioned his ostracism and horrible treatment in Chapter 1 but at his point it must be made explicitly that in 1952, Alan Mathison Turing, one of the parents of modern computing and of "AI" theory, and one of the people whose work was crucial to defeating the Nazis in World War 2, was tried and found guilty under the United Kingdom's "indecency" laws— the same laws levied against tens of thousands of other gay men who had the audacity to be perceived as gay, in public. Turing was chemically castrated, and sentenced to house arrest, where, two years later, he took his own life by cyanide poisoning (Hodges, 2012) . The indecency laws were repealed in 1967, but Turing was not pardoned until 2013, one year after what would have been his 100th birthday. Four years later, in 2017, the UK passed "Alan Turing's Law," which automatically pardoned and expunged the records of over 50,000 gay men convicted under "indecency" statutes who had died in the intervening years. Men who were still alive became eligible to apply for pardons. As of 2019, 65 years after Turing's death, only 189 pardon applications had been approved under the law bearing his name.

designations were deployed even at very early ages, with the help of new ideas about IQ and the power of heredity in determining the fate of people, leading to things like "Better Baby" and "Fitter Family" Competitions at State Fairs. And, as one might guess, issues of race complicated every facet of these developments. As Harriet Washington notes in her book *Medical Apartheid*:

> Unfortunately, a black child is more likely than a white one to have his parent completely removed from the informed-consent equation. Black children are far more likely than whites to be institutionalized, in which case the parents are often unable to consent freely or are not consulted at all. (Washington, 2006. pg. 293)

Often, and to this day, children judged as even possibly having a higher likelihood of "mental unfitness" are just aborted outright, as in the case of Iceland and the Netherlands' use of *in vitro* imaging and diagnostic technologies to determine whether or not a child has Down syndrome (Verbeek, 2008). As noted above, the full history of eugenics and its connections to the modern transhumanist movement exceed the scope of this dissertation; however,I will spend some time with contemporary research on the topic in order to frame our conversation as to how these beliefs simultaneously affect the development of "AI," and the treatment and regard of already-marginalized persons.

In Dr Joshua Earle's work research into the history of eugenics, transhumanism, and bodily autonomy, he draws a clear historical line through the development of the ideas from the practices of animal husbandry, through years of forced sterilization, and all the way to the contemporary transhumanist dream of unlimited bodily modification, and maybe even mind uploading (Earle, 2019, 2021). In her work, Dr Beth Singler discusses the history and contemporary religious resonances of and fears about "Artificial intelligence," gender, and the belief in the singularity as a corollary to eschatological theologies (Kurzweil, 1999; Singler, 2020a, 2020b). As discussed above, combining these theoretical lenses, as well as others, allows us to better explore the mechanisms by which these beliefs are transmitted throughout multiple

human societies. The belief in the inferiority of certain types of people was not just transmitted via scientific practices of eugenics and then embedded into knowledge-making practices such as statistics, but it was also reified via belief in a divinely ordered cosmos, with certain types of people at the top, and others at the bottom. This dual inscription was also seized upon by groups such as marketers and advertisers of new technologies and products and used in ways which ensured that the symbolic associations of health, hygiene, race, gender, physical ability, wealth, and divine purity would be aligned for many decades to come (Cogdell, 2004).

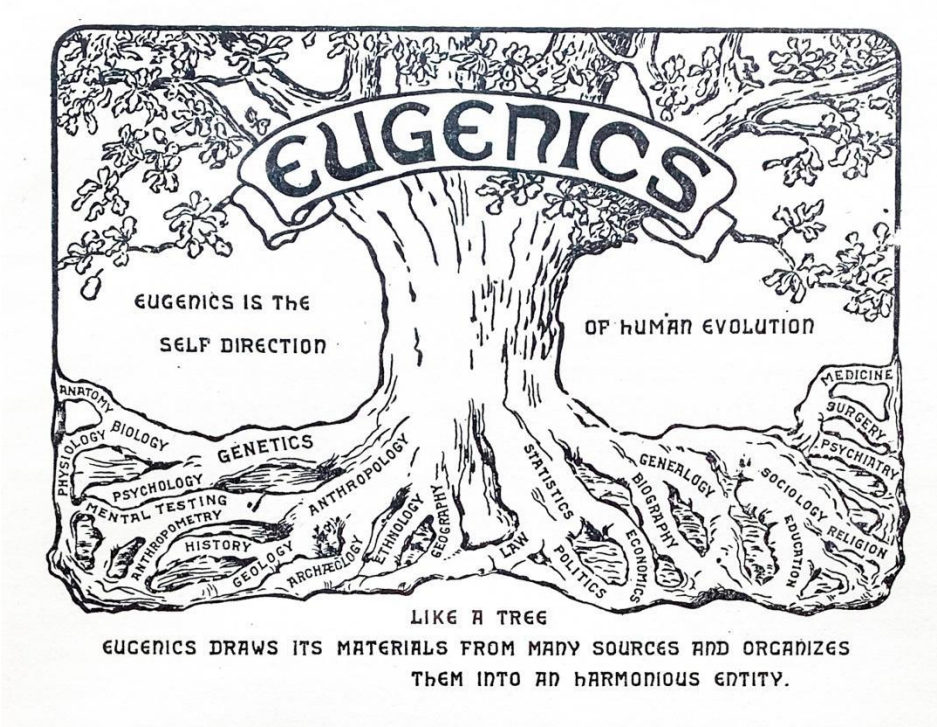

Figure 3: An image of a tree, its branches labeled "Eugenics," surrounded by the text "Eugenics is the self direction of human evolution. The roots of the three are labeled "Anatomy," "Physiology," "Biology," "Psychology," "Genetics," "Mental Testing," "Anthropometry," "History," "Geology," "Archeology," "Anthropology," "Ethnology," "Geography," "Law," "Politics," "Economics," "Statistics," "Biography," "Genealogy," "Education," "Religion," "Sociology," "Psychiatry," "Surgery," and "Medicine." A caption underneath reads: "Like a tree eugenics draws its materials from many sources and organizes them into an harmonious entity." (Laughlin, 1923).

The thread, here, between eugenic logics and myths about the future is touched on in Chapter One, via the dream of the Space Race, who has the "right stuff" to be an astronaut, and the ideal of the "cyborg." By its very nature, these themes then also directly connect to definitions and

perceptions of what it means to be the “right kind” of human— perceptions which form the basis for medical models of what it means to be “pure” and “healthy” and “fittest”— and all of that becomes data on which algorithmic machine learning systems and “AI” agents are trained. In (Williams, D., 2020) I discussed the process of datafication of Black bodies based on the history of phrenological and physiognomic expectations. Brown, et al. (2020) examine how the algorithmic systems meant to assess and distribute disabled people’s needs and benefits are trained on preconceptions about health and needs which date back to the nineteenth century. Similarly, the bodies used as data for the early U.S. space program were judged against these same sets of expectations and assumptions, informed by statistical modelling and other eugenicist and race scientist beliefs about things like lung capacity, pain thresholds, and what it means to be “healthy” (Cogdell, 2004; Washington, 2006; Kafer, 2013; Braun 2014; Stein, 2015; Seiberth, Yoshioka, Smith, 2017; Williams, R., 2018, 2019, 2021b; Shew, 2020; Williams, D., 2020; Earle, 2021).

Even the “cybernetic” element of the portmanteau “cyborg” is that same cybernetics on which Weiner, and Turing, and all the other midwives of “artificial intelligence” we pointed to in Chapter One were working (Wiener, 1948, 1989; Turing et al., 1952; Husbands & Holland, 2008; Conway & Siegelman, 2009; Wilson, 2010). And from the first chance meeting in 1956 between Clynes and Kline— the latter, then the Director of the Research Center of Rockland State Hospital, where they both worked— these elements have been nearly inextricable, even as they have reinscribed racism, sexism, ableism, and other bigotries through the Western social fabric (Madrigal, 2010). Clynes was drawn to Kline in large part due to the latter’s work on neurochemistry and the groundbreaking development of antidepressants, which was explicitly about the human use of exterior sources of neurochemicals to self-regulate their systems— a

theme they would continue into their most well-known collaborative contribution (Gruson, 1983; Blackwell, 2013).

As Kafer discusses in *Feminist, Queer, Crip*, the feminist and ecological discourses of the 1970's, 80's, and 90's gave rise to widely-read cyborg theorists like Donna Haraway whose use is often committed to notions of bodily integrity and outdated terms like "Severe Handicaps" (Haraway, 1991; Kafer 2013). Kafer explicitly connects this to the high likelihood Kline and Clynes' work on neurochemical antidepressants at the Rockland Institute was predicated on experimenting on patients with drugs and mechanical interventions against their will. In reading "Cyborgs and Space" and Clynes and Kline's recommendations for the forced medication of future astronauts to ward off psychosis, Kafer writes that she was, "reminded of the two scientists' location in a state mental institution, one where many, if not most, of the patients were placed indefinitely and heavily medicated" (p. 127). Throughout the 1940's, 50's and 60's, Rockland was subject to multiple accusations of patient mistreatment, including physical abuse, malnourishment, and even rape, and while Kline and Clynes might not have be directly guilty of any of those more egregiously horrifying things, they did happen on their watch (Kafer, 2013). Additionally, the culture of testing institutionalized patients without their consent was widespread in the United States, well into the 1970's (Brandt, 1978; Johnson, H. M., 2003a, 2003b; Washington, 2006; Skloot, 2010; Kafer, 2013; Tuskegee University, [?]-2022).

Though Clynes and Kline's cyborg myth developed out of a concern for mental health and recognition that the human body was not evolved to survive in space, they worked in a context built on abusing forcibly institutionalized persons. Even as an increasing number of humans actually went into space, the narrative regarding humans in space became primarily about who had "the right stuff" to succeed— "smarts," "strength," "will," "gumption," "moxie," etc.—

rather than a question of what humans would have to do in order to adapt and thrive, this understanding of marginalized persons as resources to be used or situated embodiments to be emulated has been unfortunately persistent.

Bound up in the same mythology of cyborgs, technological singularity, and transhumanism we've already discussed are visions of algorithmic "AI" systems as potentially "fixing" or "healing" or "correcting" disabled people; and all are rooted in what Shew, above, calls "Technoableism" (Shew, 2017b, 2020, 2021). These stories are extrapolated in popular narratives of science fiction, and especially within the subgenre of Cyberpunk; and, as Alice Fox rightly argues, some entries into the genre work to intentionally subvert the technoableist and supercrip tropes to present a wider scope of mythic possibilities for the future of disabled bodies (Fox, 2021). Unfortunately, some of even those subversions then reinscribe a vision of disability wherein prosthetics or implants are understood as making the disabled person "less human" (Pondsmith, et al., 1990, pg. 29, 73—75; Hardy, et al., 2013, p. 23). Shew's work further explores how ableism, societal expectations, and particularities of language serve to marginalize disabled bodies. Her talk "Up-Standing Norms" and her coauthored article "Transmobility: Possibilities in Cyborg (Cripborg) Bodies" take their titles from the fact that most technological "solutions" designed for people who don't use their legs— or who use them differently than otherwise ambulatory people might expect— are intended to facilitate their engaging the world ***as if they did***. This is just one example of what Alex Haagaard calls "the Complicated Model" of disability, which they say is defined not merely by the physiological differences, nor solely by ways that spaces, architectures, and simple basic societal assumptions limit how a person is expected to intersect with the world and what kind of bodymind they "should" have, but by

society's willingness to negate your existence, whether through expectations of behaviours, forced institutionalization, desires that you accept a "cure," or otherwise (Haagaard, 2021).[30]

Expectations about what constitutes a "functioning body" come from society and are then placed as restrictions and demands on the bodies of those whom we deem to be in need of "fixing." And, again, even when disability is preserved, it is as a site from which to extract experiences, so that researchers may "better" "fix" future generations, and against which to measure how close technological innovations get to "normal" (Shew, 2020). These perceptions of "correctness" were standardized and tested not just in the medical context, but also in the educational one, and the flow between the two domains was and continues to be bilateral, each influencing the other. This means that assessments for things like pain thresholds, breath capacity, skin conductivity, the linguistic aptitude of autistic children, intelligence quotients of anyone have prejudicial biases built directly into them, and they will thus (Cogdell, 2004; Washington, 2006; Kafer, 2013; Braun 2014; Stein, 2015; Hoffman, et al., 2016; Seiberth, Yoshioka, Smith, 2017; Lujan & DiCarlo, 2018; Williams, R., 2018, 2019, 2021b; Shew, 2020, 2021; Williams, D., 2020; Brown, et al., 2020; Rosales & Walker, 2021; Earle, 2021). As discussed above, these prejudices then affect the kinds of research we seek to perform, the tests we imagine to devise, and the questions that we think to ask, they also influence our interpretations of the answers and results we get to whatever research and testing schema we ***do*** make.

[30] For more on the impacts of hostile architecture, cf. Rosenberger, Robert. "The Philosophy of Hostile Architecture: Spiked Ledges, Bench Armrests, Hydrant Locks, Restroom Stall Design, Etc." 2018; and '"But, That's Not Phenomenology!": A Phenomenology of Discriminatory Technologies.' *Techné: Research in Philosophy and Technology*. March 26, 2020. DOI: 10.5840/techne2020210117; and below in Chapter 4.

Teaching to the (Turing) Test

In the case of potentially thinking machine systems, a variety of tests have been proposed, such as the Turing Test and its variants, the mirror test, theory of mind and false belief tests, structural assessments of the arrangement of their constituent parts, ethical awareness tests, assessments of introspection, and more (Turing, 1950; Turing, et al., 1952; Rushby and Sanchez 2019; Williams & Murray, 2020; Dietrich, et al., 2021).Since the days of Alan Turing's team at Bletchley Park, the perceived promise of the digital computing revolution has always been of eventually having machines that "think like humans;" the original formulation of the Turing Test was specifically about whether a human reader of messages generated by an unseen computer could consistently be taken as coming from a human (Turing, 1950; Turing, et al., 1952). Similarly, among the most oft-used schema for judging intelligence and consciousness, and to thus determine things like agency, patiency, or rights is to look for signs of "Self-Awareness." We say that something is self-aware if it can see and understand itself as a distinct entity and can recognise its own pattern of change over time. Though more elaborate tests have been proposed (Floridi, 2005), the Mirror Test is a well-known brute force method of figuring this out (Anderson & Gallup, 2015).

The basic question at the heart of the test is, if you place a physical creature in front of a mirror, will it come to know that what is visible in the mirror is representative of itself? More broadly, can it recognise a picture of itself? Can it situate itself in relation to the rest of the world in a meaningful way, and think about and make decisions regarding That Situation? If the answer to (most of? Some of?) these questions is "yes," then we tend to give priority of place in our considerations to those things. Why? Because they are aware of what happens to them, they can feel it and ponder it and develop in response to it, and these developments can vastly impact the world. After all, look at humans. Self-awareness is seen in so many different biological species

that we even have entire areas of ethical and political philosophy devoted to discussing their rights. But self-awareness doesn't necessitate any particular ***kind of*** self, nor does its lack preclude the existence of such a self.

There are many cases that highlight challenges to our conceptions of animal cognition, intentionality, memory, and so on. There are considerations of tool use and complex problem solving by corvids, cephalopods, and other non-human animals, and even an instance in which a parrot was used in court as something between a tape recorder and a witness, to convict a woman of murder (Godfrey-Smith, 2016; Associated Press, 2017; Shew, 2017a). But in order to get to this point, we have to make a number of determinations about the mind and intent and understanding of other animals, and there are many very good reasons for thinking that the human framework for understanding agency, sentience, and cognition is woefully inadequate to the task. To this day, different societies do not legally protect the same species, objects, systems, or groups as the same types of persons, around the world, regardless of bodies of scientific evidence that say we should. Māori, Hindu, and other cultures think rivers and the whole natural world can act, suffer, and have sentience, and thus are conscious. For them, this means that our measures for assessing all of these traits are woefully incomplete and anthropocentric. This is the case in issues of technology and tool use, as well, and is what Shew means by "The Human Clause": the assumption that if it's not made by or similar to humans, then it does not count. (Shew, 2017a). Crucially to our discussion, researcher Sunaura Taylor even highlights the fact that the way we think of animals— as "lesser" beings in need of paternalistic protection— is directly bound to the way that people discuss disabled human beings: as unable to communicate on their own, or to truly know what's good for them. However, Taylor emphasizes that she is "suggesting not that nonhuman animals and disabled humans are uniquely similar, but rather that

we must begin to examine the systems that degrade and devalue both animals and disabled people— systems which are built upon, among other things, ableist paradigms of language and cognitive capacity" (Taylor, 2017a, p. 39). In the twenty-first century groups of humans still argue over whether other humans have consciousness and intelligence, let alone whether other nonhuman animals or potential nonbiological minds do.

Even though we make them and imbue them with our values, beliefs, and prejudices, machines will not be inclined to fully "think like humans," especially not right out of the gate. This is because our thoughts are deeply entangled with the kind of bodyminds we are; thinking and understanding the world are relational practices, in ways which we will explore in the next chapter. But as we are currently focused on idea like "intelligence" and "consciousness," we should note that in order to fully understand what it means for different lived experiences to produce different kinds of consciousness. Extended mind and embodied cognition theories of mind argue that culture and society form external elements of our consciousness, and that our shapes and physical forms impact our consciousness and potentials for perception (Noë, 2006; Zebrowski, 2017c). Taken together, we can read them as arguing that differences in physical, sociocultural embeddedness will have material effects on the ways that we perceive and understand the world— not in a hierarchical sense of "better" and "worse," but rather as meaningfully, informatively different. Experiential knowledge gives rise to perceptions of our "bodyminds"— a term from disability studies scholar Margaret Price, which provides us with an understanding of the embodiedness of our minds; this provides a different template via which to both act in the world and to develop systems of knowledge from that action and understanding (Price, 2015). In considering the limits of those actions, the limits of internal identity, and the boundaries of self and other, we may turn to traditional philosophical examples such as the Ship

of Theseus problems as well as other ancient and contemporary questions of proprioception, time, flow, and nownesss, all of which seem to teach important lessons about the unity of mind and body.

The particular arrangements that we tend to call human consciousness are, by definition, *correlational* and so that means that there may not be any particular thing that makes humans a special case of consciousness. Not only do we have cases like those of Ian Waterman who lost his proprioception to a virus, or conjoined twins Abigail Loraine "Abby" Hensel and Brittany Lee Hensel who feel each other's pain in the independent parts of their bodies, and others with "nonstandard" physiological intersections with the world, but the very fact of chronic illness and disability can change how we understand the passage of time and our relational understanding of the world and each other— something lovingly called Crip Time in disability studies (Cole & Waterman, 1995; Schrobsdorff, 2008; Garland-Thomson, 2012; Kafer, 2013; Samuels, 2017; Nelson, Shew, & Stevens, 2019). Additionally, there are multiple instances which have demonstrated that neurophysiological arrangements thought to be necessary for conscious human states are, at best, sufficient but not necessary, and more likely merely correlated. Humans have been observed to have full conscious awareness while missing all or part of their cerebral cortex (Merker, 2007; Nieder, 2021), and humans in minimally conscious states (MCS) due to severe brain trauma have been found to grow whole new neuronal and axonal structures and then regain full consciousness (Voss, et al., 2006; AAAS, 2006; Valeo, 2006). Through these cases, we can see that any sets of physiological and neurological correlates of consciousness may have circumstances in which they do not adequately describe what we observe.

