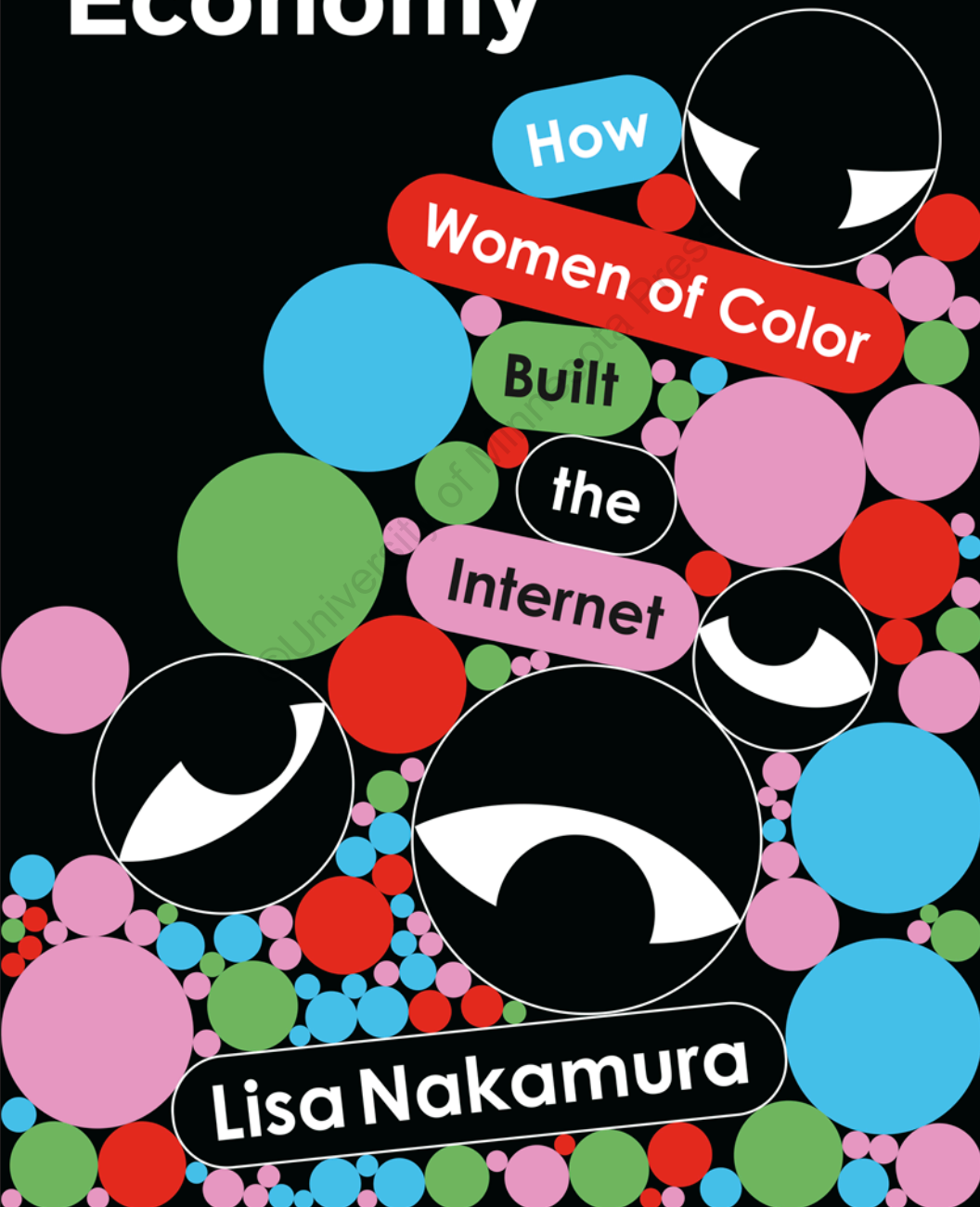
The Inattention Economy



The Inattention Economy

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The Inattention Economy

How Women of Color Built the Internet

Lisa Nakamura

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In loving memory of Laura Emiko Burns,
2001–2016

