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<div align="center">Technology and Inequity: Interrogating Our Ways of Knowing</div>

In an era of increasing technological integration with everyday practices, many questions have been raised regarding technological bias, especially with regard to information dissemination, and ways of knowing, specifically decentering westernized ideals of education. The optimization of technology, specifically search engines and large language models both perpetuates marginalization in communities by reinforcing imperialistic and colonialistic structures, while simultaneously offering the potential to dismantle these systems and promote equity when strategically leveraged. My goals are to interrogate the systems of power that operate within these systems, as well as ways they can be dismantled. This will be facilitated through the development of technology, as well as its continuing impacts. The current optimization of technology, particularly in the context of search engines and information dissemination, reinforces longstanding and imperialistic patterns of colonialism, perpetuating information hierarchies, and marginalizing communities in a digital landscape. Within this examination, we will examine the societal concept of the Other, how this is then merged with digital landscapes, and its societal influence. This can often be seen through generative artificial intelligence, the optimization search engines, as well as the discrete forms of bias within algorithmic usage. The exploitation of the Global South will also be examined, and its complacency in systems of power that serve to elevate already existing perspectives. Throughout this essay I will seek to emphasize what thinking we allow to be outsourced to technology, and what we will maintain for ourselves, as well as how the integration of technology into larger societal practices has led to the reinforcement of bias.

To begin, the concept of The Other, as explained by Bell Hooks, is based in poststructuralism and feminist theory. It refers to those who are perceived as different or outside of the dominant societal norms. Over time, the relation to the Other has shifted from a complete rejection to a desire to merge with The Other. This "Othering" of marginalized groups is interconnected to the United States deep history of exploitation, genocide, and colonialism, as often, "racial difference marks one as Other". With this, contact with the other has become a way to "alter one's place and participation in contemporary cultural politics". This "exploitation will occur in a manner that reinscribes and maintains the status quo". To people who are not marked as Other, encounter with the other has become a way to mark a "white 'innocence' and enter the world of 'experience'". The concept of the other will inform our examination moving forward. This is seen within the exploitation of the Global South in effort to improve technology as examined by Adam Fejerskov.

Throughout history, there is a long and embedded history of exploitation and colonization by western countries. This is, not unexpectedly, also facilitated through the development of various technologies. The Global Lab, by Adam Fejerskov, examines the intersectionality between "global forces, ideas, and local circumstance and consequence" (Fejerskov 2021), as well as addressing what experimentation looks like in the Global South, and the many ways in which current optimizations of technology exploit these relationships. Within this examination, Fejerskov demonstrates how our current implementation of experimentation within technology is "treating the real world as a laboratory…often work[ing] to exacerbate existing power dynamics, helping…retain the Global South as a laboratory of inequality" (Fejerskov 2021). Subjects within the global south are "easily accessible and legitimated by scientific aims". However, for these people "trials become the only available medical treatments". What is just an experiment "in one country suddenly structure access to education and health in another radically different context" (Fejerskov 2021). This becomes increasingly problematic as the risks and failures of emerging technologies are imposed on these communities. Within the culture of Silicon Valley, "high-risk

engagements are crucial and failure a positive outcome as long as the organization may learn from the failure… it is easy to forget, in the euphoria of testing unproved solutions, that in poor country-contexts, experimentation and failure affect the lives of real people—from one individual to many thousands or more" (Fejerskov 2021). In light of this information, many may wonder why these companies have distanced themselves so far from morality and ethical engagement. According to Fejerskov, "morality and responsibility are both principles that in theory may constrain experimentation, and which therefore are troublesome concepts for an ideology that furthers the unrestricted actions of commerce. A leaked 2018 internal memo titled 'The ugly', by one of the longest tenured Facebook executives Andrew Bosworth, accentuates that the end justifies the means". The blatant and explicit recognition of the harm being caused by the actions of these companies, yet ignoring it because it is inconvenient with profit speaks to the nature of these companies as a whole.

As we continue thinking about different ways the continuing establishment of technology reinforces colonial standards, the perception of people of color being falsely taken on by white people in digital spaces needs to be examined. *We Need to Talk About Digital Blackface* addresses the continuing impact of minstrel performances and how it continues to take shape online. (Jackson 2017, #2) . Minstrel shows were a 19th-century American form of entertainment that featured performers in blackface, presenting stereotyped depictions of African Americans through songs, dances, and skits. These performances put society's most "racist sensibilities on display" and intensified these feelings across culture through its audience. These performances perpetuated harmful racial stereotypes and have been widely condemned for their racist and offensive nature. Although these performances no longer take place in a physical space, their legacy continues to shape the nature of comedy, especially within online spaces. Digital Blackface relies on the anonymity of people in an online space to "embody blackness" when they aren't black. Within Western society, there have been longstanding ideas of Black performativity with roots in minstrel performances. These range from the use of black skin tones