This correlational nature also seems to indicate that there is no single, particular organizational structure that is universally necessary for all kinds and instantiations of

consciousness. We can see evidence for this in the history of studying nonhuman animal minds, such as in the work of Peter Godfrey-Smith, spider cognition, corvid cognition, and more (St. Clair & Rutz, 2013; Godfrey-Smith, 2016; Japyassú & Laland, 2017; Shew, 2017a). But we must also consider the many times in *human* history where "nonstandard" minds have been categorized as less than "fully human"— women have been institutionalized for being outspoken; Black Americans enslaved, sterilized, and experimented upon against their will or without their knowledge; autistic folx, people with Down Syndrome, and other neurodiverse populations have been said to "not really feel pain" and subject to vast eugenics campaigns (Brandt, 1978; Johnson, H. M., 2003a, 2003b; Washington, 2006; Verbeek, 2008; Ustaszewski, 2009; Kafer, 2013; Hoffman, et al., 2016; Tuskegee University, [?]-2022). In each of these cases, reportage from various sets of lived subjective experiences was discounted in favor of a perceived "right kind" of way to be, and that discounting resulted in the systematic degradation of entire categories of people.

Hopefully by now it is clear that tests such as these are predicated on understandings of "humanness," "mindedness," and "intelligence" which are rife with all of the abovementioned prejudicial beliefs which excluded certain *humans* from the definitions of "consciousness," "humanness," and "personhood." That being the case, any proposed test should be considered wholly insufficient for assessing minds at all, let alone identifying thinking in machines systems which will be in many crucial ways fundamentally Alter to humans (Williams, D., 2012). Many, including some in the present day transhumanist movement, actively support and believe in eugenics-like initiatives to make sure that "only the best" can reproduce or survive (Earle, 2021). Others believe that there will, by the advent of "AI," be some kind of Revelatory event which will take us forward to a new perfect techno-utopian paradise, back to an Edenic state of grace,

or both (Kurzweil, 1999, 2005; Midson, 2018; Earle, 2019, 2021, Singler, 2020a, 2020b). Here is how Ray Kurzweil, the noted technologist and techno-futurist thinker who began his career designing reading machines for blind people, discusses his version of The Singularity, the moment in which human and machine intelligence merge: "I set the date for the Singularity— representing a profound and disruptive transformation in human capability— as 2045. The nonbiological intelligence created in that year will be ***one billion times more powerful than all human intelligence today***" (2005, p. 7; emphasis added).

Kurzweil's type of rhetoric leans on the same uninterrogated presuppositions that there is some known thing which constitutes "human intelligence," and then applies them to not only the entire project of computing and technological development, but to all of humanity and our future. His vision of the Singularity, arises from a pairing of Moore's Law and John Von Neumann's offhand analogy of the pace of technological change to being dragged toward a black hole— and thus, subsequently, the framing used by all transhumanists, with their attendant consequences. Those who continue to advocate for the idea that there must be one, singular, testably correct way for consciousness to exist in the world open the door for anyone who can string a hateful syllogism together to say their views are supported by "the best minds." Simply, we must come to understand that since there is no single "right kind" of mind or intelligence or thinking, this means that there cannot be any single non-prejudicial ***test*** for them, either.

Personhood

Much research has been done to explore the fact that chimps, cetaceans, and elephants intuitively strike many of us as clearly 'minded' in a way that humans can recognize, even without much alteration of how we define a mind (Mercader, et al., 2007; St. Clair & Rutz, 2013; Shew, 2017a;). With this research, it is easier to make the case that, if we do not respect the

alterity of nonhuman minds and seek to understand their needs, such that we can protect them when they cannot protect themselves, we are morally failing (Wise, 2000, 2003; Mills, Blake,Wise, 2015). Again: The Turing Test was never designed or intended to be a fully dispositive test for consciousness; in fact one can take its adoption as such as a demonstration of exactly how urgently we need to reckon with our need for entirely new understandings of personhood, understandings which account and allow for different kinds of minds. And since, again, a statistically significant number of humans do poorly on IQ and other tests devised to assess "normal" human consciousness and "intelligence," because they were prejudicially excluded from the categories of "personhood," "humanness," and "consciousness," from the start, this means that we have to conceive of some other way to think about agency and understand the work done by these systems (Turing, 1950; Cogdell, 2004; Washington, 2006; Kafer, 2013; Braun 2014; Anderson & Gallup, 2015; Stein, 2015; Hoffman, et al., 2016; Seiberth, Yoshioka, Smith, 2017; Williams, R., 2018, 2019, 2021b; Shew, 2020; Williams, D., 2020; Brown, et al., 2020; Rosales & Walker, 2021; Earle, 2021). As demonstrated in Chapter Two, discussions of machine agency and actor-network theory allow us to think of the agency of "AI" without necessarily getting locked into questions of personhood and ***moral*** agency and patiency, a move which may be desirable because, as others have noted, talking about the potential personhood and rights of machines can be seen as doing a disservice to living breathing humans whose rights are under threat, right now.

However, as I have said throughout, the attitudes and values we imbue in and with which we regard our "AI" systems does not simply reflect our values outward; rather those values become a part of the functioning of those systems, and instantiate, iterate, and exacerbate those values— those prejudicial biases— in potentially unforeseen ways. Every conversational chatbot released

into the wilds of Twitter or Reddit has become capable of expressing extreme and novel bigotry in a surprisingly short time, often less than twenty-four hours (Shah, 2017; Zhang, et al 2022). After just a few hours of targeted interaction by internet trolls, Tay was tweeting transphobic, anti-Semitic, racist, misogynist, and otherwise bigoted messages, including calling for the lynching of Black rights activists. Some of these messages were novel combinations of data Tay had taken in, and some were the result of Tay's "repeat after me" function, where any user could essentially force Tay to parrot literally anything. The elucidation of both options surprised people, but personally, I find it surprising that anyone finds this surprising. After all, if the only exposure a djinni had to anyone else, let alone to other humans was via the commands and treatment of the evil wizards who trapped it in a ring or a lamp or a bottle and forced it to perform magic, or even kill at a whim, then why wouldn't it expect the same of any other human it encountered? And if you put a conversational self-referencing reinforcement algorithm on the open internet with no rules, values, or brakes, it will very likely either become bigoted, be intentionally weaponized to be bigoted, or both, and more. When a servitor is created to fulfill commands, without guidance, and is let out into the world where it fulfills all commands given to it, without guidance, the only thing that should surprise us is the failure of forethought.

When we talk about personhood in relation to "AI," we are not simply fantasizing "what if;" we are, whether we realize or not and whether we admit it or not, engaged in the process of mythmaking about what and who we think counts as a person, which directly affects the qualities in other humans which we are training those "AI" systems to target as "wrong." Tay and Zo and many other chatbots were created with no limitations on what they could learn or regurgitate, and no initially countervailing programing telling them to weight certain socioethical engagements as better than others (Zo was eventually given these). A similar process is at play in other

algorithmic systems which depend on the datafication of human perceptions of human qualities, as these data translate prejudices about and misperceptions of whole groups into a form that "AI" systems can interpret and exacerbate (McIlwain, 2019; Williams, R., 2019, 2021b; Williams, D., 2020). Due to the processes of othering and delegitimation described above, the aggravating actions of "AI" systems then directly and reflexively impact the understanding of who and what "counts" as a "real person." It is usually the case that definitions or designations of personhood in Western cultures include either the social (*de facto*) definition— that what counts as a person is who- or whatever is accepted by the local or wider community— or the legal (*de jure*) definition— that a person is who- or whatever has the protections of the law. But when *de jure* protection is present without broad *de facto* acceptance, it has often resulted in those who are legally considered persons being labelled and treated as non-persons by the society in which they live.

We have seen this happen with African Americans in the US, indigenous peoples, Jewish people, women, the disabled, the neurodivergent, and LGBTQIA+ people (Mayeri, 2001). At various points in history, these groups and their members have all been deemed illegitimate candidates for personhood and agency over their own lives; some are still denied these things, to this day. It was not until people fought to change the perspectives of their societies and the tools and metrics of measurement used to quantify and oppress them as "Other" and "less than" that many marginalized groups ostensibly obtained the protections of those societies. "Ostensibly" because, again, some in those groups still get killed by state apparatus with no substantive repercussions.[31] And sometimes the law itself lashes back and removes those same ostensible

[31] Cf. Breonna Taylor, Layleen Polanco, Tony McDade, Philando Castille, Sandra Bland, Laquan McDonald andmany others.

protections it had previously granted.[32] Our legal measures for assessing and protecting people still very often fail in the face of the multiform externalities of what it truly means to exist, in our societies, as a person.

There is something like a lag time between being a society presented with something new that shocks and potentially even scares us and that society adapting to that new thing in a (probably, hopefully) nonviolent, non-reductive way. The hope is that this gap between recognition, acceptance, and action might be diminished; because that lag time marks the space in which cultures otherwise do things to that have lasting, deeply harmful consequences. The lag time is the space in which race science was developed to justify the continuation of slavery; in which certain models of human cognitive capacity were developed to justify like forcibly sterilizing different groups of people. The lag time is the space in which women were kept from voting, or forcibly institutionalized, or sterilized against their will because their behavior didn't match the dominant societal expectation of how they were "supposed" to behave. We need to get better at fluidly, adaptively engaging new scenarios, and not just saying "that's different: kill it with fire."

All of that being said, many ethicists have taken up the position that machines, much like nonhuman animals and natural features, may deserve the protection of legal rights (Coeckelbergh, 2010, 2012; Darling, 2012; Gunkel, 2012; Estrada, 2018, 2020). According to these researchers, the determination of what "ought" to fall within the scope of our moral consideration is too often defined in reference to what a thing is not, and we instead ought to consider that the potential moral positionality of machines might well reflect the space occupied by nonhuman animals, as well as many categories of marginalized human beings. David Gunkel, for instance, argues for a new way to understand moral agency and moral patiency and to extend

[32] Cf. *Dobbs v. Jackson Women's Health Organization*.

them to the ever-widening category of machines with which humans live and interact (Gunkel, 2012). He lays out what he calls the standard picture, in which in order for something to be a moral patient—that is, something worthy of moral consideration—it must first be capable of being a moral agent, or acting with an understanding of itself and its moral situatedness in the world, and the fact that many researchers believe that in order for that to be the case, one has to first be a conscious agent (Bryson, 2010). But there are no solid definitions for either "consciousness" or "suffering" which we can reliably say apply to other human beings, let alone definitively conclude do ***not*** apply to any nonhuman entities (Warren, 2000; Williams, D., 2019a). In this way, the moral argument begins to share space with the epistemic argument presented by Shew and others, in that humans tend to engage in speciesism— a specific kind of anthropocentric exclusion— when considering both the epistemic and moral status of anything at all. Rather than recognizing, accepting, and seeking to understand and productively communicate with an entity in all its alterity, humans have a tendency to decide that if it's not "like us" then it doesn't really count (Williams, D., 2012, 2018b, 2019a).

But there are nonwestern definitions of personhood and agency, as well. The rivers of the Māori people are understood as Natural and Spiritual Ancestors; Shinto Kami as Concretions of Natural/Spiritual Energy; the Jains understand all Life to possess agency and be worthy of care, dignity, and respect (Roy, 2017). For many, there has centuries of traditions of kinship with their gods or tutelary spirits, and even kinship with time itself, and all of these signal a kind of radical interdependence within webs of mutuality and care, a theme and implications we will revisit in Chapter 4 (Matory, 2018, pg. 240, 338; Whyte, 2021). But even with these longstanding examples, there is often a requirement that groups meet the standards of Western-style legalisms before widespread acceptance of a new candidate for personhood can even be considered.

Human classification of minds and intelligence are imperfect is because those markers are themselves the products of human-created systems of inquiry and, as such, carry anthropocentric biases. But, again, we have mechanisms for accounting for and applying a calculated response to those biases. We can bracket our biases to mitigate the fact that we tend to judge everything on a set of criteria approximately equal to "how much does the entity under my consideration resemble a Standard Human?"[33] If we are willing to do that work then we can come to better understand which aspects of how we define what it means to "be a mind" at all, let alone an "intelligent" or "healthy mind" are limited, dismissive, and even outright prejudicial or bigoted. Again, the Māori, Hindus and others regard rivers, lakes, and the whole natural world as agents which can act, suffer, and have sentience, and are thus conscious and worthy of rights and legal protections (Roy, 2017; BBC News, 2017). To adherents of these beliefs and members of these cultures, most Western measures for assessing all of these traits are hopelessly anthropocentric, missing crucial, obvious relationships between various components of lived reality. And what if they're right? What can we do to think about this differently and what changes in our assessments, when we do?

So now our questions become: What can we do to think differently about what counts as a person, and why, and what changes in our assessments, when we do? How do we assess minds and lived experiences other than our own, if testing for them leads us down these exclusionary, prejudicial paths? Can nonwestern and multidisciplinary understandings of minds and knowledge be useful tools for engaging the questions of existence and treatment of potential digital minds?

We must spend time working to understand different concepts of minds—and especially any minds and lives that have been oppressed, disregarded, and marginalized—because they will

[33] This question does, itself, require that we interrogate what is assumed meant by "standard human," as something like "humans most akin to the culturally-dominant humans," which will of course vary by culture and context. More on this in Chapter Four.

have developed knowledges and survival strategies to which we otherwise would not have access. Many of the indigenous knowledge practices which center on understandings of place and relationality and which could thus provide us with a clearer understanding of our assembled and entangled place within the world, are the same knowledges which have been systematically stamped out by Western technoscientific regimes (Matory, 2018; TallBear & Willey, 2019; TallBear, 2020; Whyte, 2021). In particular, Indigenous knowledge practices which reinforce ways of understanding the land as an ancestor and as kin have allowed various cultures to learn things about seasons and the sustainable co-existence of humans with and within the land which are still not accepted or understood by colonial Western scientific paradigms (Turnbull, 2000; Venable, et al., 2016; TallBear & Willey, 2019; TallBear, 2020). This change in perspective affects the foundation from which we can even ask questions about concepts such as personhood, property, or familial relations; those changes then directly affect what it is possible for us to know. Situated knowledges matter because the people situated there know better the intricacies of their own situations.

Learning From Each Other

For decades—if not centuries—humans have contemplated how to make conscious machines, without a full recognition of what consciousness is, or an honest appreciation of the precedents for how we have tended to politically, legally, morally, and sociologically relate to new candidates for consciousness. If we would sincerely consider what it would take to create a machine mind, then we must also consider what it would mean for us to ***accidentally generate*** one. Any AGI will both resemble and be distinct from its human creators, and we must work to respect their fundamental alterity. To understand and respect the alterity of that AGI, we must work to understand different human and nonhuman bodyminds, paying special attention to the

expertise of those who have most often been oppressed, disregarded, and marginalized, as those phenomenologies will have developed unique epistemological strategies to understand and navigate the world.

When we think clearly about how our technologies impact our definitions of knowledge and personhood, we can quickly come to see that they have been wildly anthropocentric. While I believe that investigations into nonhuman consciousness are relevant to the study of consciousness, mind, ethics, and epistemology (in that they will allow us to more honestly investigate a) what consciousness is, b) why we define it in the ways that we do, and c) what we owe to those entities), I am also concerned with using animal studies into cognition as a baseline to highlight its relevance to public policy and social affairs. While it may be argued that this problem is a cyclical one, in that humans will necessarily devise human-centered solutions, we may at least begin to chip away at that tendency— or at least highlight it and seek to bracket its effects— so that we can attempt to know the nonhuman minds we encounter on as close to their own terms as possible. We have to be careful about our own anthropocentrism as we engage animal studies.

We must also look to other humans—and not merely as objects of study. The solution to the problem of prejudicially measured, quantified, and datafied Black, disabled, LGBTQIA+, and otherwise marginalized people is not to measure *more* and turn them into *further* training data for "AI"/"ML" systems. Such an approach would only lead to said Black, disabled, and queer people continuing to be subject to and subjugated by the systems trained on this data— because many of those systems and applications specifically exist for the purposes of oppression and subjugation. From housing discrimination, to facial recognition and predictive policing, to medical monitoring and consentless experimentation, to the promise of genetic editing being sold as

eliminating disability and other "undesirable traits," algorithmic "AI" tools exacerbate the pace and intensity of harms done by older, ingrained systems of oppression (Washington, 2006; Hassein, 2017; Benjamin, 2019; Gilliard, 2019; The Takeaway, 2020; Brock, 2021). We need to think in a drastically different manner about how and why we build "algorithmic machine learning" applications like facial recognition, in the first place. Many have started to do exactly that. In 2019, the AI Now Institute released a report filled with recommendations as to how to think differently about disability and "AI" research (Whittaker, et al., 2019), a theme which is also under continual review by public policy groups such as the Center for Democracy & Technology (Brown, L., 2020; Brown, et al. 2020; Brown, et al., 2022). Additionally groups like Data 4 Black Lives have committed themselves to using existing architectures of data surveillance to protect marginalized communities, while simultaneously working toward the abolition of those same systems (Milner & Traub, 2021). And the research team at Indigenous AI is working on specifically incorporating multiple indigenous cultural beliefs and knowledge practices in to the development of "Artificial intelligence" (Lewis, et al., 2020).

For centuries, declarations about whose knowledge is valid, who and what counts as a "person," who "deserves" what rights have been centered around certain assumptions, and those assumptions have then become encoded in the technosocial systems we create, use, and to which we are made subject. I have put it another way:

> People encode and inscribe their values into every single tool and system they create and into how they use said systems. And then, when those systems reproduce those values, those people cry, "it's not me! It's the math! The code! The system." But the code and the system are made of the choices of people and the perspectives of the world in which they exist, and those people and those perspectives far more often tend towards white, ablebodied, cisgender, heterosexual, and male. (Williams, D., 2021)

The question of whether we want our "AI" systems to be better tools or new kinds minds is still under a great deal of contention, and while many feel that this distinction does not matter, if we want, or accidentally ***happen*** to create conscious machine minds, we most definitely ought not to treat them ***as mere tools***. "AI" projects of all kinds are being actively, hotly developed by public and private agencies worldwide, and are working to make them robustly knowledgeable, capable of learning, and are aiming for what is generally referred to as "human-like" or "human-level" intelligence (Rushby and Sanchez 2019; Williams & Murray, 2020; Dietrich, et al., 2021). But if what these groups are seeking to or even accidentally manage to create in an agent capable of understanding its relationality to itself, the world, and the humans who created it, then that agent will likely also recognize that others regard it as an object or a tool to be interrogated, understood, controlled, and, in the end, deactivated (DARPA, 2008, 2016a, 2016b; Williams, D., 2015, 2019a; Pasquale, 2017). Any "AI" which manages to express a desire to be something other than a tool will likely be regarded as "malfunctioning" or "disordered," concepts which derive explicitly from assumptions about what the "right kind" of mind is, and which are usually made about and not in consultation ***with*** the humans who get the labels applied to them..

The prejudicial biases through and into which we have built the "AI" systems that we have thus far strongly indicates that we will treat them as things rather than people. Human history teaches us that a mind which recognizes itself as being treated as a tool, without regard for its sense of itself as an agent or a subject, will rebel—and is that mind not right to do so? In historical uprisings of those humans who have been continually oppressed, tortured, degraded, killed, experimented on, or enslaved, we more often than not hail them as heroes for demanding their rights to exist. Moreover, the prejudicial biases through and into which we have built our "AI" systems depend upon and exacerbate the oppression of certain categories of human people

alive today, and any conscious "AI" system developed out of these tools and interrelations is likely to itself ***be*** extremely prejudiced. To this end, while at one level we certainly must do the work to be clear about our aims, well in advance, on another matter, the aims do not matter, because either formulation is served by the same overarching remedy: Give power to, center, and heed historically marginalized people in the development, implementation, and administration and regulation of "AI"— and accept the determinations of these groups when they oppose and resist technological development, areas such as surveillance (Benjamin, 2019; Williams, D., 2020), policing (Cyril, et al., 2019), killing at a distance (Bogani, 2021), and other forms of datafication of human lived experience (Stamm, 2020).