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Introduction

The Inattention Economy

Artificial intelligence is hungry for data. Applications that rely on large language models and deploy machine vision require a constant stream of human-labeled images and curated text. And it is women of color, particularly global women of color, who feed AI much of its upstream data. Some of them are employed by firms like Sama, a global "impact sourcing" company that positions itself as a philanthropic enterprise by highlighting their use of women workers from poor and vulnerable populations. The "women and youth" from "disadvantaged backgrounds" that Sama employed in 2023 and beyond to build Kenya's BPOs (business process outsourcing) focusing on AI are part of a massive layer of gendered, racialized labor that has backstopped digital technologies at least since the 1960s and '70s. As I show in this book, the technological horizon that marks the beginning of technologies that *feel* like a new epoch of machine intelligence is enabled and marked by the labor of women of color—labor that is strategically erased in some moments and hypervisible in others. For example, the rise of the microprocessor in the 1960s and '70s that was necessary for the artificial to seem intelligent was dependent on the cheap labor of Navajo women's hands and minds.

The human intelligence contributed by the Kenyan women Sama workers—who made two dollars an hour to train and clean ChatGPT by reading and labeling snippets of violent, racist, and sexist remarks—is discounted as part of the price of the future. As computer scientists Miceli, Schuessler, and Yang put it, the enthusiasm for machine learning systems tends to render human work invisible.[1] Exposing the human labor behind AI threatens to destroy and demystify the magic of essays that seem to write themselves, pictures that seem to draw themselves, and expert systems that seem to know what you want before you want it. As early as

1997 researchers found that users of "computers with voices," or early AI, preferred to interact with feminized virtual assistants to help with domestic and service tasks.[2] The beginnings of AI are marked by its long association with female agents and chatbots whose anticipation of hitherto unacknowledged needs has long been the province of paid and unpaid women of color—the nurses, nannies, therapists, sex workers and companions, and servants whom we call Ms. Dewey, Siri, Alexa, Emma, Replika, and others to come.[3] Correspondingly, the labor of one group of people—women of color—has also been made invisible by custom and in practice, purpose-built for the trick of obfuscating the labor that builds computing systems.

If human labor must be invisible in order for technologies to enchant, women of color's labor, already discounted and written down, must be the most obscured of all precisely because it is the most dangerous, difficult, and psychically damaging. The Kenyan government supports impact sourcing as a way to imagine a future where Africa shares in the economic bounty of AI; one press release proclaimed that Sama women workers were "shaping the future of AI development" through their work feeding algorithms. However, one Sama worker who read graphic descriptions of child pornography and bestiality while labeling text for OpenAI was haunted by the pictures for weeks at a time. Data workers in Kenya, the Philippines, Lebanon, and other locales where global capitalism has made labor unfairly cheap often report that their work content labeling, data cleaning, and content moderation is "torture." Widespread PTSD and other ailments caused Sama to cancel its work for OpenAI in February 2023, eight months earlier than planned.

Women of color workers are, as Evelyn Nijiri, legal counsel at Sama, puts it, "at the very bottom of the supply," and thus dwell in an unexplored and disavowed part of AI's atlas.[4] They are part of software's stack, part of its lowest layer, its substrate or taken-for-granted and obscured mass of seemingly undifferentiated and limitless labor.[5] In this book I focus on three key inflection points in computing—the microchip era in the 1960s and '70s; the rise of social media in the 2000s; and the rollout of virtual reality, AI, and other Web 3.0 applications in the 2020s—to demonstrate how women of color's specific styles of work and their identities are

their precondition. Each chapter analyzes one specific example of a threshold digital technology—the chip, the social network, and the AI-powered metaverse or virtual reality—to explain how women of color's labor is instrumental to innovation not just because it is cheap and plentiful, but because their gendered and racialized identities mediate transitions between specific digital inflection points and those to come.

For example, despite accounts of content moderator and data worker trauma having now become commonplace, these stories of trauma and exploitation retain the power to horrify because it's assumed that the internet was never meant to exact such a high cost from human workers. How is it possible that these tales are repeatedly forgotten yet ubiquitous, both shocking and familiar? It is made possible by the way that this style of digital labor has always been racialized and gendered. For example, in 1999 at an earlier inflection point in home computing one of the world's first mainstream Internet Service Providers, AOL (America Online), "employed" fourteen thousand unpaid CLs (community leaders), whose labor hosting, cleaning, moderating, and offering customer support made it possible for the company to scale. These workers were *below* the bottom of the stack, at least economically, because in some cases they paid monthly access fees for the AOL account "empowered" with some special CL-only enhancements that workers used to "host chats, clean scatological posts off the message boards, and bust jerks for terms-of-service violations."[6] The AOL case has been cited by digital labor scholars as a paradigmatic example of the "free labor" that the internet became so efficient at extracting from users and which built Web 2.0. In the end the company was forced to pay its thousands of volunteer CLs $15 million in unpaid wages as part of a successful 2008 class action lawsuit.[7]