in emojis when the person does not embody that identity, to the disproportionate representation of Black people in reaction memes or images. The "various types of minstrel performance that become available in cyberspace" are often seen within the disproportionate representation of Black people within GIFs or memes presented when searched for "reaction GIF", "angry reaction" or even "reaction pic". These are similarly likely to show up with a search like "funny black kid gif" or "black lady gif". For the latter search, Giphy offers several additional suggestions, such as "Sassy Black Lady", "Angry Black Lady", and "Black Fat Lady", to assist users in narrowing down their search. On Giphy, "none of these keywords turns up exclusively black women in the results, the pairings offer a peek into user expectations" (Jackson 2017, #4). The common exploitation of black people to represent outlandish or larger than life emotions reflects the history of minstrel performances as comedy and entertainment for white audiences. Within society as a whole, black experiences are often reflective of the marginalization, discrimination and trauma rather than simply having stories that center a person of color, without centering their race first and foremost. Jackson addresses the vast implications of these, including "lynching photos, Emmett Till's casket, and videos of cops killing us" and urges a wider audience to "stop cycling" them. Ernest Owens, within his article Black Visibility Matters—and Not Just During Trauma, examines this. In light of the Black Lives Matter Movement surrounding 2020, Black voices were more sought after than ever. He asserts, "after all, the reason Black voices are being valued right now is because of racial trauma. Black perspectives seem to be necessary only when discussing our marginalization". In "order for other Black people to catch a big break" others had to be killed (Owens 2020). Beyond this, there exists a dynamic between invisibility and hypervisibility, where primarily traumatic representations of the black experience in America are facilitated, and Black scientists, authors, artists, etc are being largely ignored.

NPR's podcast, *Anti Racist Science Education*, examines how concepts of Otherness and marginalization come to influence society, but more importantly how we can build an antiracist education by centering people of color. The podcast begins with a history of science,

but more importantly how western education's focus on the "great [white] men of science". Here students only memorize what they did, but not who they are or what they believed. This causes issues as many of the people who are centered within this education, simply put, shouldn't be role models. Carl Linneaus, a taxonomist famous for his establishment of the binomial nomenclature (the current system of naming organisms), also classified people by race, and whose work supported modern white supremacists. Watson and Crick (who stole the discovery of the double helix from Rosalind Franklin), were also proponents of eugenics. Within the podcast, hosts center three science teachers who work to ensure their students feel included in science. They ask: "What do you do with the racist parts of science when you are teaching it?" Beyond an overarching agreement on allowing students to see themselves represented in science, Gretchen Kraig-Turner, "a science teacher at Burlington-Edison High School and a contributing author to Rethinking School" teaches her students to be critical of science. She counters the popular idea that "opinions don't belong in science" by instead saying science should reflect the diversity of the students, and is based in colonial structures, racism, and misogyny. She also provides the foundation for her students to engage with media outside of science textbooks. She teaches with a book about Henrietta Lacks, while also covering informed consent, and teaches about the innocence project: using DNA technology to free incarcerated people. Viji Sathy, "a professor in the Department of Psychology and Neuroscience at the University of North Carolina at Chapel Hill and an administrator in the Office of Undergraduate Education" looks at why people created tools, "incorporating historical elements with care", centering the students, and examines "who is being left behind with this material". To change science we have to change the way we teach science. Through these educators, ways to counter the men-centered western ideals of education can begin to take shape. Beyond the way education influences anti-racist ideas, the automation of many tools influences societal bias.

Within the current landscape of technology, many tools are being converted into an online and automated version of the original. Cathy O'Neil's *Weapons of Math Destruction* examines this. Her book recounts many algorithmic approaches in use today, and the ways they reinforce eurocentric standards, as well as marginalization and discrimination. She talks about her first job with D. E. Shaw, and the facilitation of these ideas through technology and finance. Within her experience, they were working with hedge funds, and "everything was powered by math". Despite the inconspicuous nature of her job, the money they were working with was "wealth from people's pockets". Bets would be placed on changes in the economy, and the finance industry relied on harboring "dumb money" at the expense of the individual. This pattern was most apparent after increasing market turbulence in July of 2007. Here, "mortgage companies were making profit....by loaning people money for homes they couldn't afford" essentially betting that people would default on their loans and "unload the resulting securities into the mortgage security market". Within this, they were also "actively prospecting for victims in poor and minority neighborhoods" (O'Neil 2016, #40). Here, the outcomes of social bias and decades of marginalization are being used to improve the socioeconomic status of those who are already wealthy, while further marginalizing lower income, often communities of color. Hooks' idea of the other can be used to define the groups who are exploited by the current systems that exist within our society. The financial exploitation of groups is only one instance of technology reinforcing longstanding histories of oppression, however, it strongly illustrates the potency of this within society.