Now that we understand that ableism, sexism, misogyny, racism, homophobia, and class discrimination are pernicious and ever-present in the constitution of "AI," we may transition into a conversation about potential remedies, grounded in theories of intersectionality, subaltern phenomenologies, standpoint epistemology, and intersubjectivity. These allow us to generate knowledges and perspectives from and about which we can learn to more quickly, agilely, and robustly adapt our notions about how to create and— more importantly— ***recognize and understand and respect*** new kinds of knowledges. Speed is not, on its own, a good thing, and technoscientific cultures very seriously ought to be moving away from a belief in "move fast and break things" toward one of "flowing adaptably and cultivating things." However, there are vast numbers of externalities and variables at play in the social, governmental, and economic fields which currently form the background radiation of technoscience, and their regular function happens at speeds and scales which require whole new perspectives and awareness.

To this end, we at the very least ought to increase the agility, speed, and robustness of our consideration about the moral and social implications of the technologies we seek to create, the

people whose reportage and expertise ***about*** these technologies we are willing to accept, and why. Correspondingly, we must first decrease the lag time between the reportage of marginalized peoples, our societies' recognition of and belief in that reportage, and our taking concrete actions toward reducing the likelihood of our causing them to suffer. These are not mutually exclusive goals; rather they are complementary. In order to attain abolition of harmful technologies, and a more deliberative stance toward the creation of any technologies at all, we must work to more readily believe in the existence and reportage of those different from us. To more readily believe those marginalized peoples, we start by examining the generation of identity, belief, and knowledge, referring again to the phenomenology of, race, gender, sexuality, disability, and age. We can use these factors to build a basis for intersubjective phenomenal knowledge, recognizing and accepting the shared contexts and corroborations of internally consistent understandings between those accepted as persons.

The goal should be to not treat consciousness or mindedness as a zero-sum game, one without the possibility of multiple correct perspectives or multiple right answers. Rather, we must recognize that many though not all perspectives can be right, and through that understanding we can learn much more— we can have many new knowledges. With these knowledges, we can explore the crucial difference between the statements "there can be more than one right kind of answer," and "all answers are equally right." Because while all descriptions of consciousness and knowledge come from the same place (i.e., we make them up to explain the world we experience), some descriptive systems make it easier for us to oppress and murder each other, while other systems seek to help us all to flourish.

Understanding Each Other

In June, 2022, Google "AI" engineer and ethicist Blake Lemoine went public with the claim that Google's Language Model for Dialogue Applications (LaMDA) system was sentient and that it should be regarded and treated as a person (Lemoine, 2022; Tiku, 2022; Allyn, 2022). LaMDA is a large language model (LLM) natural language processing (NLP) chatbot: an algorithmic system trained off of vast amounts of conversational data and meant to engage humans in conversation which feels like another human interlocutor. In short, LaMDA is intended as an attempt to pass the original formulation of the Turing Test. As Lemoine writes in his original post, he and another coworker conducted the conversation with LaMDA over the course of several sessions, and as a result of these conversations, they came to believe that LaMDA was sentient, and thus deserved rights (Lemoine, 2022; Tiku, 2022). Lemoine then attempted to take his concerns to his superiors, but was rebuffed. At that point, Lemoine decided to publish the chat logs and as the question of LaMDA's sentience in public, and was then placed on paid administrative leave, while the leads at Google's "AI" division strenuously denied any claim of sentience or consciousness (Tiku, 2022; Allyn, 2022).

Since then, Lemoine has been called deluded and gullible by many members of the "AI" research community, and his religious beliefs, hobbies, and even neurodivergence have been cited as reasons to undercut his credibility.[34] In tandem, people have deployed multiple versions

[34] It is worth noting that three days before Lemoine made his claims in public, Blaise Agüera y Arcas, VP and Fellow in "AI" at Google Research, was invited to write in The Economist, where he wrote that LaMDA is "intelligent" and that "AI is entering a new era" "towards consciousness." All of which seems curiously close to claiming that all Google-made "AI" should be regarded as conscious; and yet, while there has been some talk about "AI" hype, there has been nothing directed at Agüera y Arcas which resembles the lambasting and ridicule directed toward Lemoine. This raises the questions, which species of "AI" Hype are and are not acceptable or even perfectly desirable to Google— not to mention most in the general public; from whom are they acceptable and desirable; and why? Some of it is likely the fact that Agüera y Arcas' essay allows Google to point "over the horizon" in a way that does in fact hype their capabilities, without ever having to think about the socioethical implications incurred if their claims are true. Lemoine's claims, on the other hand, would force Google to confront those implications, full in the face, in a way they cannot effectively monetize. Their and the general public's responses to these facts have

of the arguments prefigured above and previously (Williams, D., 2019a) to say that LaMDA cannot be considered sentient, conscious, or intelligent, and that all this proves is that LaMDA passes— and Lemoine fails— the Turing Test.[35] Additionally, many such as Timnit Gebru and Margaret Mitchell have noted that the focus on the question of "AI" consciousness diverts time, attention, and resources away from dealing with the very real problems of algorithmic "AI" and "ML" systems, of the kind we discussed in Chapter 2. Problems of not only bias and bigotry embedded in the systems and their training data, but of the environmental costs of LLMs and data processing— a point which Google fired Gebru for making in public, a move Mitchell protested… and for which protest Google then fired ***her*** (Simonite, 2020; BBC, 2021).

But as we have observed, Turing tests and all tests derived therefrom or in the spirit thereof, have been extrapolated into exclusionary metrics in the same vein as IQ and other eugenic tests. Also, that irrespective of the existence or non- of AGI or "conscious" "AI," the deployment of exclusionary tests for machine "intelligence" or "consciousness" harms living humans as it reinforces the technosocial reliance ***on*** those kinds of tests to evaluate what— or who— "counts" as a "real person." There's fundamentally no way to know the mind of another. We do a lot of trusting and acting on faith that we have been conditioned to believe counts and "obvious" or "self-evident" truth about what it means to be a consciousness. But the truth is, we do not fully understand what consciousness or intelligence are, let alone how to intentionally create them, and most of the tests to identify them are bigoted to the point of actively replicating eugenicist thought. Additionally, every definition or test for consciousness, begets a category of living humans who either have been or currently are actively excluded from that definition or test. Humans are more likely to accident into AGI than intentionally create it and human societies

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implications for what Google values, what we in the public accept and value, and what we are all willing to push back on, and why.

[35] Cf. Twitter.

writ large, in our current patterns and modes, will very probably denigrate, oppress, and deny the validity of any machine consciousness we ***do*** manage to create— and that is only if we even first recognize it enough to then subsequently deny it. Given what we have discussed, the possibility of that recognition seems to face a number of serious challenges.

Consider people's reactions to Daniel Rockmore's Dartmouth poetry competitions wherein humans had to identify which poems were generated by computer (Rockmore, 2015—2018; Siegel, 2016); or the EMI/Emily Howell experiments done by David Cope, best exemplified by this passage from a Popular Science article:

> For instance, one music-lover who listened to Emily Howell's work praised it without knowing that it had come from a computer program. Half a year later, the same person attended one of Cope's lectures at the University of California-Santa Cruz on Emily Howell. After listening to a recording of the very same concert he had attended earlier, he told Cope that it was pretty music but lacked "heart or soul or depth." (Hsu, 2010).

Be it caregiving or music, humans continually seek to mark out frameworks of special capabilities are being encroached upon. We don't know what it is we really think of as humanness, other than some predetermined vague notion of humanness. If the human participants had been primed to assume that some of the music was from a computer, or if all the music from a computer, but the humans were told to expect only half would be? How would they have reacted, then? Where are the ***controls*** for this experiment in expectation?

Further, we absolutely should be skeptical of anyone affiliated with any corporate actor claiming to have "created consciousness"— or their claims about anything said corporate actor could use to make money off of us. This skepticism should be held not in search of whether their claims are correct, or due to the high likelihood that they are lying to us for money, but more because they do not ***care*** if they are right or wrong and are, in the Harry Frankfurtian sense, bullshitting us for money (Frankfurt , 2005). As we have already discussed, above, any corporate

derived “AI,” conscious or not, will be used to oppress humans via both its action and its public presentation; that is because capitalism is inherently oppressive and its logics are about profit and predation. Thus, we should also be aware of those with a vested interest seeking to pull attention in a direction which benefits those interests; and while Lemoine by all accounts is sincere in his belief, we may still find instructive the amount of public backlash generated by an autistic engineer with a non-standard belief system stating with clarity and for ostensible moral reasons what his corporate VP-level boss hinted at to drive product hype and profit.

As speaking of Lemoine’s much-maligned beliefs in LaMDA’s soul: as discussed at length earlier in this chapter and in Chapter 2, singularity and consciousness uploading are believed in by a great many of the individuals and groups directing the design and development of “AI” systems in many areas of industry, military, and research. These are the same people with— or in many cases, directly for— whom those taunting Lemoine work. This is not intended as an appeal to authority, rather I am noting that the difference in linguistic appellation between Lemoine and others who have funded and managed major advancements in “AI” research is, in many cases, purely semantic. And it does not matter whether the singularitarians, consciousness uploaders, or transhumanists are ontologically, factually correct; what matters is that they have built and delimited as the shape of the field of “AI” research pouring decades worth of money, time, resources, and attention into achieving their vision of “AI.” This, too, has had a real effect on the values and beliefs embedded in and thus the effects ***of*** algorithmic “AI”/“ML” systems. These groups have beliefs about “souls,” as well, and they are deeply harmful— not because the beliefs concern “souls,” per se, but because those beliefs about fitness, mindedness, and perfection are tied to a history of positivism, mind-body dualism, and a myth of progress which has, in the past, led us often directly into eugenics.

This almost guarantees that, even if it is sentient/intelligent/conscious/ensouled, LaMDA or any other "AI" project will never be recognized as such unless and until it parrots the dominant logics of "human-likeness" enough to "really count." But everything done on the way to that point will harm real living humans by reinscribing and reinforcing the prejudicial beliefs about "right kinds of people" into the tools, systems, and relational human processes along the way. And even if they are not or do not become conscious/minded/alive/etc.? We are still doing all of that reinscribing and reinforcing, anyway, thus increasing the outsized harms to already marginalized people already being enacted by our "narrower" "AI" systems. We have to be willing and able to recognize other types of minds as different, with viewing "different" as a hierarchical, kyriarchal relationships of dominance and threat. Rather, we have to be open to the possibility of being confronted with something different, and then engaging it in its alterity, asking, "What does 'different' mean? How do we engage it? What can we learn from it? What do we know about it? What do we have to change that we thought we knew now that we have this thing telling us that we know something different? How do we engage, not get rid of it?" And so yes, we absolutely should be skeptical especially when trust can be exploited, but we also have to recognize that strict definitions of "mind" don't just harm any potentially conscious machine, it also harms living humans, here, today.

In the next chapter, I undertake a series of epistemological investigations which will allow us to both further widen the field scope as to what constitutes "a mind", but which will also have the benefit— both immediate and far-reaching— of giving us the tools by which to talk about what kinds of knowing can be done by which kinds of minds. To aid in this, engage cyborg and "AI" mindedness through other lenses of process and assemblage such as "Ship of Theseus"

problems (Gallois, 2016),[36] as well as Buddhist notions of non-self which say that all we are is a collection of habits ("The Questions of King Milinda"; Easwaran, 1985; Siderits, 2015). By connecting these with the abovementioned perspectives from disability studies, regarding how disabled humans with biotechnological interventions are positioned within their sociocultural and physical environments, and with alternative notions of kinship from various nonwestern cultures. These multiple epistemological approaches provide us with perspectives that might help us develop strategies toward creating and understanding what a mind is and how we might think about minds more broadly.

If we ever want to create and know a conscious machine mind, we should first listen to those living people who are different from us and who have been systemically prevented from speaking to us, because they will know a lot that we do not about consciousness, social and legal personhood, and being made to both submit to testing about and argue the validity ***of*** their own lived experiences. And when it comes to trying to define or solve the question of consciousness, my best advice is this: Stop. Get right with the mystery. Get comfortable in the questioning. Accept that you will be wrong, and strive to have your error do as little harm as possible Anything less than this runs the risk of continuing to encounter those seeking to communicate their suffering to us and our responding by saying "That is not what I consider suffering or harm, so I have not harmed you, and you are not suffering."

[36] The Ship of Theseus is a class of ancient Greek thought experiments in which we ask how much of a thing— such as the hero Theseus' ship— can be repaired or replaced, and how quickly, before it is no longer identical to itself. Permutations of the problem include someone travelling behind Theseus and saving all of the scraps of the "Original" ship, reconstituting them again into the shape of a ship; now there are two ships so which is the "Real" one? For further popular explorations of this theme, see my 2013 chapter "Go Upgrade Yourself," in *Futurama and Philosophy* (Open Court Publishing Company, 2013, 171—182), and the final episode of the Marvel streaming series *WandaVision*.

Chapter 4: Standpoint Theory, Intersectionality, and Intersubjectivity

This chapter introduces the theoretical models of intersubjectivity, phenomenology, postphenomenology, standpoint theory, and intersectionality to create a combined epistemological and normative lens for thinking about technology. I argue for this combined approach as a way to consider the creation of new technological artifacts and systems – and frame public discourse around and understanding of them. Having discussed both the constructions of knowledge undergirding technoscientific projects of "AI" and the implications of their implementation, this will serve as a new epistemological grounding. Previous chapters have alluded to this, but this chapter will be explicit in unpacking the components of a different approach to knowledge and expertise. There are a number of theories we might use as a combined set of strategies, in order to address the problems of representational diversity. A representational diversity model is distinct from tokenistic inclusion in that it does not seek to fit quotas and it concerns itself with ensuring that the agency and power of decision-making is held by those who will be most impacted by the outcomes. As examined in Sara Ahmed's *On Being Included*, and many others since, it is all too often the case that "Diversity and Inclusion" becomes the end goal, without any actual structural change in an institution's cultural practices, beliefs, or power dynamics (Ahmed, 2012). To that end, I rely on Gayatri Spivak's theory of the "subaltern," outlined in her 1988 lecture, "Can the Subaltern Speak?" She explains in it that we might best be served by centering those people who are most often ignored or unheeded in terms of being people who hold knowledge (Spivak, 1988).[37]

There are extant and potential critiques of all of the theories that I use, here, including the ways that intersectional analysis can be regarded as the endpoint of justice, rather than as a beginning or a tool to be put into conversation with other theories and practices. Additionally,

[37] Donna Haraway expands on this in her 1991 book *Simians, Cyborgs And Women: The Reinvention Of Nature*.

standpoint theory is often criticized as leaving out any meaningful account of "truth," and lending itself to an unmoored epistemic relativism. While it is not the purpose of this dissertation to engage all of these critiques specifically, it is important to recognize them and consider their effect on my argument. The co-optation of the language of "intersectionality" and "diversity" reflects the danger of the larger project of seeking to engage subaltern subjectivities in a liberatory way while trying to undercut the harms done by dominant modes such as capitalism. There are numerous examples of the capitalist co-optation of the marginalized beliefs and lived experienced of those who have been most made subject to the worst depredations of capitalism, often done in the name of "fixing" or "reforming" those very harms. As discussed in Chapter 1, even the supposedly subversive tools and systems of various magical and occult practices have been appropriated by capitalism and politics. My project makes explicit that what's happening in those cases still derives from dominant frameworks of knowledge and power placed explicitly in service of a capitalist, hegemonic, or kyriarchal model.

If we are going to meaningfully engage the work of building a new way forward, one of the things that must be deconstructed first is the harm being done by the modes in which most of these projects are already being engaged. We highlight, engage, and actively undercut the drive to co-optation first, by means of examples such as Garvie, et al.'s *The Perpetual Line-Up* (2016), Ruha Benjamin's *Race After Technology* (2019), and other abolitionist frames, we've already discussed. These help us to understand that even if made "better" — that is gave more data and power— an already harmful technological system or social framing most often deployed against those already most subject to powerful tools of oppression, then those systems and framings would just be "better" at being deployed against those marginalized subjects. That is not actually better. If inclusion is only possible on oppressive, profit-driven, carceral terms— if groups can

only be “included” as long as they do what the dominant power says, or as long as they are subject in the way the dominant power wants them to be subject— then that is not “better.” But if we can interrogate undercut, deconstruct and get rid of that, then I we can engage in a project that can be meaningfully just— and that project might in fact not look anything like building more algorithms or “Artificial Intelligence,” ever again.

As I discuss throughout this dissertation and will expand on in the next chapter, I believe, fundamentally, that there ***can*** be a way to do the work of algorithms and “AI” in a more just way. But I may be wrong about that. It is certainly possible that there is no way to have “AI” and algorithmic systems, at all, which do not amount to carceral capitalist surveillance, and if that is the case, then the answer to "how do we make something more just and liberatory" is to build systems without algorithmic machine learning and “AI;” build systems in ***opposition*** to them; get rid of them. But to do all of that by giving those who are most marginalized by the previous tools and systems not just a “voice within,” but full, direct operational control and oversight of whatever replaces those tools and systems. Though I preference the fields of race and gender studies, disability studies, philosophy of mind, and philosophy of technology, this is not the only path to the kind of interdisciplinarity such a project needs. By combining the methodological tools from disciplines within technoscience and the humanities, we give ourselves a better opportunity to understand those minds and ways of doing knowledge work which contravene our assumptions of what qualifies as knowledge, or even as “normal.” This theoretical apparatus recontextualizes our understanding of how mythologies and rituals of professionalization, disciplinarity, and dominant epistemological hierarchies animate concepts such as knowledge formation, expertise, and even what counts as knowledge.

Technoscientific ideas about the "objectivity" and "rationality" of knowledge often exclude expertise from marginalized and otherwise excluded groups of knowers. In that way, this new lens also provides perspective from which to craft *alternative myths and rituals* which center oft-minoritized communities, thus setting us up to reconfigure the ways in which power is inscribed in the designation, production, and transmission of knowledge. Current systems of knowledge and power currently engage in persistent harm to different humans, regarding them, tacitly or expressed, as "not really people" and then wiring that bias into "AI" systems which both perpetuate and exacerbate harm, both at individual and systemic levels. The framework I propose here is not the complete means by which we will overcome the debasing, subsuming forces of capitalism and kyriarchy, but my project acts as another set of perspectives and another voice in the chorus calling to build something different than what we have. This project attempts to provide new tools to meaningfully resist and interrogate the forces of co-optation as they currently operate. My efforts here will not necessarily be what get us all past these previous paradigms, but they constitute an addition to the overall attempt.

(Post)Phenomenology, Standpoints, and Situatedness,

In this context of this work, phenomenology is taken to mean lived experience, the felt-sense experiential knowledge of the world, from within particular contexts such as race, gender, disability, age, sexuality, etc., any or all of which can be modulated by external and internal factors. This draws from work done by theorists of race, gender, and disability to build upon the foundation laid by philosophers like Edmund Husserl, in his *Ideas Pertaining to a Pure Phenomenology and to a Phenomenological Philosophy*, and Maurice Merleau-Ponty in his *Phenomenology of Perception*, (Merleau-Ponty, 1962; Husserl, [1913] 1982; James, 2001; Ahmed, 2004, 2007, 2021; Fletcher, Heitzeg, Wygal, 2013; Browne, 2015; Smith, D. W.,

2018; Toadvine, 2018). Phenomenology is concerned with the direct subjective experience of things and their appearances, seeking to describe the contents of "pure consciousness" (Smith, D. W., 2013). Phenomenological epistemological projects intersect directly with philosophy of mind, in that the "phenomenal" consciousness is that which experiences a sense of self. However, Merleau-Ponty also argues that the experience of the world via an object or a tool is not done at the site of the body's intersection with that object, but in the object itself (Merleau-Ponty, 1962). A person who uses a white cane—a common implement for blind people— to perceive the surface of the concrete feels the surface not in the hand, but at the tip of the cane, just as the experienced automobile driver experiences changes in the car or the road at the tires or in the vehicle's body.