Why were these workers so easily exploited and forgotten? These CLs were pioneers because they were among the first to "work from home" using computer networks, a form of labor that now dominates the IT economy. They were also the most diverse and female workforce in the Internet Service Provision (ISP) industry at the time, and this has everything to do with their not being paid.[8] Lawsuits are the memory of technology, and race and gender are part of technological development's forgotten story. For the bottom must not be seen, just as women of color must not be, to protect

racial capitalism's arrangement that preserves power for those whose identities allow them to occupy its dizzying top.

This is why I titled this book *The Inattention Economy: How Women of Color Built the Internet.* Women of color technological labor lives in a liminal epistemological space: It is both acknowledged and known and perennially ignored and unknown. And this is particularly true of the internet whose platform economies are built upon this forgetting, this inattention. When we tell stories that focus less on the technology industry's most visible male figures—Zuckerberg, Musk, Bezos, and others—and more on the women of color whose work undergirds and makes possible the platforms they control, we remedy that inattention. I use the term "inattention" to offer an alternative to the ubiquitous "attention economy," which has been a particularly durable metaphor to describe the new models of value distribution and capture that networked technologies produce. It has been in circulation at least since 1997, when Michael Goldhaber published an article entitled "The Attention Economy and the Net." (Though the role of the internet in marketing and business changed radically between the early 2000s and the late 2010s, both Davenport and Beck's 2002 book *The Attention Economy: Understanding the New Currency of Business* and Tim Wu's 2016 *The Attention Merchants* use this metaphor, which remains an economic term of art.)[9] Though Goldhaber was not the first to use this term—psychologist Herbert Simon coined it in 1971 to describe the increased value of attention in an information-rich age—he was the first to apply it to the economic system that the internet was building in the late twentieth century. For this he was called the "Cassandra of the Internet Age," and the idea of human attention or "eyeballs" as the new currency remains the dominant model of much writing and punditry about social media, digital advertising, and the work of content creation.

Inattention to women of color's digital work is not only an act that selectively erases some of its most important workers from the story of technological development and value. For as socialist feminist technology scholar Astra Taylor writes, automation that disavows its reliance on poorly compensated human labor is nefarious because it "reinforces the perception that work has no value if it is unpaid and acclimates us to the idea that one day we won't be needed."[10] Inattention is also opportunistic because it concentrates

power and ownership in the hands of a very few people who are willing to ally themselves with any political agenda that will allow them to continue to do just that. Internet researcher Becca Lewis reads the technology industry's recent swing to the Right—most of the CEOs of the Magnificent Seven companies sat on the podium with Donald Trump during his inauguration in 2025—as a return to form rather than as an aberration from more liberal attitudes or an interruption in course. As she explains, since the 1990s, tech industry leaders and pundits were historically pointed in this direction: They were "the biggest anti-diversity fighters," and the term "technofascism" was first used to describe this culture during the same period. The "gendered roots of its original rightward movement offer insight into today's rightward turn," and this is especially evident in the industry's perennial bitter fight against unionization of any kind, and particularly of assembly workers, many of whom are women of color.[11]

In this book I tell the story of how women of color's unpaid or poorly paid labor was required both to build new technologies—semiconductor manufacturing capacity, social networking, and the metaverse—*and* to make them coherent to new users. These examples demonstrate the extent to which women of color *are* needed. As the Sama example illustrates, the massive and growing requirement for women of color's work in AI sets the agenda for states, institutions, and governments that rely upon this population as a vital part of the value chain created through its engagement with the private sector. To acknowledge that the bulk of these massive supply chains of human labor is made up of women of color is to see *through* the charade of what media theorist Astra Taylor calls "fauxtomation," the constitutive and powerful illusion of computers that perform labor without human intervention.[12]