Within long standing histories of oppression, search engine algorithms further contribute to this exploitation. Search algorithms currently in use, namely Google, offer the illusion of an accurate search result. When searching for a specific result, most people expect an unbiased result that is representative of the actual answer, or at least one that represents the true proportion of viewpoints. In reality, neither occurs. Safiya Noble's book, *Algorithms of Oppression,* provides us a closer examination of this. Noble examines Dylann Roof, American

white supremacist, Neo-Nazi, and mass murderer. He opened fire on a Bible Study in Charleston, and killed nine people in a racist attack. In the days leading up to his attack, Roof was looking to make sense of "the news reporting on Trayvon Martin". Martin was a "young African American teenager who was killed and whose killer, George Zimmerman, was acquitted of murder". Guided by the idea that "Black violence on White Americans is an American crisis", Roof typed in a search in Google for "black on white crime". The results he was presented with confirmed his "patently false notion" (Noble 2018, #2). Within his specific results he was initially presented with the Council of Conservative Citizens (CCC). This group "oppose[s] all efforts to mix the races of mankind". In his results, the CCC was presented along with the misrepresentation of the search engine as an entity. In contemporary society, "search engines affirmatively control their users' experiences, which has the consequence of skewing search results (a phenomenon called "search engine bias")" (Goldman 2006). This concept is widely underrecognized and contributes to the frequent misperception of the capabilities of Google and other search engines. In an alternative world, one that centers unbiased and diverse results, the results potentially could have led him to see that black on white crime isn't real. Instead within society, search engines are optimized to maintain user engagement, and reinforce pre-existing notions users have.

In response to the many downfalls of technology, people have begun searching for answers. Judith Butler's essay *Bodily Vulnerability, Coalitional Politics, and Street Politics* provides an approach to politics that relies on a community coalition to provide a way for the intersection of bodies, vulnerability, and dependence to improve real conditions for people. This approach, although not explicitly examining technology, allows us to examine potential solutions in the context of mobilization through coalitions since no issue is monolithic. Judith Butler is a pioneering post-structuralist philosopher and gender theorist known for their influential work on gender, identity, and performativity. Within *Bodily Vulnerability,* Butler's concept of bodily vulnerability centers around the idea that our bodies are inherently shaped by the environment

around us. We are inexorably connected to our environment, resources, community and infrastructure. Butler explores how social structures and power dynamics influence and regulate our bodies, making them vulnerable to various forms of control and violence. Regardless of positionality, everyone engages in a shared vulnerability through existence and dependency on resources, however, not everyone is equally exposed to that vulnerability. White men are significantly less exposed to significant risk in their day-to-day lives. Women, among other marginalized communities, face violence and harassment at a much more frequent rate. The street, as a form of infrastructure, reflects our ability to operate in the world free of harassment. Streets should be a site "free of harassment and rape". If you are a "woman or trans" it is a "perilous act to walk" (Butler 2014, #138). This coincides with the right to "walk on the street if you are black and it is night without someone assuming you are a criminal". There exists a need to improve conditions and provide protection for these groups "without enlarging paternalistic powers" (Butler 2014, #141). Throughout their work, Butler asserts bodies are influenced by infrastructures and relationships, both of which can provide the space for activism and movement. However, a critical part of this that they fail to address is the online spaces and infrastructure that shape our interactions in an increasingly digital world. In this mindset, we should employ Butler's ideas to consider how the online space shapes our identities and dependency. Their framework allows us to consider the impact of technology on our shared vulnerability, paving the way for an understanding of the ethical implications embedded in our use of technology. Butler asserts we might "rethink the relationship between the human body and infrastructure so that we might call into question the discreteness and self-sufficiency of the human body imagined in a singular form". Here, the individuality of bodies and infrastructure is called into question, and we can begin to reimagine our use of technology while considering its bodily implications.

As technology continues to shape society, a need for moral and ethical regulation has become apparent. We have explored the ways technological development and optimization has perpetuated existing structures of marginalization, imperialism, and colonialism. The exacerbation of existing power dynamics, especially those impacting the Global South were examined, along with digital blackface, and exploitations of algorithms in finance. However, coalitional politics provides a way to address this issue at its root by acknowledging our shared dependency on technology and vulnerability in existence. Within this, we can reshape our understanding of ethical decisions within technology.

As we find ways to move forward, it is critical to interrogate the systems of power that continue to inform our use of technology, and actively seek ways to dismantle structures rooted in discrimination. By reimagining the interconnected relationship between society and technology there is potential to employ technology for the betterment of society. In an era of increasing computational advancement, it is crucial to employ it as a use for liberation rather than a perpetrator of oppression. It is critical to interrogate the systems of power that shape our technology, and come up with ways to dismantle these structures.

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