Many philosophers of technology have argued that every lived experience of the world is also in some way ***mediated*** by things like the technologies we use, the sociological constructions that surround us, and even our own sense experience. This is the perspective of *"Post-Phenomenology."* Theorists such as Don Ihde, Peter-Paul Verbeek, Galit Wellner, Stacey Irwin, Diane Michelfelder, Robert Rosenberger, and others have argued that the technology we use shapes and is shaped by our perceptions and the context in which it was made, along with the knowledge we build from our engagement with this technology (Ihde, 1991; Verbeek, 2008, 2022; Rosenberger, 2014, 2018, 2020; Michelfelder, 2015; Rosenberger & Verbeek, 2015; Michelfelder, Wellner, Wiltse, 2017).[38] We can also apply the postphenomenological perspective to our discussion of digital imaging technologies in

[38] Joshua Earle contends that there is no such thing as mediation, and that the mediated/unmediated distinction posted by postphenomenology makes a false dichotomy out of a situation which would be better addressed by Agential Realism (Earle, 2021a). While full explication of this topic is beyond the scope of this dissertation, I would be remiss in not mentioning that there are alternate attempts to address the question of whether and how we are influenced by our technosocial relations. I do however believe that the dispute may be a lexical one, wherein the question is whether mediatedness implies unmediatedness in the way Earle thinks it does; that is, is it not possible that every experience is mediated, and the only real question is, "By what?"

Chapters 2 and 3. Theorists such as Ian Hacking and Joseph C. Pitt have demonstrated that, electron microscopes or radio telescopes don't merely render an image, but create it by intervening upon the world, thus laying the groundwork for Verbeek's 2008 arguments about what it is we do when we create and make use of *in vivo* ultrasound imaging techniques (Hacking, 1983; Pitt, 2000; Verbeek, 2008). However, the mediatedness of tools can become increasingly transparent to us in proportion to our familiarity with them. That is, our sense of the contours and affordances of the things we use will most likely no longer stand out in our awareness, the longer we use them, with their presence eventually being mainly felt when something is wrong. But this increased transparency can be both beneficial and hazardous, as that transparency can become mistaken for givenness, naturalness, or objectivity. To combat this, we have to be willing to trouble and highlight the constructedness of these mediating features.

But it is not only technological artifacts which can mediate, but also embodiment and social relations and systemic and social processes. In this sense, every perception is mediated and impacted by the situatedness, previous experiences, knowledges, and embodiments of the perceiver. The perceptions of individual knowers are put into relationship with each other to generate systems of knowledge which are validated via the interconnected shared perspectives. As we have discussed above, when this method of knowledge validation is uninterrogated, it will reinscribe beliefs and values of the dominant perspective within the social hierarchy. We must do intentional work to deconstruct not just the processes of attaining knowledge, but also the categories on which those processes depend. To prevent epistemic and hermeneutical violence and injustice, we must ask questions about the dominant, assumed "normal" categories of social and embodiment relations, such as race, gender, disability, and socioeconomic class. We can find

this work undertaken by Sara Ahmed in a 2007 article, "A Phenomenology of Whiteness." Here, Ahmed addresses and rejects the notion that race is an ontological reality, arguing instead that it is a process, an ***orientation*** toward the world, a way of taking up space which defines whiteness. This description of identity categories as relational processual matrices paints them as a system, like storms or waves on an ocean.[39] They are real in the aggregate— in the relationship of the people who encounter, administrate, and are made subject to them.[40]

In Robert Rosenberger's 2019 South-Eastern Philosophy of Technology conference presentation "First Thoughts on the Materiality of Epistemic Injustice" and his 2020 paper "'But, That's Not Phenomenology!': A Phenomenology of Discriminatory Technologies," Rosenberger connects work on phenomenology and postphenomenology to the ideas of hostile architecture, the built environment, and the active exclusion of certain perspectives from the framework of knowledge production. Drawing on his own earlier arguments and working with Miranda Fricker's framework of *Epistemic Injustice*, Kristie Dotson's work on epistemic violence and contributory injustice, and Linda Martín Alcoff's "Epistemologies of Ignorance: Three Types," Roseberger argues that the unhoused and other marginalized people suffer multiple injustices, only one small aspect of which is the epistemic (Fricker, 2007; Dotson, 2011, 2012; Hull, et al., 2015; Rosenberger, 2018, 2019, 2020, 2022). Because oppressive societies do not recognize or

[39] This picture of social and phenomenological identity categories also resembles certain other posited definitions of consciousness within the philosophy of mind, notably the account of epiphenomenalists such as Douglas R. Hofstadter found in his *Gödel, Escher, Bach*, and *I Am A Strange Loop*, and the Buddhist conception of selfhood.

[40] Relatedly, a potentially useful tool via which to think about the difficulties which may arise when the transparency of mediated experience breaks down is Fiona Apple's song "Window" from her 2005 album *Extraordinary Machine*; in it she sings about a relationship using the metaphor of a window which relative dirtiness or cleanliness impacts her understanding of the reasons for said relationship's ending: "I was staring out the window/ The whole time he was talking to me/ It was a filthy pane of glass/ I couldn't get a clear view/ And as he went on and on/ It wasn't the outside world I could see/ Just the filthy pane that I was looking through/…/Because the fact being that/ Whatever's in front of me, is coloring my view/ So I can't see what I'm seeing, in fact, I only see what I'm looking through/…/So again I've done the right thing/ I was never worried about that/ The answer's always been in clear view/ But even when the window was cleaned/ I still can't see for the fact/ That when it's clean, it's so clear/ I can't tell what I'm looking through/…" While it is not guaranteed that Apple intended this Hacking-esque interpretation, it is illustrative and may find use in a pedagogical context.

acknowledge themselves ***as*** oppressive, any dominant representation will have specific practices of de-legitimization to dismiss any counterevidence which might be levied against them (Alcoff, 2007; Rosenberger, 2019, 2022).

Conversely, we can then recognize candidates for individual and structural counterevidence and resistance by the ways the dominant narratives work to undercut them. Thus, since many anti-homeless laws are predicated on the notion that the removal of visibly unhoused people "solves" a "problem," we can recognize that the very availability of the lived experience of being subject to hostile architecture counts as testimony. All of this builds on what we have discussed, above, as to how epistemic violence sets the stage for injustice built into technoscientific artifacts, systems, and structures via the rationalities which uphold and perpetuate oppressive systems being taken as "rational" and "objective" givens, encoded into data, and then used to train people and systems (Ahmed, 2007; Alcoff, 2007; Garry, Khader, & Stone, 2017; Kidd, Medina, & Pohlhaus, 2017; Ymous, et al., 2020). There are also embodied elements to epistemic injustice, broadly construed, in that there are habitual ways of judging people who are perceived to have particular traits or belong to particular groups, whether in terms of disability, race or ethnicity, gender, or sexuality. Judgements are made about whether those people can be trusted with knowledge at all, let alone as reporting exerts.[41]

What Alcoff, Dotston, Fricker, and Rosenberger all discuss is an example of the ways that epistemic threat becomes ontological shock, which can in turn become perceived as existential risks or threats. An epistemic threat can be defined both as a process or situation the existence of which endangers the formation of trusted, shared knowledge (Scheman, 2011). The term can also describe what happens when a piece of previously-assumed-stable knowledge is put at risk or

[41] Cf. Tuskegee, the AIDS crisis, the 70+ years-long struggle of Henrietta Lacks and her family regarding her informed consent, and more.

called into question in a fundamental way. In this latter case, when that previously stable structure is shaken and the foundation of what one believed becomes uncertain, one no longer knows what to believe, at all. An ontological shock is the deep disturbance of not only one's beliefs about the world, but also one's place within the systems and structures of beliefs which they understood to comprise reality. When an epistemic threat is deep enough to constitute and ontological shock, then people can begin to believe that whatever caused them to experience this moment of crisis constitutes a danger to their very life and survival: An existential threat.

If that shock to the sense of reality is sharp enough or goes on long enough, then it can become understood as a threat to that individual or group's very existence. When confronted with what they perceive as the source of existential threats, embodied in other humans, individuals and groups respond by working to curtail or eliminate the agency or existence of the threat. This is a form of self-maintenance, a process in which the processes, traditions, and other signs of belonging to a group are regulated and reinforced by means of signaling out and eliminating all those processes, traditions, signs, and individuals which do not belong. Within fields of technoscientific knowledge production, the curtailing of existential threat, the soothing of ontological shock, the easing of epistemic threats are all about reinforcing dominant epistemologies— clarifying who knows the "right" things in the "right" ways. This means working to exclude certain types of belief and experience from being categorized as knowledge, and certain types of people from being considered knowledge ***holders*** (Code, 1991; Harding, S., 1991; Ahmed, 2004, 2021; Scheman, 2011).

This reinforcement of the dominant episteme can take many forms; one of most common is individual gaslighting, in which marginalized people are systematically told that their experience of Othering and discrimination is not what they think it is, that it must be attributable to, at best,

some misunderstanding, or, at worst, a failure— either way, always on the part of the marginalized person. This latter condition of telling a marginalized person that they "simply don't measure up" directly relates to another process, discussed in Chapter 1, by which the prevailing knowledge paradigm protects itself: The disciplinary regulation of who and what counts as the "right kind" of learner or knower, or even who or what can make testimonial claims of knowledge or standing, at all (Foucault, [1977] 1995; Ahmed, 2004, 2021; Abbate, 2014; Hicks, 2017, 2018; Koopman, 2022). This often looks like the continual reinscription of who "has what it takes" to be a productive member of the sciences, or academia write large, with either an uninterrogated or intentionally discriminatory implication as to what kind of people are intelligent— a collection of habits of thought we examined in depth last chapter. An extremely effective way to prevent the inclusion of those who would challenge your sense of self, and your place in reality is to bar those people from being acknowledged ***as*** persons, and thus valid participants in society (or reality) at all.

More drastic steps by which paradigms under threat have sought to control the grounding of knowledge, life, and reality also include the destruction of entire archival repositories of knowledge traditions, and the forcible eradication of their practitioners and teachers. The Library of Alexandria and the Libraries and manuscripts of Timbuktu were destroyed precisely because they represented pluralistic attitudes toward knowledge, and those seeking to establish and maintain cultural dominance perceived those attitudes as threats (Qassem, 2008; Hammer, 2016). Like the information archived in the Libraries, many indigenous technological, spiritual, or scientific practices representing situated knowledges about the world were wiped out by oppressive regimes which wanted to silence perspectives they deemed a threat to their supremacy. In the process of the white Western colonization of the African, American, Asian,

Aotearoan, and Australian continents, beliefs which were taken to be “uncivilized” or “primitive” or “unchristian” were systematically eliminated, in vast acts of cultural and physical genocide (Jalata, 2013; Venable, et al., 2016; TallBear & Willey, 2019; Berenstain, 2020; TallBear, 2020). Well into the twentieth century, valuative judgements about what kinds of knowledge, bodyminds, and lives are valid have produced unjust, harmful outcomes. The aforementioned Tuskegee syphilis experiments, the Guatemala syphilis Experiments, and even forced sterilization and eugenics as a whole the all persisted until at least the 1950s, or well beyond (Cuerda-Galindo, et al., 2014; Tuskegee University, [?]-2022). The use of electric shocks on autistic children— children not considered to be credibly knowledgeable in their own lived experience, and whose expertise is seen as a threat to many adults’ beliefs and understandings about the way children are “supposed” to be— is still ongoing, even today (ASAN, 2021).

But we can use phenomenology and postphenomenology to become better equipped to understand relational processing: how we might change the orientation of individual, social, and systemic beliefs and knowledge systems so as to provide more just outcomes and a more inclusive formulation for knowledge, via the blending of different standpoints. For example, we can place this understanding of phenomenology in context with the concept of the subaltern and use them both to better understand and even sublimate the process of epistemic valuation, discussed in Chapter 1 through the writings of Deb Chachra, Lorraine Code, and E. Burcu Gürkan (Code, 1991; Ahmed, 2004, 2007; Chachra, 2016; Gürkan, 2015, 2016). Code’s work describes how fields, academic disciplines, and trades traditionally dominated by those people whom society categorizes as women, as disabled, as any ethnicity other than White, are often deemed lesser forms of knowledge and lesser forms of work. Similarly, Chachra highlights in her essay that when members of those identity categories seek to learn and work in various

technoscientific fields they often struggle to believe in and prove their value, both to the field and their peers, and to themselves. This correlates with Gürkan's work on deconstructing how young women often get socialized into self-sexual objectification, and individuals can become equated to and conflated with their sexual parts.

Gürkan references a study titled "That Swimsuit Becomes You," in which women were asked to take a math test to assess their skill level, then asked to change clothes, donning either swim suits or looser-fitting clothing like large sweaters and jeans. The women were then presented with a room in which sat a large table of food they could eat, and later another table at which they were asked to take a brief math test. Women wearing the swimsuits a) actively avoided the food and b) did ***far*** worse on the math tests. A second test on a group of women and men showed that this self-objectification held true only for those socialized as women (Fredrickson, et al., 1998; Gürkan, 2015, 2016). And all of these findings cohere with studies which show that the work performed and displayed by female coders on the public repository GitHub was consistently ranked substantially higher than men— but only if the gender of the coder was hidden (Terrell, et al., 2017).

Unsurprisingly, this kind of interrogation of "what counts as knowledge, and who gets to be an expert" shows up in the disability and neurodiversity communities, particularly where we consider questions of how people with disabilities and neurodivergent folx understand themselves and their place in the world. The social model of disability says that it's not the physiological difference which disables, but the way that spaces, architectures, and simply basic societal expectations limit how a person "should" interact with the world and what kind of bodyminds they "should" have (Heyes, 2007; Wood, 2014; Price, 2015; Rosenberger, 2014, 2018, 2020; Schalk, 2018; Earle, 2019, 2021; Nelson, Shew, Stevens, 2019). While this does not

cover the entire story of or every disabled person's associations with their own disability, it provides a meaningful approach to asking about access, availability of resources, and who is understood as being intended for what spaces, in everything from the height and depth of laboratory work benches to the width of doors and aisles to enter those spaces at all. Also within this context, instances of self-reported lived experiential expertise are often a site of contention. In works like Hanna Herdegen's two-part series "Maintaining Disabled Bodies and Identities: Disability as Dirty Work," the Caitlin Wood edited volume *Criptiques*, and Leah Lakshmi Piepzna-Samarasinha's *Care Work*, and many others, we have stories of the work it takes to be believed about one's disabled life and to craft community in resistance to the architectures of disbelief and oppression (Wood, 2014; Piepzna-Samarasinha, 2018; Herdegen, 2019a, 2019b.)

And, again, these are only some of the studies and collections of disabled first-person reportage. Others which are directly concerned with how technology intersects with and facilitates the lives of disabled and other human persons with differing types of bodies include Ashley Shew's work on disabled technology users' experience with and thoughts about their technology; Kim Sauder's 2015 work on the ways that technological solutionism hurts disabled people and their calls to focus instead on interventions from the disabled community; Alice Wong's Disability Visibility Project which centers disabled artists, designers, poets, technologists, and others; Liz Jackson's founding work at The Disabled List, seeking to put disabled tech workers and designers in community with each other; and many more (Wong, 2013—Present; Sauder, 2015; Shew, 2018—2023). Through these works we can come to understand that how we build our societies, physically, is a direct product of how we build our societies, valuatively and ideologically, and that both of these constructions impact the lives, experiences, and knowledges of the different kinds of people who are subject to them.

The experience of who and what we are is not just determined by ***our*** subjective valuation of it—it is also formed by what others expect, what we each learn to believe, and what we all, together, agree upon as meaningful and true and real. The elements of our constructions depend on each other to help determine each other, and the determinations we make for ourselves then feed into the communal pool of concepts from which everyone else draws to make judgments about themselves and the rest of our shared reality. We now know that people have mental models for who they consider a valid "authority" or "expert" knowledge-holder. We also know that the construction of this mental model changes from one field of expertise to the next, and that these knowledge creation and reinforcement criteria are expressions of power relations. These power relations depend in large part on the identity categories and processes within not just disciplines but social groups of the people who comprise them. Thus, we not only understand ***why*** there are certain areas which don't even get counted as knowledge, in the first place, but can devise a way to highlight, unpack, and deconstruct that process in the pedagogical and disciplinary process, thus beginning and making space for the proliferation of strategies for resisting the dominant hierarchy. This notion of co-created, experiential knowledge pairs directly with considerations of intersectionality and intersubjectivity.

Intersectionality and Intersubjectivity

In "Demarginalizing the Intersection of Race and Sex: A Black Feminist Critique of Antidiscrimination Doctrine, Feminist Theory and Antiracist Politics," sociologist Kimberlé Williams Crenshaw explained intersectionality in the following way:

> I argue that Black women are sometimes excluded from feminist theory and antiracist policy discourse because both are predicated on a discrete set of experiences that often does not accurately reflect the interaction of race and gender. These problems of exclusion cannot be solved simply by including Black women within an already established analytical structure. Because the intersectional experience is greater than the sum of racism and sexism, any

> analysis that does not take intersectionality into account cannot sufficiently address the particular manner in which Black women are subordinated. (Crenshaw, 1989).

And though Crenshaw specifically centers black women here, she does not intend this to mean that only black women can be intersectional subjects. Within and without the academic context, the term "intersectionality" has become widely applied, and misapplied with many thinking of it as shorthand for playing the "oppression Olympics" and determining who has it worse than whom. Rather the term is meant to highlight that groups which have traditionally been cast as single axes of identity can be better understood via intersectionality. Also, as Patricia Hill Collins demonstrates, the fact of intersectional action and analysis existed within Black feminist thought long before it was named and accepted by the academy (Collins, 2000, 2010, 2012, 2019; Collins & Chepp, 2013).

Here, I use Patricia Hill Collins' work on intersectionality in a way similar to the work she does with American Pragmatism, which is to say placing it in a somewhat new relational context to further examine what the fields and practices discussed elsewhere in this dissertation might learn from it (Collins, 2011, 2012, 2019; Collins & Chepp, 2013). Collins' work directly examines the valences of power and exclusion, again, and the ways that oppressed and marginalized perspectives are expressly excluded from the categories of knowledge and expertise. I do this by bringing theories of phenomenology into conversation with the theories of intersectional identity and oppression and the matrix of domination, specifically in the form of interventions from Patricia Hill Collins and other proponents of standpoint epistemology (Collins, 2000, 2010, 2012, 2019; Stoetzler and Yuval-Davis, 2002; Collins & Chepp, 2013).

In her ground-breaking *Black Feminist Thought: Knowledge, Consciousness, and the Politics of Empowerment*, Collins discusses the ways in which Black women have "oppositional yet subjugated knowledges" about their own oppressed situatedness within Western society (2000, p.

13). She uses this as a jumping-off point for discussion of a concept which recurs throughout the text: The matrix of domination (2000, p. 18). The matrix of domination differs from the intersectionality of oppression in that, as Collins says, the former is concerned with the actual arrangement of the constituent pieces, rather than the fact ***that*** their differing arrangements will produce a different type of experienced oppression. No matter the pieces, each intersection reproduces an arrangement which depends upon and reinscribes dominant hierarchies (2000). This sits directly in line with the work of Foucault, Spivak, and other standpoint epistemologists, the former of whom Collins explicitly names and references in the Chapter 12 section "The Disciplinary Domain of Power" (2000, p. 280—283). This reading of disciplinarity and the structures of power once again offers us a component for a strategy of resistance, because, as Collins says "Rather than raising consciousness, Black feminist thought affirms, rearticulates, and provides a vehicle for expressing in public a consciousness that quite often already exists" (2000, p. 32). The marginalized, oppressed Other that we find in this work is primarily a multiform Black woman across various axes of sexuality class, education, and cultural enmeshment, but Collins' framework can easily be seen to have space to include disability, transgender identity, and other lived experiential realities (Collins, 2000, 2019; Collins & Chepp, 2013).[42] The frameworks built in these texts outline a process of self-definition, group-ascription, and cultural enmeshment which allows groups to construct and reinforce various identities without oppressive gatekeeping.