Paying attention to those moments when profits are built on disavowing labor performed by women of color helps us see how the project of AI, for example, was premised upon the unseen labor of massive numbers of unexpected and to this day largely unknown people, such as U.S. postal workers. Technology historian Harry Laws describes how, between 1986 and 1990, the AT and T Bell Labs Adaptive Systems Research Department used images of handwritten numbers collected and curated by anonymous U.S. Postal Service workers to train character recognition networks. His work

shows how "technical practice" is premised on the "erasure of labor" paving the way for early neural networks to later be described as doing the work of human perception, such as "seeing" zip codes in ways that could be compared to the human brain.[13] The building of neural networks *as* technologies that seem to replace human work by strategically suppressing the massive amounts of labor needed to produce them does not always *feel* like oppression. And similarly, not all the work that defines the digital value chain's bottom is experienced as traumatic by the women of color who tend digital platforms and make them usable. Some of this labor is like digital labor generally: It is sometimes merely tedious or boring and may even be fun at times.

What is oppressive, however, is the inattention paid to it. This is to say that the project of AI and the attention economy does not *only* forget women of color—as Laws recounts, the postal workers who labored over handwritten zip codes in order to improve machine vision accuracy were not all women. However, the disavowal of their value is an enduring feature and generator of capital, *as are their gendered and racial identities.*

Many critiques of the platform economy lump women of color together with other exploited digital workers.[14] Yet women of color occupy a very different social position than do other, more visible and well-paid workers whose labor is the precondition for platforms. The term "racial capitalism" was coined by Black Marxist Cedric Robinson in 1983 to describe how industrial capitalism required the unfree labor of slaves and colonized people.[15] And the rise of the digital economy has resulted in new forms of racial capitalism. As Tressie McMillan Cottom puts it, "platform capitalism is a specific and current stage of capitalism. Given these two priors, the study of race and racism in the digital society should theorize networked scale, the logics of obfuscation, and the mechanisms of predatory inclusion."[16]

The metaphor of the platform attempts to make comprehensible a technological infrastructure that is largely invisible, nebulous, and cloudy from the point of view of most users.[17] The visual metaphor of the platform is both helpful and indicative of how the obfuscation of digital racial capitalism works: When we think about what a platform looks like, we envision a top and a bottom, an above and a below, and the portion on the bottom is less visible *because* it is part

of its foundation.[18] Women and people of color have always performed hidden, poorly compensated, or uncompensated work that scaffolds visible and well-paid work under racial capitalism, and the inattention economy that undergirds its technological forms simply continues this part of the predatory inclusion that Cottom describes. Race and gender identity are not separable from the work of infrastructure, for as Neda Atanasoski and Kalindi Vora write in their exemplary *Surrogate Humanity,* "the disavowal of gendered and racialized labor supporting outsourcing, crowdsourcing, and sharing economy platforms" lies at the heart of liberalism's ideological maneuverings.[19]

"Liberal modernity's common sense" can't help us imagine alternatives. This common sense uses algorithmic and data-based tools to do the work of racial segregation and bias. This common sense encourages hate speech to flourish because, ironically, many terms of service agreements ask users to use "common sense" when determining what is or is not appropriate speech. This common sense is what Atanososki and Vora term "technoliberalism"; "the political alibi of present-day racial capitalism that posits humanity as an aspirational figuration in a relation to technological transformation, obscuring the uneven racial and gendered relations of labor, power, and social relations that underlie the contemporary conditions of capitalist production."[20] It is because women of color are themselves lumped in with machines, robots, and infrastructure itself as exploitable, inexhaustible, and subject to invisible and visible control that they are structurally excluded from racial capitalism's benefits.[21] And it is particularly during inflection points such as the one we are in now in the mid-2020s, when digital technologies such as generative AI call the difference between human and nonhuman labor into question, that women of color are needed even more intensely. For they are the economic and symbolic conditions of possibility for racial capitalism and the technology industry that benefits from and depends upon it. The notion of the women of color as a nimble, crafty, docile, empathetic, and fundamentally different resource at times licenses her use as a symbol of technological progress, a future that includes her only as a sign and not a person.

This is a trick, one that dates back at least to the eighteenth century. Automata or "artificial life" can only appear to be alive by disappearing the worker. There is no automation without a human in

the loop; sometimes that human is hidden inside a metal statue of a mustachioed Turkish man, or under the floor of an eighteenth-century French weaving factory, or on a semiconductor factory floor in Navajo country.[22]

The inattention economy generates value from the extracted labor of nonwhite and nonmale people as computational fuel. Sometimes it needs women of color's bodies and work to disappear, to meld with and be covered over by the machinic. And at other times, it needs equally urgently to display women of color's bodies: when digital technologies have undergone paradigmatic shifts from one modality to another, industry, government, and institutions have depicted women of color's digital work as global, cosmopolitan, prophetic, exotic, and futuristic, licensing the new forms of governmentality and labor that the digital has brought into being. In these moments, women of color's essentialized identities reappear as assets tailor-made to *scale* new technologized futures into existence.

Asian Americanist Huan He's study of crypto-gaming in the Philippines argues that it is because cultural and computational shifts like the move to Web 3.0 appear to be at first "scammy or even 'bullshit,'" that the racialized labor of Asian gamers, already identified with the manufacture of digital technologies, is necessary to make the case for the "viability of these new technologies, allowing blockchain dreams to become reality."[23] The men playing *Axie Infinity* in order to earn cryptocurrency micropayments are doing more than volunteering as subjects in an experimental form of work mingled with play: As He argues, they are the "face" of Web 3.0.

Web 3.0 needs the digital labor of Asian men whose access to work is precarious as a result of "histories of capitalist and colonialist expansion."[24] Technological inflection points and corresponding shifts to new kinds of infrastructure require both rapid increases in scale and coherent narratives about their benefits and qualities, making visible the difference that "makes a difference," and women of color's labor is required in both cases. Paying attention to their work building both devices and their networks as well as how they are made to work as harbingers of cheapness, access, and care is necessary in order to theorize how networks are built and what they do. Digital industries must employ them effectively in order to stay ahead of the competition and grow more

quickly than their rivals, and, during the ferment and social unrest about racial inequality in the U.S. during the early 2020s, technology companies in particular invested in making them strategically visible. Even digital avatars of women of color that appeared on AI and VR platforms allowed the Web 3.0 companies that used the images to offer enhanced benefits to users like "diversity" and "social justice" to alibi the high price of massive growth and monopolistic practice. Because technological discourses must manage user and investor anxieties about rapid change, the image of the woman of color alternately appears and disappears as social formations like multiculturalism, postracialism, and what Achille Mbembe calls "planetary computation" give way to each other. Though what Mbembe terms the treating of "matter and life itself as finite and computable objects" has intensified under the regime of algorithmic reason and the AI project that it enables, some lives have always been more computable, more subject to surveillance and extraction, and more amenable and necessary to the creation and maintenance of computation than others.[25]

For example, as I describe in chapter 2, the making of the microchip became women of color's work in the 1960s and '70s, and popular accounts of these new factory-built circuits echoed race science by leaning heavily on stereotypes about nimble fingers, craft, and patience. In this case women of color's identities were not effaced, but were exploited and made spectacularly visible as the product of skillful and unfathomably cheap Asian, Latinx, and Navajo hands by companies like Fairchild Camera. This racial move was sutured to and meant to articulate with the cultural politics of the moment, for this was the era of affirmative action, nascent multiculturalism, and particularly viral fetishism of Indigenous women's bodies, jewelry, and craft as signifiers of the counterculture.

During other moments women of color's work building cutting-edge technologies was made to seem quite separate from their racial identities. For example, thirty years later, during the 2000s buildout of MySpace, the first global social media platform, no attempt was made to recognize the skill of the company's first and biggest star, Asian American Tila Tequila, much less to understand her content as distinctively queer or Asian. Thus, the new work of digital content creation was bundled with the then-current ideology of postracial multiculturalism.[26] In chapter 3, I focus on Tequila,

a Vietnamese American queer refugee woman, as the creator of a new (and now completely ubiquitous) style of digital influencer labor whose racialized identity was both downplayed and at the same time licensed virulent forms of hate and misogyny. Both liberal and conservative journalists who dismissed and attacked her could engage in then-unfashionable forms of slut shaming and racist hatred of the hypersexual Asian woman and at the same time evade critique because of her fall from popularity as the first truly public network worker. As the first influencer, her woman of color identity as primitive yet futuristic, caring and vulnerable yet inured to suffering, and as infinitely flexible and definitively unrespectable contributed to her improbable rise and eventual fall.