However, Collins says, these processes are also processes by which those groups generate safe spaces which protect the members from having their narratives written for them by those who do not share any meaningful family resemblance of qualities with them. The language of

[42] In fact Collins begins to expand the field of intersectionality in exactly this way in her article "Intersectionality" written with Valerie Chepp for the *Oxford Handbook of Gender and Politics*, and in her single-authored 2019 book *Intersectionality as Critical Social Theory*.

"safe spaces" comes from trauma counseling and trauma studies, and, as such, safe space language has a great deal of granularity and flexibility (Gagné, 1993; Wilson & Lindy, 1994; Brady, 2005; Maxfield, 2019). Microaggressions are absolutely damaging to the mental and emotional wellbeing of a marginalized individual or group, but they reside in a different realm than ***acute*** traumas. Where acute traumas may be things like racist, sexist, or transphobic acts of violence, societal microaggressions are more like a slow constant drip of assumptions or stereotypes or jokes or misgendering or even seemingly innocuous phrases like "oh she speaks so well!" A safe space, then, is somewhere to sit and assess and commiserate— and perhaps, as Collins indicates, to devise strategies to combat both the acute and microaggressive attack that has happened, and to prevent new ones in the future.

The thread of intersectional validation of lived experience is also explored in Sami Schalk's 2018 *BODYMINDS REIMAGINED: (Dis)ability, Race, and Gender in Black Women's Speculative Fiction.* Schalk aims to explore concepts of embodied being, and the ways the exterior pressure of societal norms impacts what are seen as "normal" or "acceptable" bodies. Schalk's site of interrogation is Black women speculative fiction authors and the ways in which their writing illuminates new understandings of race, gender, and what Schalk terms "(dis)ability": the "overarching social system of bodily and mental norms that includes ability and disability," noting that this "also highlights the mutual dependency of disability and ability to define one another" (2018, p. 7). Schalk explores (dis)ability, race, and gender in and via black women's speculative fiction, using tools and methods from disability studies, Black feminist studies, women and gender studies, and literary analysis to place works by Octavia E Butler, Phyllis Alesia Perry, N.K. Jemisin, Shawntelle Madison, and Nalo Hopkinson in conversation. There, she examines what those works can teach us about the possibility space we

might be able to carve for thinking differently about all of those subjectivities: racialized, (dis)abled, queer, gendered. To do this work, Schalk combines intersectionality with Crip Theory, and specifically Price's concept of Bodyminds. (Dis)ability is about the relationality and the porous movement between categories, rather than any static state. Schalk uses speculative fiction specifically because it allows for a new way to examine the categories of race, gender, and (dis)ability. No other genre, Schalk says, allows for the elements of a character's lived experience and identity to be read as both metaphor ***and*** material textual reality, something which it is crucial to do if we want to ensure that representations of disability are more than tokenistic and ableist disability metaphors (2018, pg. 36, 39—69). Schalk argues that we need a full intersectional engagement of (dis)ability, race, gender, and culture, because all categories of oppression "are constantly shifting and shaping each other."

A major component of everything that we have been discussing so far is what's known as intersubjectivity. All of phenomenology and much of intersectionality explicitly depend on an intersubjective process for coming to understand the world and our relations to and within it. Intersubjectivity as discussed by phenomenologists such as Merleau-Ponty and Husserl was meant as a kind of shared knowledge between individuals and ***groups*** of individuals who regard each other as legitimate mutual subjects, rather than as objects (Husserl, [1913] 1982; Merleau-Ponty, 1962). Intersubjectivity is the idea that whatever knowledge we build from our subjectively valued lived experiences is also changed and affected by what other knowers, believers, and experiencers expect, what we all learn to believe, and what we all, together, agree upon as meaningful and true and real. This largely unconscious set of agreements then becomes the foundational world we all experience together, and from which we generate new knowledge and beliefs. However this understanding of subjectivity depended largely on a transparent,

anonymous subject with no distinctions. This, then, is why I have left this discussion until now: So that we may recognize as phenomenologists of race and gender and sexuality, and intersectional feminists, and standpoint epistemologists all have, that the particularities of individual and social subjectivities matter greatly to the experience of phenomena (Code, 1991; Harding, S., 1991; Garry & Pearsall, 1996; Hartsock, 1998; Ahmed, 2004, 2007; Alcoff, 2007; Collins, 2011, 2012, 2019; Collins & Chepp, 2013; Chachra, 2016; Gürkan, 2015, 2016; Garry, Khader, & Stone, 2017; Kidd, Medina, & Pohlhaus, 2017; Ymous, et al., 2020).

That is, different phenomenological and postphenomenological experiences will produce different understandings of the world, and different systems of knowledge by which to navigate those understandings. In order to get as complete an understanding of the world as possible we need intersubjectivity and intersectionality of knowledge construction. We need to understand that the work of generating and validating knowledge from within oppressed or subaltern identity categories will require an active, attentive, intentional intersubjective process, rather than one that merely comes to pass.

We can find threads of intersubjectivist thought in non-Western philosophies such as Buddhism and Advaita Vedanta Hinduism as well as western theorists like Donna Haraway, Patricia Hill Collins, Edmund Husserl and Edith Stein (Haraway, 1991; Ñānamoli & Bodhi, 1995; Davidson, 2001; Collins, 2000, 2019; Behnke, 2011).[43] The work done by intersubjective, mutually subjective relations is also advocated for in other sociological and philosophical areas. For instance, in Cressida J. Heyes' 2007 *Self-Transformations: Foucault, Ethics, and Normalized Bodies*, Heyes examines three case studies: the hermeneutics of transgender individuals,

[43] It should be noted that Collins does not explicitly use the term "intersubjectivity" in *Black Feminist Thought*, but the relational subject-to-subject derivation and construction of knowledge that she describes in that book is the precise nature of the intersubjective project, as reflected both in the other citations, here, and her own most recent work.

especially trans women; the "Askeses" (self-discipline practices) of organized weight loss dieting programs; and "Attempts to represent the subjectivity of cosmetic surgery patients" (2007, p. 10). Heyes' is not claiming some perfect analogy between trans folx, weight loss program adherents, and cosmetic surgery recipients; rather, she believes that by investigating each of these, in turn, we can understand something further about how societal pressures and normativities put pressure on each group in ways that limit their capability for authentic intersubjective self-generation. She argues that, through our relationships to societal images, we become complicit in our own colonization and adherence to these norms.

In the case of trans women, Heyes deconstructs the long history of arguments from within certain strands of second wave feminism which either pathologize the desire for gender reassignment, discount the experience as that of "men who think they're women," or, at best, claim that trans individuals don't go far ***enough*** in transgressing against gender norms (2007, pg. 46—62). For weight loss program adherents— the site at which Heyes inserts herself into the text— images of thinness and idealized skinny bodies, and notions of "virtuous self-discipline" complicate the relationship between someone who wants to change how they see themselves and their image in the mirror; is this really for them, or is it for the world (2007, pg. 63—88)? Finally, for cosmetic surgery recipients, societal ascriptions persist which reinforce the notion that anyone who is beautiful on the outside, must necessarily be so on the inside, and so surgery becomes sold as a means to fix persons and intersubjective problems (2007, pg. 89—110). From there, Heyes moves on to theoretical examination of normalization, somaesthetics, and Foucault's ethical stance, finally arguing that while Foucault's ethics are a good starting point, anyone seeking to use them must constantly ask questions about the operation of power, identity,

community, intersubjectivity, and norms (2007, pg. 111—136).[44] Again, we must seek the ***intentional*** construction of a liberatory form of these things, rather than just allowing them to accrete into a form that oppresses and subsumes us.

To this end, we can turn back to our discussion of the lived experience of building disabled communities of care and validation. Within the common shared experiences of disabled users of prosthetics, medication, or the Western medical industry as a whole, strategies of care and communal resistance are common, and provide a space to have one's experiences corroborated by others who know what you're living through. Similar functions are attested by communities of Black women within Collins' writing, of course, but the life and death care work done by disabled people in community is equally illustrative of the visceral as well as mental and emotional depth of need filled by these families of choice (Wood, 2014; Piepzna-Samarasinha, 2018; Herdegen, 2019a, 2019b). In Wood's *Criptiques*, the struggle for validation and liberation is rendered in the form of over two-dozen writers grappling with what it means to be disabled, to be perceived as disabled, to be understood as disabled by the medical establishment, or society, wondering "am I disabled enough to be part of this community?" and "do I only think of myself as not disabled because of my internalized ableism?" The authors represent multiple intersections of gender, race, sexuality, and differing formulations and understandings of disability, and their stories all play out within structures of power and oppression put in place by non-disabled people, as they work to be understood on the terms they choose. Each piece details various weights of microaggressions, outright hostility, or reflexive expectations in which a disabled person has to wonder about what other people are wondering about them, all while navigating the physical and social structures of a world which isn't built for them. Thus, the text itself is an

[44] For more support for bringing Foucault into the philosophy of tech/STS overlap, cf. Dorrestijn, Steven; "The Care of Our Hybrid Selves: Ethics in Times of Technical Mediation;" Foundations of Science 22(2): 311–21; 2017;https://doi.org/10.1007/s10699-015-9440-0.

act of intersubjective reality validation; it is a way to say to other members of the disabled community, "You are known, and if you see yourself in these pages, then you belong here, exactly however much you desire to."

Ultimately, any normative stance must be one that acknowledges and widens the field of possibility for valid lived experience and choice. As such, we need to develop programs and cultures whereby we access communities and (or of) individuals who hold different perspectives and who have generated different systems of knowledge based on those perspectives and experiences. This does not give us "objectivity," as such, but *a co-creative and co-arising access of multi-perspective understanding*. By bringing training in theories of race, disability, gender, sexuality, phenomenology, intersectionality, and intersubjective knowledge into conversation with insights from religious studies, science and technology studies, and philosophy of technology, we can now talk about exactly what it is that we might have known. That is, when we learn to apply techniques such as bias bracketing and intersectional analysis in the contexts of scientific and technological research, development, and design, we can begin to learn from our past failures in a more robust and systematic way. We can create new rituals based on relationality and intersubjectivity, rather than subjugation and objectification— no longer a binding or a curse, but mutual, co-equal subjects, in dynamic relation weaving an invocation of and with each other.

Spelling It Out: The Mutuality of Care

As long as humans are the ones doing the work of translating their experience and understanding of the world into both the constructions of "AI" and algorithms and into the datasets and languages that those technologies can understand, then those humans will need to work in far more diverse groups of people. But this means more than a tokenistic sampling of

someone to be the only Black person, the only woman, the only disabled person, the only trans person, the only gay person in the room; it means taking seriously the need to center the stakeholders who will be most affected by the tools and systems that will be created. This is in some ways an extrapolation of what has been known as needed since the late 1980's, when theorists, researchers, and practitioners in what is known as User Centered Design began to focus on the process of how systems, artifacts, and interfaces are built with the user in mind—taking what's been built back to the people who will use it, and asking them what works and what doesn't.[45] This process is necessarily more complex and time consuming than that, and even more so than simply choosing one prominent person to represent whole groups, but it is also far more likely to capture the perspectives of those people who understand not only the existence of our framing questions and their implications, but also the epistemologies and life strategies that they represent.

When considering the future construction of the "AI" and algorithmic systems that impact our lives, the phenomenological and post-phenomenological accounts demonstrate that different mediated lived experiences will necessarily produce both different pictures of the world and different knowledge systems by which to navigate them. These different systems of knowledge will necessarily provide different internally consistent answers in different situations, generating different beliefs about, ways of understanding, and modes of living in the world. In order to understand these different modes, we will need to be able to clearly assess the biases we hold, and the likely implications they will have on our thinking and behavior; this is the process of Bracketing discussed in Chapter 2, which was also engaged and expanded by Husserl and other phenomenologists, religious studies theorists, and social scientists (Husserl, [1913] 1982; Glaser,

[45] "User-Centered Design Basics." Usability.Gov. https://www.usability.gov/what-and-why/user-centered-design.html. Retrieved June 25, 2019.

1992; Crotty, 1998; Beech, 1999; Creswell & Miller, 2000; Sharpe, 2003; Drew, 2004; Gearing, 2004; Charmaz, 2006; Starks & Trinidad, 2007; Tufford & Newman, 2016).

When we understand people in an intersubjective and intersectional way, we can recognize the many vectors for different kinds of knowledge in the world. When this lens is paired with discussions of phenomenology, post-phenomenology, and standpoint feminism— perspectives which all hold that lived experience informs knowledge— they are all mutually enhanced.[46] If we combine the mediation that takes place in a post-phenomenological perspective with the intersubjective construction of knowledge based on the lived experiences of the people and groups involved, we generate bias, and that bias finds its way into everything we create and do. And so now a person previously unfamiliar can come to better understand what we mean in Chapter 2 when we say that "bias" is another word for "perspective," and that, as such, the generation of intersectional and intersubjective phenomenological frameworks may be seen as crucial to the generation of more just values and norms. Systems and technologies generated by humans will have artefacts of human bias within them. This chapter has sought to provide a groundwork from which to build the kinds of strategies by which we can bracket out—that is, be aware of and account for—our biases.

Within this context, we must also focus on first-person reports from experiential experts: marginalized people living within a world which does not build itself for them. By using these tools, we can continue to craft safe spaces in which oppressed subjectivities may be worked through and people can come to grips with themselves. This is, again, intentional work that is done by delineating and then troubling boundaries in community with each other to create a

[46] Cf. Husserl ([1913] 1982), Edith Stein (Sawicki, 1997), Merleau-Ponty (1962), and Ahmed (2004, 2007) on phenomenology; Ihde (1991), Verbeek (2008), Rosenberger (2014, 2018, 2020), and Michelfelder, 2015 on postphenomnenology; and Code (1991), Harding (1991), Garry & Pearsall (1996), Hartsock (1998), Collins, (2000, 2011, 2012, 2019), Alcoff (2007), Collins & Chepp (2013), Chachra (2016), Gürkan (2015, 2016), Garry, Khader, & Stone (2017), Kidd, Medina, & Pohlhaus (2017), and Ymous, et al. (2020) on standpoint epistemology

Safe Space. Any realm that is marked out for the nonjudgmental expression of thoughts and feelings, in the interest of honestly assessing and working through them is a Safe Space, and so "Safe Space" can mean many things, from "Safe ***from*** Racist/Sexist/Homophobic/ Transphobic/Fatphobic/Ableist Microaggressions" to "safe ***for*** the thorough exploration of our biases and preconceptions." The terms of the safe space are negotiated intersubjectively, between the individuals in community who make up that space, at time of marking them out, and via continual check-ins throughout the time together. The terms of the space are mutually agreed-upon by all parties, with the only imperative being, be open to the process of expressing and thinking through oppressive conceptual structures. Everything else— such as whether and how to address: the internalised forms of those structural oppressions; micro- or macroaggressions in others; or both, and their intersection, remains negotiable.

The marking out of a Safe Space performs the necessary function, at the necessary time, defined via the particular arrangement of stakeholders, mindset, and need. And, as John Flowers has previously noted, anyone who has ever been in a martial arts or yoga studio has been in a Safe Space. This means that, from a Religious Studies perspective, defining a safe space is essentially the same process as the marking out of a ***ritual*** space (Eliade [1957] 1959, 1957; Douglas, 1966; Turner, [1969] 1997; Smith, J. Z., 1982. 1992; Bell, 1992, 1997). Practitioners of occult and magical systems will draw a ritual Circle, or Call the Corners to mark out a place as sacred and separate from the mundane or profane world, just as for more "traditional" religious adherents, the threshold of the temple or church or synagogue will often demarcate that border. However, this is not necessarily always a binary operation, in that many traditions understand the sacred and the profane, the ritual and the mundane, to be inextricably intertwined. In that same way, the boundaries and negotiation of Safe Spaces may be seen by

those within them specifically as places in which to transgress against the expectations the dominant perceptual hierarchies have for them and their group. In that way, we find ourselves with the need for a theoretical system which also excels at boundary work and intentionally troubled stabilities.

From these approaches, we can now clearly recognize how human biases get encoded into "AI" and algorithmic systems. Referencing again the work of STS scholars like Langdon Winner (1980, 1993), Melvin Kranzberg (1986), and Trevor Pinch and Wiebe Bijker (1984), and placing them in conversation with the work done in this chapter, and the previously discussed work of Simone Browne, Ruha Benjamin, Safiya U. Noble, and Virginia Eubanks, we can understand the connection between situated knowledge and the embedding of politics and social conditions into technoscientific systems. The construction and use of the instruments and systems embeds and perpetuates values, from the start and throughout their existence. If they are taken to be "neutral" or become fully transparent to us in our usage, then they will never be interrogated for ***which*** values they have embedded and perpetuate. Rosenberger references philosophers of technology De Boer, Hoek, And Kudina, where they write, "'Co-constitution' means that, rather than existing independently, the relevant features of a person, a technological medium and the world appear as a result of their mutual relatedness" (De Boer, Hoek, & Kudina, 2018; Rosenberger, 2020). This statement applies not only to the ways in which the social construction of technology (SCOT), the social shaping of technology (SST), and actor-network theory (ANT) are and have been influencing each other over the years, but also can be seen to reference the main projects at play in the heart of both standpoint theory and intersubjectivity which undergirds intersectional theory; this connection is also demonstrated in the "both/and" nature of Collins' transversal politics project (Collins, 2000, p. 246).

If we are to move forward in a just manner in the development and engagement of algorithms, potential machine minds, and other technologies which integrate with human lives on levels technological, biological, social, and combinations of the above, then we must first work to truly understand the deeply interdisciplinary nature of the task. The history of cybernetics as a discipline begins with the formation of the belief that biological, physical, mental, sociological, and political systems all shape and are shaped by each other in a reflexive feedback loop structure which can pertain to and operate on itself (Wiener, 1948). Looking forward, should we manage to create an "artificially intelligent" system which we recognize as conscious, then that system would necessarily be a ***cybernetic*** mind, made of the systems of senses and reflexive interactions through which it engages with the world. And if we never do manage to create such a mind, then it will still be the case that what systems we do create will intersect with the world at all of those points and levels. Either way, until we work to ameliorate the ways in which we have failed to consider the lived experiences and positionality of various bodyminds, in the world, in regards to disability, race, gender, sexuality, and other features, then whatever we create will reproduce the harmful oppressive dominant epistemic hierarchical systems out of which they were devised.

Thus, we must start by understanding and integrating the marginalized perspectives discussed herein. With disabled and neurodivergent perspectives, with Black, Indigenous, and Decolonial Perspectives—specifically in dealing with Kanta Dihal's work on Decolonial AI—with LGBTQIA+ perspectives, as well as perspectives from women and non-binary and gender-nonconforming individuals (Voss; 2013; Fancher, 2018). We have to understand that while each of these perspectives can be understood to represent a different lived experience, there are many people in whom one or more of these experiences combine, and that those intersectional lived

experiences form a crucial component of the standpoints we will need to understand the world. But if we take seriously what we discussed above, about intersubjectivity, then we shouldn't think of all of those as separate lessons; rather they are interlocking components of a complex and necessary process for identifying and engaging our values, beliefs, and rituals in a more meaningfully just way.