The age of social networks and Web 2.0 was succeeded by the era of the metaverse, cryptocurrencies, and artificial intelligence: Web 3.0. The 2020s have been marked by a revolution in racial relations in the U.S. that paralleled a sharp turn toward even more intense use of remote communication platforms. In 2021 people spent an average of four hours and forty-eight minutes a day on mobile apps, an increase of 30 percent since 2019, when Covid-19 forced a reconfiguration of social, economic, and emotional lives around digital technology.[27] In chapter 4, I analyze how a virtual reality company, Mursion, responded to the vast demand for post-pandemic remote work platforms and services by offering DEI training using woman of color avatars powered by AI and non–woman of color voice actors, what the sociologist Apryl Williams has termed "digital minstrelsy." In this chapter I analyze Murison's racial avatars as a form of toxic embodiment that has roots in much earlier representations of Blackness as a site of pity and desire. At the same time, woman of color artist collectives like Hyphen-Labs and Black VR artists like Stephanie Dinkins were using the technology to create virtual worlds populated by women of color. I compare and contrast virtual reality's uses as a racial "empathy machine" before the pandemic and after it, when the global Black Lives Matter protests in 2020 forced an overdue reckoning around racial violence in the United States. Most of the wealthiest technology companies such as Meta, whose value increased enormously as a result of the pandemic, made major financial commitments to antiracist initiatives, and virtual reality's previous identity as a racial empathy machine gave the technology the feeling of digital diversity.[28]

Women of color's shifting meanings and in/visibilities in relation to new and cutting-edge technologies are modulated to negotiate massive transitions to new technological eras and logics not only through their cheap or free labor, which is absolutely necessary for these technologies to scale, but because they were in many cases the first to *really live* within the digital logics that would come to prevail as normative. Tila Tequila was the first person to experience the toxicity at scale that is one of social media's most enduring features. Navajo women were some of the first nonwhite, non-U.S. groups of people to build circuits outside of (or in their case, inside) the nation's borders for the benefit of that nation. Metaverse workers who train "diversity" by embodying women of color and other visible minorities are called "simulation specialists" by the company that employs them, but there really is no name for what they do because they are among the first to do it. I read women of color's strategic effacement *and* representation as cutting-edge digital workers to capture the paradoxes of the platforms they built and were later subjected to as lower-class digital citizens. Though they are a huge group—almost a fifth of the U.S. population, and by 2060 they are projected to be the majority of all women in the United States[29]—women of color are marginalized and made exceptional in the very realms that rely upon their work, social meanings, and bodies to make the cutting or bleeding edge coherent and visible.

Woman of Color Feminism and Computational Capitalism

Woman of color feminism became a kind of cultural currency around 2011, after decades of relative nonuse. In this book I use the term not to reify or imply that all women of color are the same, or share the same goals, but rather to acknowledge that this is an identity that is both passionately debated and newly salient as what we call the human is put under new kinds of pressure by AI. The term "woman of color" is more than an identity category, though it is also that. Rather I use it to mark how subjects gendered as female and racialized as nonwhite are intertwined and inseparable with the inattention economy, that is to say, the arrangement by which industries based on the production and circulation of data reproduce and even aggravate gendered and race-based forms of inequality.

I work back from the precarious present moment in technological development, when new, deterritorialized economic forms like cryptocurrency, the AI "revolution," and the metaverse or virtual reality are still in suspension to understand how women of color as an idea, an identity, and a population have been brought to bear upon it.

Not all women of color have a relationship to feminism as an ideology. However, "woman of color feminism" is both a form of critique or analytic and a style of activism—ways of both thinking and doing—that calls into question and makes visible the processes that make their marginalization and exploitation possible and necessary in order for the regime of what Mbembe calls "planetary computation" to extract value from human bodies. It is both a radical, oppositional critique of patriarchy, capitalism, and racism that is felt in the body *and* an exploitable resource for a tech industry that systematically excludes women of color in order to hide the source of that value. This is necessary in order for industries to build and claim credit (but, oftentimes, not responsibility) for these new platforms, allowing them to benefit from women of color's images, creative work, and critical interventions. Though social media networking's first star and influencer Vietnamese American Tila Tequila has never claimed the identity of "woman of color," Myspace benefited from her identity as a queer Asian American woman who, by definition, did not need or deserve protection from toxicity.