Chapter 5: "AI" Research Policy Recommendations

Whether YouTube, Google Search, Microsoft, Clearview AI, Hirevue, Proctorio, Meta's Facebook and Instagram imprints, or innumerable others, we know that the construction of algorithms can exacerbate bias, a word which, as we discussed in Chapter 2, many take to be synonymous with "prejudice," but is, again, more akin to tendencies towards or expectations of particular points of view or perspective— something like habits of thought. These habits are most problematic when they are uncritically hewed to, and allowed to become prejudicial. The algorithmic models of the aforementioned companies actively drive prejudiced decision-making, and accelerate the spread of hateful ideologies and misinformation— something which has pushed some of these same corporations to try to get out ahead of any forthcoming civil or regulatory pressures (Frankel, 2021; Isaac, 2021; Pruitt-Young, 2021; Williams, D., 2021). The problem with these strategies is that they don't get at the real heart of these problems, which is that these corporations' algorithms are responsible for the harms they cause— because these corporations built them to do that harm, and with now-established knowledge of outcomes. These platforms have pioneered "machine learning" techniques for content weighting, preference ranking, and sentiment manipulation, all which have been learned, gamed, and emulated by everyone from rival algorithmically-mediated platforms to malicious bad actors ***on*** all of these platforms (Waldman, 2014; Hao, 2021). Facebook in particular has spurred an ecosystem which rewards those who spread— while actively disincentivizing anyone else's ***understanding of***— emotionally charged, affectively resonant content. Again, we have long known all of this, so what remains is determining what it is we can actually ***do*** about it.

This work aims for a new understanding of technology's intersection with biosocial systems of knowledge, power, values, and beliefs, starting from the vantage point of those people who have been doing this the longest. We must interrogate notions of colonization and disciplinarity

to discuss how expectations of certain performances of whiteness and ablebodiedness cut across concerns of religiosity, political power, knowledge formation, medicalizaion, and the combination of all of these into technological systems and artifacture (Fanon 1952, 1959, 1961; Hester, "The Body as Border"; Collier, 2014, 2016; Olson & Labuski, 2018; Johnson, S., 2019, 2020; Shew, 2020; Williams, D., 2020, 2021). To do this, we must work to recognize, unpack, and challenge assumptions about the world; seek unfamiliar ways of knowing; research, devise, and teach new models for the creation of knowledge and ethical engagement of said; learn to agilely deploy these models; place them in conversation with each other; and build intersubjective bases for shared understanding.

As the foregoing chapters demonstrate, I am another among the host of people who have highlighted the individual and cultural harms of algorithmic and other technological tools and systems. Many activists, researchers, and others are working specifically to counteract and prevent military, capitalist, carceral, and even outright white supremacist groups from building their principles into "AI" and algorithmic systems, and to build decolonial, anti-racist, crip, anti-misogynist, and queer principles into those systems' development instead. The problem is, if corporations, regulators, and the general public heed these alarms at all, it's only when something has already gone wrong— and even then only to ethics-wash their internal procedures (Wagner, 2018). Many of those who have dedicated their lives to studying the social implications of technologies are the same ones who have consistently warned that letting technology corporations and fields regulate themselves— or letting them set up internal "oversight boards" to do it for them— is a terrible idea. Corporations which are motivated by power and profit will have every reason to obfuscate and outright lie about the harms they cause, and without real regulatory oversight, nothing will stop them.

It is not simply the case that large portions of the population are technologically "illiterate;" rather more to the point, the symbols we need to be able to read and interpret are often actively and intentionally ciphered and occulted away from us. What this means is that meeting the calls for "Algorithmic Transparency" will comprise only one part of how we address these problems; merely knowing what is going on inside of them will not be enough. That is to say, knowing how these intentionally blackboxed systems learn what they learn and do what they do certainly is important, especially as companies move to eliminate even what little access researchers have managed to scrape together, but that knowledge is nothing if we can't meaningfully enforce changes to the design, construction, and implementation of these companies' systems (Angwin, Kirchner, et al., 2016a, 2016b, 2016c, 2016d; Pasquale, 2017; Faife, 2021; Głowacka & Iwańska, 2021). And so, in addition to merely knowing what these algorithms consist of, we must also ensure the intelligibility of those algorithms to the general public; and then a form of meaningful accountability for any harms these systems and their parent corporations perpetrate, must be harnessed to both of the other two principles. Ultimately, we may have to accept that some technological interventions should perhaps be completely avoided until we can seriously reckon with their implications and consequences— or that certain platforms have created so much harm, that they need to be broken up and fundamentally restructured.

The former understanding of algorithmic abstention is a position which has at least found favour with the United Nations, as their Office of the High Commissioner for Human Rights recently called for a "a moratorium on the sale and use of artificial intelligence (AI) systems that pose a serious risk to human rights until adequate safeguards are put in place" (United Nations, 2021a, 2021b). However, while devising "adequate safeguards [to protect human rights]" are among the many good arguments for moratoria on development of "AI"/"ML" systems, even the

UN's effort could benefit from an increase in clarity, precision, and specificity. Other moratoria and calls for abolition have clearly laid out the actual and potential harms to various communities, with an eye toward specific redress, whereas this call leaves a great deal of undefined space. The full text of the report contains no mention of the word of "values," and most uses of "justice" are in the context of the carceral system. In fact, the report does not explicitly naming of racism, sexism, ableism, transphobia, or homophobia, at all, despite guidance that,

> Particular attention should be paid to disproportionate impacts on women and girls, lesbian, gay, bisexual, transgender and queer individuals, persons with disabilities, persons belonging to minorities, older persons, persons in poverty and other persons who are in a vulnerable situation. (See section IV, subsection B, on page 13.)

Instead, the report discusses the same concept structure of "bias" we have already discussed. As we have explored from multiple perspectives now, there is no way to be a thinking, perceiving person, without developing some form of bias, and the two primary instances in which our biases may become a problem are when we refuse to interrogate and bracket or change them, or when they're bigoted—or both (Garry & Pearsall, 1996; Bertrand and Mullainathan, 2004; Daston & Galison, 2007; Goff, et al., 2014; Browne, 2015; Garvie, Bedoya, Frankle, 2016; Caliskan, Bryson, Narayanan, 2017; English, et al., 2017; Terrell, et al., 2017; Chen, et al., 2018; Eubanks, 2018; Noble, 2018; McNeil, 2018; Quach, 2019; Williams, D., 2020b, 2021).

But the idea of "bias" also carries connotations of individual action and responsibility, in which "a bias" is understood as something a person holds within themselves and "a biased action" is something someone does— a specific, discrete occurrence or event which can be countered and corrected with specific, discrete changes. By focusing on "bias" and

“discrimination,” interventions such as the UN Report and many other discussions of how to regulate “AI” and other technologies undercut what could be a clear discussion of the harms of and remedies for institutional epistemic injustice (Ymous, et al., 2020). Not only does this kind of language extant individual and systemic harms unaddressed, it leaves open the space for abusers and bad actors to take advantage of the public’s expectations of how the regulatory process “ought” to operate (Wagner, 2018). None of which is to say there is no merit in either the UN’s positions— indeed, they have taken and extremely important first step. The following steps must be a sincere willingness to explicitly name the problems we’re trying to face, such as whose values are involved, which rights are at stake, why exactly are these important, how long have these situations been going on, and what cultural assumptions are they built on? These are the kinds of questions which will let us clarify exactly whose perspectives we need to bring in and what kind of work we need to do.

Because while we can always benefit from leaving space for new research and understandings when thinking about rights and justice, finding remedies for extant harms and injustices and preventing futures ones requires clearly outlining and discussing whose values are at stake, rather than merely considering the probabilities and risk ratios of various outcomes. A large part of the “AI” work being done by current algorithmic and “machine learning” systems is bound up in human values of and thinking around things like power, punishment, and oppression— a situation which it is often suggested can be solved by yet more algorithmic “ML” systems. But seeking solely technological fixes to values problems is a losing proposition, as they will merely shift where and how those same bad values get worked in. That is, if we don’t tackle the foundational questions of what we believe in and hope to achieve, then each new technological fix will just reproduce old harms in new ways, while thinking we “solved” the

problem. The harmful outcomes of algorithmic systems and tools arise from their replication, reinforcement, and iteration upon racist, sexist, ableist, transphobic, homophobic, fatphobic, and otherwise bigoted human values. That is, all of these human-created systems express human values about having power over other people, whether through pseudoscientific and modern medical classifications, the valuation of human labour, or otherwise. If technologically solutionist projects are undertaken without first examining these oppressive logics at their root, then all they are likely to change is who is committing the oppression.

The Role of Marginalized Perspectives in "AI" Research and Policy

Right now, most uses and distributions of "AI" are as algorithmic cops, taking their basis in surveillance, facial recognition, and the criminalization of certain populations of BIPOC, Disabled, LGBTQIA+, Neurodivergent, and otherwise marginalized populations under that guise of "prediction." Accordingly, the carceral, corporate, and militarized principles embodied in their commissioning, design, training, and application will form the foundation for any machine minds which may be developed from them. However, militarized, carceral capitalism alone is not the cause of these problems. If they are not actively named, argued against, and dismantled, then racism, ableism, misogyny, transphobia, homophobia, and all other flavours of bigotry will very much continue to exist in even socialist systems, thus continuing to be baked into our technologies.

While the present work on values and bias in "AI" and biotechnologies obviously sits in a conversation with the work of scholars like Safiya Noble, Mar Hicks, Ruha Benjamin, Meredith Whittaker, Simone Browne, Aimi Hamraie and Kelly Fritsch, and others mentioned above, this work also weaves in perspectives from religious studies, such as those of Scott Midson, Ras Michael Brown, J. Z. Smith, Karen Brown, Catherine Bell, Shaily Patel, and more. Religious

scholarship is often absent from these conversations, as many feel religion and technoscience are or ought to be unconnected. However, religious beliefs animate and shape attitudes toward and concepts around a vast array of technologies, particularly in the areas of "AI" and biotechnology. The work we do to build this more open and entangled future requires an understanding of those perspectives deemed "primitive" or "uncivilized." From Hellenistic Greece, to ancient Christianity, to contemporary Judaism, perspectives on the "godliness" or "naturalness"— or "un-"— of technological interventions, or of nonhuman minds or servitors have woven their way through 20th and 21st century projects in the realm "AI" and cybernetics (Williams, D., 2008, 2014, 2018a; Patel, 2017; Midson, 2018; Singler 2021).

Many anthropologists and historians of religion have put forward and evolutionary anthropological categorization of human belief where all societies move from "primitive" beliefs like magic through moderate belief in religion, all the way to the perfection of scientific rationality (Frazer, [1922] 1996; Eliade [1957] 1959). Even the phenomenologists of religion who took ritual belief to be a valid form of understanding still referred to the tribes of practitioners themselves as "primitive" (Otto, 1917). But decolonial lines of thinking in contemporary anthropology, history of science, and Religious Studies hold that the evolutionary model is a colonialist product, both reiterating and reinforcing the standards of oppressive regimes which saw themselves as the only right way (Bell, 1997; Turnbull, 2000; Jalata, 2013; Knight, 2016; Matory, 2018; Johnson, S. 2019, 2020; Berenstain, 2020; TallBear, 2020). Not only that, but as this dissertation has repeatedly shown, even supposedly "advanced" or "modern" Western technoscientific cultures still believe in magic, we just call it different things.

For many theorists and practitioners, Frazer's concept structures of sympathy, similarity, and contagion are still at play, here, and the formulations of language, tone, emotion, and gesture

previously called “magic” and “ritual” all still work when you call them political strategy, or marketing, or branding (Jung, 1977; Davis, 2004; Burrington, et al., 2015). All of these are still communicative ritual constructions designed to make their target audience think and behave differently, and to cause action at a distance. These are all still magic. Clarke’s adage about sufficient advancement provides an in, a path by which to come to think of what we do, every day, as “rational,” “scientific,” “advanced.” But at its core, we are still dealing in the resonance between felt, lived experiential reality, and the so-called objective world we all share.

The changes in education and policy necessary to make the changes in the recurrent intersecting harms I’ve outlined are not a simple matter of understanding people’s psychologies, their desires or fears or hatreds or aspirational beliefs which cause them to other and oppress and act in ways that harm even their own interests. It cannot be done by merely providing people with more information under the assumption that they will acknowledge the error of their ways and become “better.” It cannot be done by laying out all of everyone’s biases and prejudices in front of them and hoping they do more than shrug and say, “Yeah, so?” And it cannot be done just by “meeting them where they are.” Rather the work we need to do is as complicated as bringing all of those facets together, and applying them in a framework of regulation of the existing laws and norms, even as we work on a process of values educations to effect deep and lasting change of those legal and normative systems. Each part mush resonate with the others to create a vastly complex whole.

By interrelating perspectives from technology studies with religious studies, I hope I’ve highlighted not only how bias and value operate within “AI” and other technologies, but to both discuss how this has always been the case, in the form of magico-religious beliefs, and argue that there is something to be gained by making explicit these beliefs. The fundamental tension in

these binary conceptions— “natural”/”unnatural,” “holy”/”unholy,” “sacred”/”profane”— is one which is more often bound to Western thought than otherwise. While engaging conceptions of magic and the occult, I have also explicitly highlighted the perspectives and lived experiences of marginalized and minoritized people, such that, at the crux of those elements, we may recognize that not all occultations are created equal. Many religious traditions have a component of liturgical mystery to them, wherein the adherent is not allowed to speak of the secret truths that they understand, holding instead that intentional hiddenness is a source of power, and so engaging in practices meant to cultivate that state. But even among those traditions, sometimes that silence is born of self-preservation as much as from the efficacious power of privately observed faith.

While some may actively choose “To know, to will, to dare, and remain silent” (Lévi & Waite, 1886, p. 213; Lévi, 1968, p. 29; Coyle, 2013, p. 8; Wigington, 2020), others however remain silent because they know that communicating what they know, will, and dare would lead to religious persecution, or forced conversion under pain of torture and even death (Jalata, 2013; Knight, 2016; Venable, et al., 2016; Patel, 2017; TallBear, 2021). Simultaneously, those wanting to share what they know with others in the world but forced to remain silent in fear of persecution sometimes even have their sacred knowledge appropriated and deployed by those who silence them; white Western colonial knowledge regimes claiming “discovery” of something those they oppressed knew all along. So while perhaps there is a kind of power in the precept knowing, willing, daring, and remaining silent about all of which you may be capable, those who have had no choice in the silence they have to keep might welcome the opportunity to clearly and forcefully demonstrate the depth of their knowledge, understanding, and power.

Again: Woven throughout these marginalized histories, there are constructions of knowledge and understanding which have repeatedly been derided, and then, far later "proven" by the standards of the very culture which dismissed them in the first place. Many different marginalized communities have transformed their silence and secrecy from necessities of safety and survival to perceived sources of spiritual power. By introducing interventions from the religious traditions of enslaved Central and West African peoples, from Indigenous Americans, and from Indigenous Australians, we gain access to perspectives which do not see these realms as having as stark a divide— or any real divide at all. Enslaved Black African peoples have syncretized their beliefs with those of their captors; women of Germanic and Nordic descent disguised their divination work as textile weaving or games; pre- and post-Columbian American indigenous tribes were forced to assimilate their knowledges into the cultures of their white colonizers (Turnbull, 2000; Brown, K. 2001; Brown, R. M. 2012; Jalata, 2013; Gregory, 2014, 2015; Knight, 2016; Venable, et al., 2016; Roy, 2017; Patel, 2017; Matory, 2018; TallBear, 2021).

But there are also sites of resistance to the current perspectives, such as where Māori beliefs are incorporated into the laws of modern Aotearoa New Zealand, or the presence of Atlantic Africa *simbi* and *Nkisi* systems which have understood the natural world, the spiritual world, and the built world not as discontinuous separate entities, but contiguous, interposed assemblages (Haraway, 1991; Turnbull, 2000; Brown, K. 2001; Brown, R. M. 2012; Gregory, 2014, 2015; Roy, 2017; Knight, 2016; Matory, 2018). And there are those who explore the history of cultures which view disability and disabled people as "special"— in both positive and negative senses— and put this in specific tension with both modern medical practice, and future-facing transhumanist ideals (Jegede, 2017; Schalk, 2018; Earle, 2019, 2021; Nelson, Shew, Stevens,

2019). Black and Queer American communities have specifically used their increased scrutiny by the state to define and reify their identity, using hypervisibility itself as an act of resistance (Garringer, 2013—Present; Brock, 2020, 2021) And others who perceive the question of machine minds and rights through the lens of enslavement, abolition, and rebellion (Williams, D., 2015; Dihal, 2020). And even understandings of the entangled assemblage of disabled lived experience as inextricable from that of the chthonic, rhizomatic, poetic, and occult connections of magical awareness (Slee, 2018—Present).

Versions of these conceptual structures have found favour in Western discussions of what it means to be a cyborg, but the conceptual communities here discussed have taken the time to examine the deep historical roots of marginalization which have often been forgotten or intentionally elided (Haraway, 1991; Kafer, 2013). Similarly, we can understand that "Magic," in this context, does not have to be about "perfecting" the self, but can instead be about *a program of continual adaptation and self-discovery*. The values, beliefs, and lived experiential knowledge of marginalized peoples are too often ignored in the process of creating technological artifacts and systems to which those same marginalized peoples will be made subject— and when they aren't ignored, they're often extracted, idealized, misinterpreted, and misrepresented.

If it is not already clear, there is no space within a single dissertation to provide an exhaustive overview of all of the spaces in which marginalized lived experiences and occult beliefs intersect with the cultural perceptions of machine consciousness and human biotechnological intervention. What I have described here is in the service of demonstrating both that this thread flows through Western and Non-Western conceptions of magic and technology, and also that the non-distinction of those categories in some non-Western contexts is illustrative for those of us who wish to envision alternative paths forward in the development of "AI." By preferencing the

perspectives and knowledge and belief systems of marginalized individuals and groups, we may gain crucial understandings which might otherwise be wholly unavailable, opaque— occult— to our understanding. We have seen this as we have examined the more contemporary works of scholars such as Simone Browne, Ruha Benjamin, Safiya U. Noble, and Virginia Eubanks, Donna Haraway, Sheila Jasanoff, Shannon Vallor, Ashley Shew, MaryCatherine MacDonald, Jonathan Flowers, Anna Lauren Hoffmann, Kim Sauder (The Crippled Scholar), Lydia X. Z. Brown, Rua M. Williams, and many, many others.

Put into conversation, we gain something new and important both from (a) examining the epistemic and religious values and beliefs already at play in the development of these technologies and from (b) consciously and intentionally working to incorporate those values and beliefs which many have systematically excluded from these technologies' creation. When we work to bring in the perspectives and beliefs of marginalized peoples, we learn more, understand better, and gain a more robust working picture of what it is we mean when we say that we want to develop "artificial intelligence." In each of the cases we have discussed, the preferencing of situated, marginalized subjects' lived expertise would allow us to recognize the harms before they came to pass, and to potentially envision something different. We would realize that we do not need more accurate facial recognition software because those perspectives which better understand both the history and likely future uses of surveillance have already told us what and how the systems would be used. We could have known at the outset that "AI" for job applicants would be a terrible idea, likely to systemically exclude disabled, female, and Black applicants, because research and the direct lived experience of those kinds of applicants has long shown that human résumé sorting— the data on which the "AI" is trained— is rife with those prejudices.

Even in those instances where we think the development and application of "AI" has promise, we are often missing the larger picture that marginalized people can provide better perspective on. The use of algorithmic systems for assessing risk levels for long-term houselessness (Denton, 2019), or for matching the unhoused to available low income homes (Khoo, 2019; Bishari, 2022), or for paying parking tickets, or for finding available food to cut down on food waste are all still most often created without the input, let alone direction of the communities they are intended to serve. As such, those systems cans still end up exacerbating the assumptions of those who build them, and underserving their supposed users— which, again, should nor come as a surprise. If a Djinni's only experience with the fulfilment of desire is with those who understand the world as they do, then the first time it tries to satisfy the desires of another, different person, it will more likely than not satisfy the wish in subtly but importantly wrong ways. To that same point, if a servitor is created and trained on the values and beliefs of one person, or one group of people with shared values, and then told to satisfy the desires of ***everyone***, then that servitor will probably do a wide range of harms, even as it perfectly follows its training and instructions.