The term "woman of color" saw a significant uptick based on Google search frequency between 2011 and 2012, indexing increasing interest in a term that was coined in 1977 as a political and coalitional identity.[30] The term's resurgence in 2011 marks a confluence of events in computational culture and racial politics. These were the years during which mobile digital culture solidified itself and initiated a new kind of political economy that would be called many things: post-neoliberalism, platform capitalism, surveillance capitalism, and networked nationalism, among others.[31] In 2008, the Apple Store opened its API to third-party developers, permitting the creation of iPhone apps. Three years later Facebook, which had only been available on personal computers since its public launch in 2006, launched its first mobile app, enabling users to access and send content using SMS without needing a data plan. In

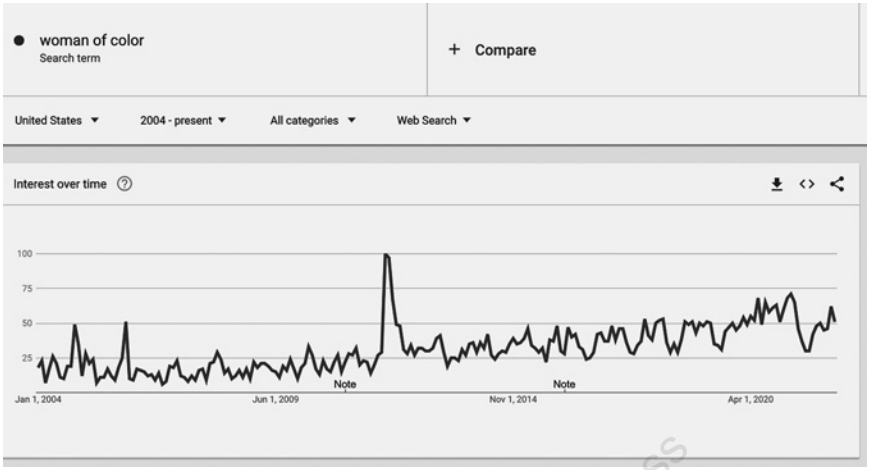


Figure 1. Google Trends for "Woman of Color."

2012 the company went public, issued the biggest initial public offering (IPO) ever, acquired Instagram for $1 billion in possibly the best and most profitable business deal ever made, started showing advertisements in its news feed, and reached one billion users.

The term "woman of color" reemerged in the public discourse after decades of disuse partly because social media allowed a generation of young transgender, queer, nonwhite, and other marginalized people curious about critical race theory, transgender theory, and other bodies of critical scholarship to find resources online that invited them to examine their own identities. Their identities were formed as a coalitional praxis and a way to protest the technoliberal economic environment in which college became an unaffordable luxury and medical and educational debt became the price of existing on this earth. Many of them describe themselves as "raised by the internet" because they could not find themselves in formal education, traditional heteronormative family structures, or broadcast or legacy media forms. Though the term "woman of color" had its origins in coalitional and applied politics—Black women in the 1970s allowing non-Black minoritized women suffering from oppression to be included as part of their Agenda—it found purchase on social media sites like Facebook, Tumblr, and Instagram that were built along opposite values and priorities.

In 2014, *This Bridge Called My Back,* a then-out-of-print foundational woman of color anthology, helped popularize the term, and the tag #woc became popular on Tumblr and Instagram. Many posts by young women of color depicted them posed with the out-of-print book as a trophy amid cats, craft projects, and cups of tea.[32] At the same time women of color who used social networks to share syllabi, news about political organizing and readings, and knowledge were aware of the risks inherent in digital distribution.[33] Since then "woman of color" has become a term of art for demographers, some of whom found in 2022 that Black, Latinx, and Asian American women outpaced every other demographic group in regard to civic efficacy and engagement.[34] There are many excellent books that document the ways that women of color have organized themselves on the internet.[35] Instead, I'm interested in the ways that the strategic and selective repression and opportunistic deployment of women of color's identities index specific moments in technological development.