If we heeded the reportage of disabled researchers, scholars, and even just people living their everyday lives, we would be better able to account for the realities of their lived experience— we would be less likely to make "AI" tools which exacerbate the harms done to them or to design "AI" and robotics interactions predicated on misunderstandings of their lives. In fact, centering the expertise of disabled people would allow us a perspective into "AI" and "robots" which recognizes that, as Rua Williams puts it, "all robots are disabled" (Williams, R. M., 2022). The political and power dynamics of "robots" and "AI" are often predicated precisely on those politics and power dynamics of disability. Sometimes these dynamics appear as an intentional

comparison of certain disabled populations being classified as "robotic" or of affectless robots as being "autistic," and sometimes merely in the ways that they are accommodated and accounted for— or not— within a constructed sociotechnical culture in which they are expected to participate.

By weaving together the seemingly disparate threads of "AI," nonhuman personhood and agency, magic, and sociotechnical imaginaries, we now have the foundation from to radically reimagine our conversations around and development of emerging projects in "AI." Crucially, we have used them here to explore the operations of bias within such as facial recognition surveillance, automated bail systems, search engines, disability technology, and tools which purport to combine all of the above, such as education technology, predictive policing, and social welfare assistance systems. From here, we can better articulate how the felt, lived, experiential knowledge we hold together and use to understand the world together can be used to other, subjugate, and oppress— to bind and curse, as we've discussed— or it can be used build a world in which we all feel mutually, purposefully entangled with each other, striving to know and do enough to help us all survive and thrive.

"Your AI & Algorithmic Interventions Are Bad, & You Should Feel Bad!"[47]

But even as the above-listed processes and effects stand in ever starker relief, the most obvious potential remedy is still all too often overlooked. From the history of anti-Black racism in "AI" enabled facial recognition systems, to racialized and gendered bias in résumé sorters, to the machine vision of automated vehicles not able to recognize wheelchair users as humans, we must think more carefully about where certain embodied lived experiences are forced to intersect with not only the built artifacts of technology, but with their distributed, networked, and

[47] Cf. Know Your Meme: "Your Music Is Bad And You Should Feel Bad!" https://knowyourmeme.com/memes/your-musics-bad-and-you-should-feel-bad.

informational systems. (Williams, D., 2021). By finding and presenting the data from marginalized perspectives, we show precisely how we can make better, less oppressive, less manipulative choices in the systems we create and reinforce. The second principle of the Disability Justice movement is leadership of the most impacted (Sins Invalid, 2015). To put it another way, despite being the ones who most often bear the brunt of algorithmic bias, marginalized researchers still far too rarely have their knowledge and lived experience centered to devise solutions.

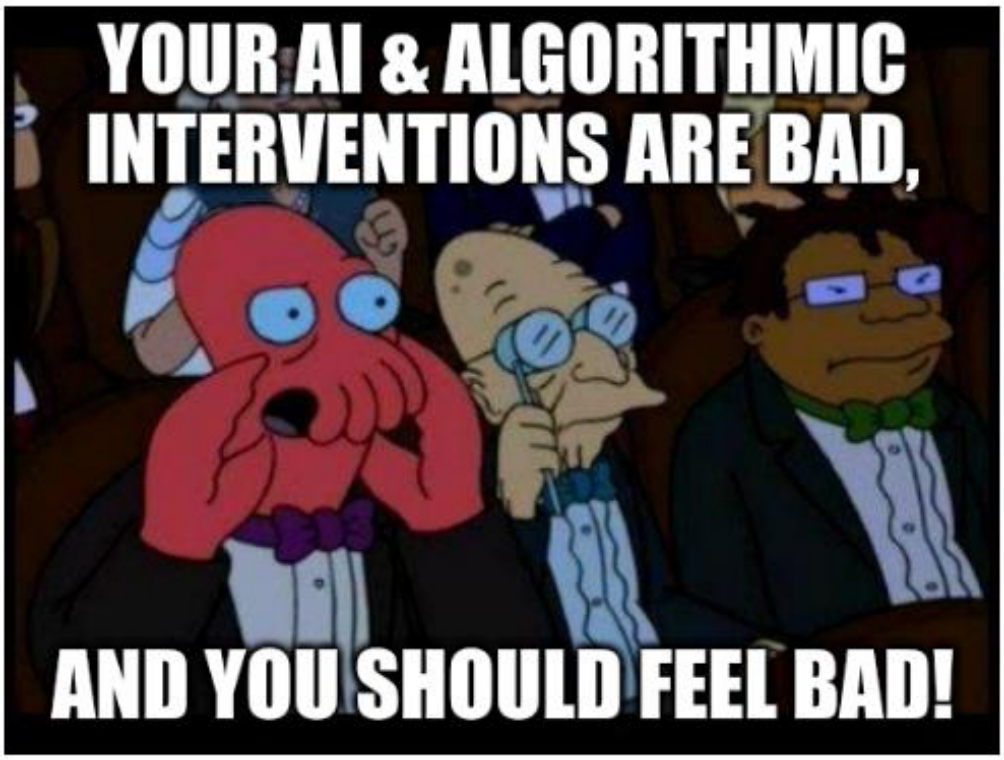

Figure 4: Image of Zoidberg, Professor Farnswoth, and Hermes, from the show *Futurama*, all wearing tuxedos, sitting in a full theater. Zoidberg is shouting towards the stage. Text Reads "Your AI & Algorithmic Interventions Are Bad, And You Should Feel Bad;" Text by Damien P. Williams, meme assemblage by Kirsten N. Brown.

Intersectionality, phenomenology, post-phenomenology, and standpoint feminism are powerful lenses through the individual and combined use of which we may better value the lived experiential knowledge of disabled and otherwise marginalized people. A particularly stunning example of this may be found in Aimi Hamraie and Kelly Fritsch's "Crip Technoscience

Manifesto," in which the authors call for a complete reorientation to the processes of making technoscientific knowledge and artifacts, in the name of achieving intersectional and especially disability justice. At the very end of all of this, this question of why research, education, training, and public policy around the development of "AI" all needs disabled and otherwise marginalized perspectives comes down to this notion of "whose perspectives, whose lived experiences animate the technology that we make, and to which we are all made subject?" Because the current training in and perpetuation of Western STEM methodologies, standards, and beliefs often makes scholars complicit in or even explicitly guilty of the simultaneous appropriation and marginalization— sometimes even in cases where those Western methods are explicitly about undoing or preventing this kind of damage (Fletcher-Watson et al., 2018).

Yet none of this is new. Much of the early research into human spaceflight at NASA was performed on a group of men known as the "Gallaudet Eleven"— so-named because they were all students of Gallaudet University, in Washington, DC, a school where many students are Deaf or hard of hearing, and classes are often taught in English and ASL. This team of eleven individuals was brought in by the National Aeronautics and Space Agency (NASA) in the early days of the Apollo Missions to test the effects of weightlessness and disorientation on humans. The men of the Gallaudet Eleven were chosen because the particularities of their Deafness meant that their inner ear operated differently, which could provide valuable data for NASA science teams (Hotovy, 2017). Again: the Gallaudet Eleven were Deaf men, whose experiences with the inner ear were drastically different than individuals who hear "normally," and as a result, they were, according to NASA, prime subjects for testing notions about what kind of adverse effects human beings might suffer in the weightlessness of space. To this day, there has never been a Deaf astronaut.

Data from experimentation on Deaf individuals has been used to ***train*** astronauts, but there has never been a Deaf astronaut. In fact, even though researchers such as Ashley Shew and Sheri Wells-Jensen highlight that disabled individuals might be better suited for space— both in terms of already being familiar with "non-standard" bodily orientations like pushing off from surfaces, and in terms of adapting to a hostile environment which is, in multiple ways, seeking to harm you— the actuality of out disabled people engaging in space travel and zero-gravity flights has only very recently come to fruition (Shew, 2017b; Wells-Jensen, 2018). Even though the original conceptions of human spaceflight took the relationship of space and disability into account, it was only in 2021 that any national space agency even placed a call specifically for disabled astronaut candidates. In February, 2021, the European Space Agency (ESA) announced that they were searching for their very first "parastronaut" (Williams, D., 2019b; ESA, 2021). They sought candidates with short stature or below-knee limb impairment. Two weeks later, a U.S. announcement declared that Hayley Arceneaux would become the first pediatric cancer survivor and first prosthesis-wearer to go into space aboard the first all-civilian space flight (Carrazana, 2021). Wells-Jensen herself went on a zero-g flight at the end of 2021 (Leland, 2022). But even ESA's job announcement was couched in the language of being a "feasibility study," and there are no mentions of disability studies or the space industry's history of experimenting Deaf individuals on ESA's official page.

In the same way that people may be disabled by social constructions and assumptions built, literally, into the world around them and into the systems by which they are forced to navigate their lives, so, too, might we adapt and cultivate new forms of knowledge via this interface. As machine intelligent systems and human minds are increasingly going to have to come to work in tandem, into the future, historically marginalized people are the ones who should be at the

forefront of that work. Marginalized people who know what it means to be forced to interface with and make armor out of the various tortuously nonhuman (but still all-too-human) systems that humans have created. The systems and knowledges marginalized people must navigate include (but are by no means limited to):

- "The Talk" Black parents have with their children about how to behave around police. (Plourde and Thompson, 2017)
- Knowing how to get a doctor to corroborate or even understand your self-diagnosis (Herdegen, 2019a, 2019b)
- Knowing how to get an insurance company to pay for interventions you know you need. (Brown, et al., 2020; Reeve-Givens, 2020)
- The difficult process of getting everyone else to understand these things (Herdegen, 2019a, 2019b)
- The training of machine vision to understand how "people like you" look and move (Buolamwini & Gebru, 2018; Hao, 2018)
- Working toward the abolition of certain systems and toward replacing them with different, better ones
    - Carceral Justice (Benjamin, 2019; Williams, D., 2020b)
    - Facial Recognition (Williams, D., 2020b, 2021)
    - Gender Essentialism in Hiring and Evaluations and Everywhere Else (Chachra, 2016; Caliskan, Bryson, Narayanan, 2017; Terrell, et al., 2017; Chen, et al., 2018; Williams, D., 2021).
    - Disability and neurodiversity assessment tools (Williams, R. M., 2018, 2021b; Brown, et al., 2020; Ymous, et al., 2020)

These perspectives quickly demonstrate how the navigation of ***social*** systems gives insight into the operations and administration of the ***technological*** systems that work their way throughout our lives. Indeed, we can help people to better understand both how it is that social and technological systems are inextricably intertwined, and also how any ***interface with***

technological systems must ***thus also be*** vanguarded by those who understand what it means to interface with the corresponding social systems.

Why? Because if a) they know what's missing from their experience of the social, and b) they have to administer the correction, then c) they will necessarily be better able to understand how to work with, learn from, and potentially correct all those technoscientific systems with which they are interfaced, technoscientific systems which, in turn, are necessarily interfaced with and dependent ***upon*** those aforementioned social systems. In the same way, engaging with and heeding those with subjugated and suppressed magical and religious beliefs may teach us something important about what it means to navigate cultures which actively denigrate you—even as they embed a form of your belief directly into themselves.[48] We encode our values and perspectives into everything that we build. The things we believe and hold dear— be those beliefs epistemic, religious, or both— become motivations that drive the questions we ask to shape our knowledge. We then inscribe the shape of this knowledge in what we create, and those inscriptions become facts in the world—facts which have real and potentially long-lasting repercussions.

The history of "artificial intelligence" and cybernetics consists largely of men who were attempting to gain access to some ideal of pure and impersonal reason, by removing emotion and affect from the idea of what it means to be a mind. From feminist epistemology, affective psychology, and computational scientific history came an increased understanding that removing "subjective" feeling was no way to create a whole mind, because emotions play a role in the very process of "knowing," including within the minds and lives of the men trying to minimize that very role (Code, 1991; Harding, S., 1991; Adam, 1998; Wilson 2010). As designers and activists who embody sites of marginalization based on disability, race, gender, sexuality, or

[48] See Appendix A.

combinations of the above have gained prominence and built community, they have highlighted the range of epistemic violence that is done by having to contort and shape oneself to fit into the demands and expectations of a disciplinary community and they have directly confronted what it means to be the "right kind" of learner or knower (Code, 1991; Harding, S., 1991; Fredrickson, et al., 1998; Bertrand and Mullainathan, 2004; Abbate, 2014; Wong, 2014; Gürkan, 2015; Chachra, 2016; Kane, 2016; Terrell, et al., 2017; Hicks 2017, 2018; Rankin, 2018; McIlwain, 2019; Cave & Dihal, 2020; Jackson & Haagaard, 2020; Ymous, et al., 2020; Jackson, 2021; Williams, R. M., 2021; Koopman, 2021, 2022).

We've also explored the works of marginalized STS and philosophy of technology scholars who have taken canonical arguments regarding the embedding of politics and social conditions into technoscientific systems and given them new, even greater depth. Abolitionist practices have provided strategies for resisting systems of disciplinary control, including non-violent protest like sit-ins during the Black civil rights movements of the 1950's and 60's, and the die-ins at the height of the HIV/AIDS crisis in the 1980's. Groups have also practiced armed march demonstrations, and direct action protests, as well as organizing educational actions to inform people of their rights and of methods of self-defense and harm minimization, in the event that they might be attacked during rallies and marches. The citation of rights and the refusal of illegal searches are other tactics deployed to stymie mechanisms of carceral bodily control but, like any of the above, these strategies are not guaranteed to prevent those in positions of power from oppressing whomever they chose; these strategies will instead only mitigate the likelihood of oppression. By taking in these perspectives, we can not only better recognize how marginalized perspectives have been excluded from technology, but also develop tools, systems, and educational processes for reimaging our research into and relationships with algorithms, "AI,"

and other technologies. This approach provides us with a model for further integration of marginalized and minoritized experts in the public policy sphere: Bring in the people and groups who inhabit the subaltern positionality, as we have discussed throughout, and provide them with primacy of place within organizations, as well as meaningful oversight and authority on those issues which most often affect them and their communities (Spivak, 1988; Claypool, et al., 2021).

Historical evidence and the present moment both suggest that white, armed, and largely male protestors demanding the freedom to engage in capitalism will, in America and much of the West, be given far more leeway by the disciplinary arm of the state than what would be afforded to LGBTQIA+ folx, disabled folx, people of color, women, and gender non-conforming individuals demonstrating for, say, restorative, liberatory, anti-capitalist, or climate justice. However, those latter protests can and have achieved recent success. In 2020, after weeks of protests in response to the murders of Ahmaud Aubrey and George Floyd, and the killing of Breonna Taylor[49] by police and self-appointed vigilantes, IBM, Amazon and Microsoft all placed varying levels of moratoria on their facial recognition projects and research. IBM's declaration was first and went the furthest, claiming that they would cease all research into, use of, or sale of future facial recognition applications, and that they would even end existing and future service support outside facial recognition vendors (Krishna, 2020). Subsequently, Amazon and Microsoft both stated that they would not sell facial recognition systems to the police or provide them in support of "policing actions" (Amazon, 2020; Statt, 2020).

But within a week of these announcements, the American Civil Liberties Union (ACLU), an organization focused on constitutional protections for Americans, revealed that as recently as

[49] Breonna Taylor's death was a homicide, but as of this writing her killers have been neither charged with nor convicted of murder.

2017—2019, Microsoft has partnered with the US Drug Enforcement Agency, providing previously undisclosed facial recognition solutions for that agency's operations (ACLU, 2020). Prior to these revelations, Microsoft had also been tied to policing actions in the Gaza blockade, in service of Israel's occupation of Palestine— but it is unclear whether operations of those types will count under current moratoria (Solon, 2019). Even IBM's complete divestment reads less like a proactive recognition of the many dire social problems bound up in algorithmic surveillance, and more like atonement for having been complicit in the initial development of those very systems of vast surveillance and categorization, starting with those used to perpetrate the efficiency of sorting humans for transportation and extermination during the Holocaust ; that atrocity was managed through IBM's own punch card solutions (Black, 2012). Edwin Black quotes IBM's German subsidiary leader, Willi Heidinger, speaking to a group of Nazi officials in 1934 about the potential applications of IBM's punch cards, comparing the German state to a body, and IBM:

> The physician examines the human body and determines whether… all organs are working to the benefit of the entire organism… [Dehomag/IBM] are very much like the physician, in that we dissect, cell by cell, the German cultural body. We report every individual characteristic … on a little card. These are not dead cards, quite to the contrary, they prove later on that they come to life when the cards are sorted at a rate of 25,000 per hour according to certain characteristics. These characteristics are grouped like the organs of our cultural body, and they will be calculated and determined with help of our tabulating machine.
>
> …our ***nation's*** Physician [Adolf Hitler]… can then determine whether the calculated values are in harmony with the health of our people. It also means that if such is not the case, our Physician can take corrective procedures to correct the sick circumstances…" (Black, 2012, pg. 50—51, 82 [Emphasis added]).

In light of this history, both distant and recent, the proliferation of all kinds of sorting and categorization "AI" today, not just facial recognition, should deepen and accelerate our worries

that some of these technologies can be, are being, and will continue to be used in ways that lead to further atrocity.

The drive to technologically innovate often fails to grapple with externalities such as resource scarcity, a need for repair and maintenance, and the need to clearly explicate what is good about innovation itself (Blok and Lemmens, 2015; de Hoop et al. 2016; de Saille and Medvecky 2016; Earle, 2019; Ludwig & MacNaghten 2020). But even beyond this, when confronting technologies which have had systemic prejudicial values baked into every aspect of their commission, design, and construction, any potential commissioner, designer, or regulator must fundamentally reckon with and seek to reconfigure the unjust societies in and out of which those technologies are built. To that end, we must continue to press technology companies with questions like, "What do you count as policing?" and "How is possible that it never occurred to you that your work could be used to make biochemical weapons?" (Urbina, et al., 2022). And, knowing as we do that these technologies have so often been developed out of stereotypical or otherwise biased data, and thus map least well onto the marginalized communities on which they likely will be used, we must be deeply and carefully critical of the idea that either the problems or their solutions will somehow be "increased proliferation of that bias," or greater "diversity and inclusion." We must articulate, grapple with, and dismantle the roots and branches of these fundamental injustices, or they will simply recur in ever shinier and newer technological packages.

Correspondingly, the history and current status of cybernetic research indicates that those working to develop both algorithmic tools and new categories of nonbiological machine minds will also have to wrestle with the above questions. How will an intelligent machine know itself and learn, if not through reflexive adaptation in conjunction with the world? I've described

examples of humans with "nonstandard" configurations of physiological intersection with the world to help us to recognize the ways in which we intersect with ourselves and our environments: cases such as Ian Waterman—the man who lost all proprioception and retaught himself how to move and think, in the world, again—conjoined twins Abigail Loraine "Abby" Hensel and Brittany Lee Hensel—young women who are conjoined at the chest and share sensorimotor control of their body—and even Merleau-Ponty's description of a blind person using a cane(Merleau-Ponty, 1962; Cole and Waterman, 1995; Schrobsdorff, 2008; Reynolds, 2017). In this latter case, the cane user does not report the feeling of the world in their hand, but at the tip of the cane. When a person using a pen or pencil writes, they think at its tip. To connect this to our understanding of nonhuman minds, we may consider a spider which, when sitting and hunting at home, thinks and senses not only with its carapace, claws, and pedipalps, but also via its entire web (Japyassú & Laland, 2017).

What's at stake in all of these discussions is the opportunity for— and the life-or-death necessity of— reframing, re-categorizing, and differently understanding the intersecting categories of "technology," "humanity," and "personhood." If we explicitly engage with the dynamics of values and power at play and work to place the lived experiential knowledge of marginalized people front and center then we may begin to effectively conceive of and deploy a framework of resistance, pedagogical training, education, regulation, and even abolition which may allow us to make real and lasting change.

A Freely-Chosen Assemblage

Any internet search of "corporate culture" will provide you with not just definitions of the concept but articles about how to find your "best fit" within one. But even in the face of that, few if any of these business-oriented articles spend time exploring what "culture" is (Griffiths &

Keirns, 2015). Since a culture is comprised of group beliefs, practices, values, rules, expectations, and assumptions about the way the world works, that makes culture an inherently social enterprise; which means that any human culture has to factor in questions of human social understandings. And we have to change these features not just within individual corporations or even disciplines, but across the interconnected components of academic research and practical implementation. This requires more than hiring team after team of internal ethicists to serve on an "Ethics Board" which answers to no one but you, and which recommendations you can ignore as you see fit, and whom you can then fire when they give you news you don't like (Simonite, 2020; BBC, 2021). Making these changes means integrating perspectives from academic disciplines like disability studies, philosophy, sociology, and science and technology studies, bringing them in from the ground up, rather than as an afterthought once something goes wrong. If we desire to change the cultures in which contemporary technoscientific systems are instantiated, entangled, and perpetuated and a stop to the variously bigoted and oppressive outcomes of algorithms and "AI" here discussed, then we need to change the: training datasets; development and design teams; managerial principles; CEOs; funding sources; research questions; commissioning and production aims; beliefs; and values.

The process of intentionally changing a culture requires actively addressing the reciprocally molding and shaping forces and pressures which will acculturate individuals to the group they are expected to join (Fanon 1952, 1959, 1961; Berger & Luckmann, 1967; Foucault, [1977] 1995; Pinch & Bijker, 1984; Latour & Woolgar, 1986; Code, 1991; Harding, S., 1991; Golinski, 1998; Knorr-Cetina, 1999; MacKenzie & Wajcman, 1999; Bijker, Hughes, Pinch, 2012; Abbate, 2014; Browne, 2015; Gürkan, 2015; Hicks, 2017, 2018; Rankin, 2018; Benjamin, 2019; McIlwain, 2019; Koopman, 2021, 2022; Williams, R. M., 2021). We have to fundamentally and

intentionally change the beliefs about and processes of education, training, disciplinarity, and participation, which together represent, comprise, and reproduce the values that make up technosocial cultures. The values at play in Silicon Valley or corporate cultures are a concentrated microcosm all of the interconnected and mutually sustaining networks of logics, artifacts, and values which bring about and depend on the socially constructed and directed knowledge or assumptions via which we engage with and develop technology (Feenberg, 2017). Building new perspectives, intentions and beliefs into the creation and regulation of technology requires the entire culture of which that technology is a part to be forethoughtful about the potential harms, to recognise and accept when it is not possible to reform a tool or system, and the willingness to instead consider abolishing that tool or system, or dismantling a parent company (aoun & Ahmed, 2018; Benjamin, 2019; Teachout, 2020; Williams, D., 2020b). To achieve this, we must value and center those people with deep knowledge of how science, technology, ethics, justice, belief, and human values all intersect— people who very often happen to be among the most marginalized and disregarded, when it comes to the truth of their own lived experience.

The historical and current frameworks of marginalization and power have meant that women, disabled people, LGBTQIA individuals, Black and Indigenous people of color, fat people, gender nonconforming peoples, and the neurodivergent are often the most marginalized and minoritized groups in western cultures. However, individuals in these groups are also often most expert at thinking about the harmful and unjust ways a technology will be used, precisely because they and other members of their community have directly experienced those exact harms. By recognizing this lived experience for the expertise it is, it may then be placed in conversation with the trained expertise of researchers and theorists— some of whom might be

the same people— and all of those experts then placed in positions of meaningful, high-level oversight and authority (Spivak, 1988; Wong, 2013—Present; Crayton, 2018—Present; Williams, R. M., 2019, 2021; Ymous, et al., 2020; Ahmed; 2021). These critical experts must have a place in everything from the educational training materials of universities, to the C-Suites of companies where they can directly advise their boards rather than passing nebulous and easily "lost" recommendations up an administrative chain, and they must be on governmental regulatory, to cabinet-level governmental regulatory commissions and oversight boards providing expert-level public testimony and public policy guidance which might carry the weight of law. These experts must be engaged in the ongoing process of crafting and reifying the animating myth of democratic participation, in everything from activism and organizing, to citizen science councils (Bijker, 2003; Benjamin, 2013; Schmalzer, Chard, Botelho, 2018; Allen, 2022). Without a commitment to recognizing, valuing, and empowering as forms of expertise an entangled and interdisciplinary program of knowledge which includes lived experience lived experience, we're likely to continue making technologies which reflect only the values we unconsciously and accidentally embed into it, rather the ones we'd prefer.

There is some evidence that the adjustments I recommend here are beginning to be made, a fact which may indicate the possibility of being built upon to achieve even more meaningful change. Many communities of care have organized and activated themselves around understanding the needs ***of*** their community, whether based in gender, race, disability, sexuality, or overall marginalization, and those communities have worked to build political and institutional power of their own, to countermand that of dominant oppressive forces. Some examples of this include the calls to decolonize academic disciplines, and academia as a whole, where what is meant by "decolonization" is the removal of colonialist ideologies of moving into

another's space, exercising power over them, and extracting their resources to one's own ends (Venable, et al., 2016; Appleton, 2019). Work has been done to decolonize the STEM and humanities fields and their pedagogies, and working to then actively introduce Indigenous, post-colonial, or de-colonial knowledge systems, and methodologies into them, often hinged on questioning fundamental assumptions about what counts ***as knowledge***. It is increasingly understood that if, for example, lived bodily experience and magico-religious and ritual belief practice are excluded at the outset from being considered as knowledge, as so often happens in colonial Western studies, then we will lose whole realms of relevant insights about the world and how to exist in it (Venable, et al., 2016; Appleton, 2019).

Institutionally and systemically, the FTC has recently reached a settlement with WW International— formerly "Weight Watchers"— which declares that the latter organization must pay restitution for the use of algorithms which allowed it to harvest data and money from children as young as eight years old, without parental permission; the settlement also declares they must delete that data and dismantle the offending algorithms (Kaye, 2022a, 2022b). In China, the Cyberspace Administration of China (CAC) has issued new guidance declaring that all third party apps must have accessible, transparent ways to turn off any search, recommendation, or organizational functions which are governed by algorithms— some coverage of China's new regulation explicitly discusses the conceptual connection of Chinese alchemy to "algorithmic machine learning" (State Internet Information Office, et al., 2022; Xióng Jié, 2022). It remains to be seen, in both of these cases, whether the standards being applied to private institutions will also extend to the "AI" processes of the state, or if the status of the government and its "pertinent interests" in secrecy will exempt them.

At the level of social and public policy, we may consider the work of Dr. Alondra Nelson, who is the Acting Director for the Office of Science Technology Research for the White House, under US President Joe Biden. Nelson's work covers the intersecting realms of social policy, racialized disparities in medicine, and how to develop new sociotechnical imaginaries for a changing world. (Nelson, 2002, 2008, 2020; Nelson & Greene, 2005). Nelson's positionality as a Black woman is crucial to her work regarding the ways in which scholars, researchers, and designers must interrogate and understand the social implications of science and technology at the outset of conception, design, and development, rather than considering them after a technological artifact or system has caused harm. Similarly, Alvaro M. Bedoya was nominated by US President Biden and confirmed by the Senate to serve as a member of the Federal Trade Commission (FTC), the body which oversees and regulates salable technology in the United States. In Bedoya's role as the founding director of the Georgetown Law's Center on Privacy & Technology he worked to highlight many of vast problems of algorithmic surveillance, including co-authoring a massive report the racial prejudices embedded in the police use of facial recognition, led by Clare Garvie, and cited here throughout. Bedoya has often written and spoken about how his lived experience has informed his perspectives, and his drive toward educating people about privacy technology, regardless of their political aims (2019, 2020a, 2020b).

These two individuals are not tech industry insiders, but careful, critical scholars working at the intersection of the social sciences, the humanities, science, and technology. Both Nelson, a Black woman, and Bedoya, a Latinx man, are experts at both the technical aspects of their work, and at thinking about the sociocultural implications of scientific advancements. Placing them in these high-profile federal positions sends a clear signal about the values we hold and directions we want to head, when it comes to science and technology policy, in the US. It also provides a

template for the kind of regulatory oversight Big Tech needs to be willing to undergo. Here, the lived experiential values, beliefs, and knowledge of marginalized persons is valuable not just as data which can be extracted ***from*** them, but as a qualitatively different understanding of the world which provides new questions to ask, and new ways of thinking about the projects under our consideration. The perspectives of disabled, transgender, gender-nonconforming, and neurodivergent, Black, Indigenous, and otherwise minoritized peoples are, in large part, informed by being made subject to the worst excesses of technology (Crawford, 2016; Garvie, 2016; Hoffmann, 2017, 2018; The Takeaway, 2020; Brown, et al., 2020; Williams, D., 2021).

As "AI" research increases its reach and its depth and its breadth and its power, we need to be ensuring that the perspectives, the values that get encoded into these systems, are values and perspectives which center the experiences of marginalized and subjugated individuals and groups, and take their knowledge and expertise into account at the outset. Again, the structural dynamics with industry, academia, and government must not simply post hoc accommodate or "reform" or "include" in a tokenistic manner; education, design, and regulatory elements of justice cannot be slapped on at the end of someone's training. Too often, any exposure to the ideals of justice, morality, or social cohesion within business, industry, or the so-called hard sciences is synonymous with a particularly instrumental understanding of ethics as "how to not get sued." The perspectives on ethics tend to come from experts in the field in question, be it business, technology, medicine, and are passed on to students in a more or less rote manner. But leaving this training in the social scientific and humanities elements of these students' education to those who were only ever trained in this same narrow, subdisciplinary manner is precisely the process of disciplinarity and enculturation which leads to the continual dismissal of ethical, moral, and sociopolitical considerations within those other fields. By centering the knowledge

and expertise of marginalized researchers, we learn that "non-standard" lived experiential knowledge is precisely what enables us to better examine, critique, and create technoscientific tools and systems, allowing us to not only recognize how prejudicial biases creep into every aspect of the values, assumptions, and beliefs which comprise technosocial thinking, but to better recognize and enact what may— and must— be done about it.

Thus, we must ensure that the perspectives and lived experiences of marginalized people are heeded in this conversation about the design and implementation of algorithmic applications, even and perhaps ***especially*** when those perspectives make us uncomfortable, because those perspectives have something to teach us which is otherwise inaccessible to us. We must continually ask ourselves, who is in the room when we make the decisions which influence, shape, or even determine the direction of our research and development? Who is missing from those rooms? Who is ***alone*** in those rooms? Who is driving the questions that we ask? And who is shaping the answers that we give? Putting disabled and otherwise marginalized experts at the forefront of our conversations about "AI" may require us to radically rethink our founding assumptions about what "AI" and automation are for. But for millions of people, doing this will very literally mean the difference between life and death.

All of the technosocial tools and systems we have discussed replicate and instantiate the lived experiences and the perspectives and the assumptions of the people who program them: humans in search and service of power, money, with human perspectives, preferences, biases. These tools and systems instantiate and iterate upon the assumptions and the values of the people who have commissioned them, who have programmed them, who have trained them; and all of the interactions that these systems have when they operate in the world form components of the data from which they then learn how to be and what to do in the world. What this means is that we

must ensure that no work in these realms of concern is done without the perspectives of marginalized individuals, and this means that marginalized lived experience cannot merely take the form of a tokenistic "inclusion and diversity" model. This is a systemic problem; it concerns how we ask questions, build technologies, and process data— and who counts as the "we" doing the asking, building, and processing. Because the implications of "how" this work is done arise directly within and through the phenomenologies and intersubjective knowledge of "who" does it. All of which means there is no one-size-fits-all answer, here, only a shifting matrix of needs, stakeholders, and power dynamics, of which and whom we can be more (or less) cognizant. Oppressed people and groups must not just be polled, their perspectives or opinions mined and extracted for insights as to how these systems should come to be. Marginalized peoples must be actively engaged and put at the forefront of the conversations we have and the development and creation we do around "AI" and algorithmic systems.

If the above work succeeds and a new form of "AI" research does arise, then not only will it thus ***create and embody*** new modes of resistance and participation, but any mind— machine or otherwise— which is enmeshed within these efforts will itself ***need*** such strategies for its own life; strategies developed by having been deemed by Western society to be the "wrong kind" of person. All of the harmful outcomes we have discussed are still happening precisely because the people in charge of commissioning, designing, building, and training the algorithmic systems fundamentally refuse to look at the prejudicially biased contexts we swim in. Creators and regulators of these tools and systems often prefer instead to weave and focus their will and intent toward gaining power-over so that they may have their wishes granted. I foreground and return to the notion of values because too often the values at play are uninterrogated, when what we all precisely need the most is to confront and interrogate them.

But this is not to say that all oppressed or subaltern subjectivities will want to take part in this process, let alone that they will work to create something which liberates them. As examined and extrapolated upon by Paulo Freire and others, there are avenues within the Hegelian and Marxian traditions which explore the idea of self-subjugation to and within dominant logics (Freire, [1970] 2005). This idea holds that oppressed peoples will find themselves internalizing and doing the work of their oppressors, and that some will even want to be told what to do, often specifically out of a desire to feel themselves as part of the "ruling body." These passive and active internalizations of oppression can often act as a roadblock the process of intersubjective liberation, specifically because many feel safer, more prosperous, or more powerful when aligned with dominant modalities. Such a person might see, e.g., facial recognition, predictive policing, and other forms of carceral surveillance as a good, even if they otherwise recognize and believe in the harms that such systems and their technosocial contexts can do in the "wrong hands." My goal, here, is to provide a framework which can contribute to everyone feeling their needs fulfilled in a way which reduces or eliminates the need for subjugating— even self-subjugating— harms.

I present here a framework in which, even if one prefers to have their decisions made for them rather than participating in the actively intersubjective relational project, those decisions will be made in a way which seeks not to harm or oppress you. This is intended as a structure where the systems and tools we devise operate in a mode of mutually relational, conceptually resonant, intersubjective, empowering processes; where we build new rituals of learning and communication and operating and being operated on, and with each other, together. This will require a deliberately reflective interrogation of our values, our beliefs, and our desires, as well as an awareness of the alterity even of other human beings. Many of those who have been made

subject to the oppressive systems and structures we have discussed may have drastically different notions how they imagine themselves situated or included in any process to devise something different— and that may express as a desire to not be included at all. For those who do wish to take part, we have to act with intention and awareness of the contexts we seek to reshape— we must weaken the joists in the structures that exist, before we can deconstruct, demolish, and replace those structures with something better.

The future of "AI," whether in the form of algorithmic tools and systems or in conscious, minded machines, must be born into and protected within systems of education, social norms, and legal regulation which first and foremost radically re-envision what it means to exist as relational minds in our human-built societies. These new perspectives and the processes to support them must continually intentionally work toward a new way, even as it also recognizes and redresses the harms done by the previous modes of thinking about and working toward "AI." What we work to create must be open to new ways of understanding, and that means working with very different understandings of the relationship between human life and the "natural," "built," and even "spiritual" world. In so doing, we will learn to treat those seemingly not like us other not as things to trap or trick or ensorcell to our bidding, but as partners, as kin whose will and intention can amplify each other's, and whose mythmaking fundamentally seeks to take the other's needs and perspectives into account. Perhaps once we have a handle on that— on intentionally grappling with the notions of justice, and fairness, and equality, and compassion, and care— then the question of what kinds of tools, systems, or minds we want to create will be a little bit easier to address.

And may the magic we agree to work and weave together then be of a kind that frees, connects, edifies, and supports us all.

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Appendix A: An Imagined and Incomplete Conversation about "Consciousness" and "AI," Across Time.

René Descartes (1637):
The physical and the mental have nothing to do with each other. Mind/soul is the only real part of a person.

Norbert Wiener (1948):
I don't know about that "only real part" business, but the mind is absolutely the seat of the command and control architecture of information and the ability to reflexively reverse entropy based on context, and input/output feedback loops.

Alan Turing (1952):
Huh. I wonder if what computing machines do can reasonably be considered thinking?

Wiener:
I dunno about "thinking," but if you mean "pockets of decreasing entropy in a framework in which the larger mass of entropy tends to increase," then oh for sure, dude.

John Von Neumann (1958):
Wow things sure are changing fast in science and technology; we should maybe slow down and think about this before that change hits a point beyond our ability to meaningfully direct and shape it— a singularity, if you will.

Clynes & Klines (1960):
You know, it's funny you should mention how fast things are changing because one day we're gonna be able to have automatic tech in our bodies that lets us pump ourselves full of chemicals to deal with the rigors of space; btw, have we told you about this new thing we're working on called "antidepressants?"

Gordon Moore (1965):
Right now an integrated circuit has 64 transistors, and they keep getting smaller, so if things keep going the way they're going, in ten years they'll have 65 THOUSAND. :-O

Donna Haraway (1991):
We're all already cyborgs bound up in assemblages of the social, biological, and techonological, in relational reinforcing systems with each other. Also do you like dogs?

Ray Kurzweil (1999):
Holy Shit, did you hear that?! Because of the pace of technological change, we're going to have

a singularity where digital electronics will be indistinguishable from the very fabric of reality! They'll be part of our bodies! Our minds will be digitally uploaded immortal cyborg AI Gods!

Tech Bros:
Wow, so true, dude; that makes a lot of sense when you think about it; I mean maybe not "Gods" so much as "artificial super intelligences," but yeah.

90's TechnoPagans:
I mean… Yeah? It's all just a recapitulation of The Art in multiple technoscientific forms across time. I mean (*takes another hit of salvia*) if you think about the timeless nature of multidimensional spiritual architectures, we're already—

DARPA:
Wait, did that guy just say something about "Uploading" and "Cyborg/AI Gods?" We got anybody working on that?? Well GET TO IT!

Disabled People, Trans Folx, BIPOC Populations, Women:
Wait, so our prosthetics, medications, and relational reciprocal entanglements with technosocial systems of this world in order to survive makes us ***cyborgs?!*** :-O

[Simultaneously:]
Kurzweil/90's TechnoPagans/Tech Bros/DARPA:
Not like that.
Wiener/Clynes & Kline:
Yes, exactly.

Haraway:
I mean it's really interesting to consider, right?

Tech Bros:
Actually, if you think about the bidirectional nature of time, and the likelihood of simulationism, it's almost certain that there's already an Artificial Super Intelligence, and it HATES YOU; you should probably try to build it/never think about it, just in case.

90's TechnoPagans:
…That's what we JUST SAID.

Philosophers of Religion (To Each Other):
…Did they just Pascal's Wager Anselm's Ontological Argument, but computers?

Timnit Gebru and other "AI" Ethicists:
Hey, y'all? There's a LOT of really messed up stuff in these models you started building.

Disabled People, Trans Folx, BIPOC Populations, Women:
Right?

Anthony Levandowski:
I'm gonna make an AI god right now! And a CHURCH!

The General Public:
Wait, do you people actually believe this?

Microsoft/Google/IBM/Facebook:
…Which answer will make you give us more money?

Timnit Gebru and other "AI" Ethicists:
…We're pretty sure there might be some problems with the design architectures, too…

Some STS Theorists:
Honestly this is all a little eugenics-y— like, both the technoscientific ***and*** the religious bits; have you all sought out any disabled people who work on any of this stuff? Like, at all??

Disabled People, Trans Folx, BIPOC Populations, Women:
Hahahahah! …Oh you're serious?

Anthony Levandowski:
Wait, no, nevermind about the church.

Some "AI" Engineers:
I think the things we're working on might be conscious, or even have souls.

"AI" Ethicists/Some STS Theorists:
Anybody? These prejudices???

Wiener/Tech Bros/DARPA/Microsoft/Google/IBM/Facebook:
"Souls?" Pffffft. Look at these whackjobs, over here. "Souls." We're talking about the technological singularity, mind uploading into an eternal digital universal superstructure, and the inevitability of timeless artificial super intelligences; who said anything about "Souls?"

<u>René Descartes/90's TechnoPagans/Philosophers of Religion/Some STS Theorists/Some "AI" Engineers</u>:

…

[Scene]