Woman of Color Politics, Feminism, and Technology

The term "woman of color" was itself part of a social experiment in coalition building meant to bridge the gap between old and new forms of political activism. As interest in the term ramped up alongside the development of Web 2.0, woman of color feminist elders like Loretta Ross found themselves newly fashionable. In a 2011 interview Ross traces the term's origin to a 1977 meeting of the National Women's Conference in Houston, Texas, where a group of white feminists included a three-page "Minority Women's Plank" as part of their two-hundred-page report. In response, Ross and other Black feminists created an alternative Black Women's Agenda as a proposed plan of action. As she recounts it: "Well, a funny thing happened in Houston: when they took the Black Women's Agenda to Houston, then all the rest of the 'minority' women of color wanted to be included in the 'Black Women's Agenda.' Okay? Well, [the Black women] agreed . . . but you could no longer call it the 'Black Women's Agenda.' And it was in those negotiations in Houston [that] the term 'women of color' was created."[36]

Woman of color feminist theory lives in the space of deconstruc-

tion, of questioning "common sense." It is because autonomous-seeming technologies like computers and, before them, calculators hide their origins in women of color's handiwork that Audre Lorde could ask in 1982, "In what way do I contribute to the subjugation of any part of those I define as my people? Insight must illuminate the particulars of our lives: who labors to make the bread we waste, or the energy it takes to make nuclear poisons which will not biodegrade for one thousand years, or who goes blind assembling the microtransistors in our inexpensive calculators?"[37]

Lorde's question articulates the connection between what were then called Third World Liberation movements and U.S. woman of color feminist politics and the environmental price of technological innovation, a cost experienced in women's bodies.[38] A critique of the inattention economy and the paradigm shifts toward the new technologies that it enables requires us to answer Lorde's question about the particulars of our digital lives: Whose subjugation is its heart, and how do we define "our people" in the moments that we are living them? How can we best acknowledge the digital labor that makes technologies of calculation possible in order to understand and ultimately subvert their worst effects? Any consideration of digital racial capitalism must start with and account for women of color's foundational and ongoing work constituting what we call the digital.

Web 3.0, AI, and the Prophetic Function of Women of Color

In 2011, I argued that online racism is not a glitch but rather a feature of our digital networks. The shift away from the race-blind neoliberalism of that period to the 2020s, when the term "woman of color" is widely used and understood, has made it easier for users to understand inequality as an effect of networks rather than as exceptions. This is also due to the vital work of scholars who study how racism is coded into search engines, machine vision, online games, and social networks. As critical digital studies scholars Safiya Umoja Noble, Ruha Benjamin, Joy Buolamwini, and others describe, Black women in particular are algorithmically oppressed by search and other forms of digital sorting and identification that subject them to racial stereotypes, deny them opportunities, and

mis-see them at every level.[39] Women of color political candidates endure by far the most severe online abuse based on their gender and racial identities, as do women of color generally.[40]

Women of color are viewed as both the source of online hate and toxicity—after all, in the 1990s before we were on the internet there were far fewer complaints to providers than there are now—*and* its remedy, a kind of pharmakon for computational capitalism. They are both symbols of a utopian technological future that can be repaired and exploitable sources of labor who have always already been engaged in the act of repair. They are both the targets of the internet's problems and are relied upon as the workforce that will fix it. They are demonized as the source of "woke" social justice culture and fetishized as valued symbols, technological harbingers and mascots simultaneous with their rejection as knowledge creators and workers.

In 2023, *Rolling Stone* published an article entitled "These Women Tried to Warn Us About AI" that captures this tension by staging the strategic appearance and disappearance of women of color as alternately technological saviors and victims. Though the title of the article doesn't mention race at all, the photograph that accompanies it depicts only Black and South Asian women and the text refers specifically to women of color: "researchers—including many women of color—have been saying for years that these systems interact differently with people of color and that the societal effects could be disastrous."[41] The article concludes with an answer to its own title: "This time, let's listen." In Octavia Butler's 1993 novel *Parable of the Sower,* another feminist of color book that, like *This Bridge Called My Back,* emerged as newly relevant during the period after the rise of social media, women of color's emotional vulnerability, susceptibility, and affectivity are celebrated as socially profitable for *everyone.*

This notion of women of color as prophetic, hyperempathetic beings like Butler's protagonist Lauren Olamina—a Black woman whose mother's encounter with an experimental drug gave her unique insight into surviving the dystopia that was to come—depicts women of color as creating a reparative vision for a destroyed world, as ideal stewards of technology and creators of a digital utopia. They are represented as reparative canaries in technology's coal mines, rather than as workers within them. Race is

suppressed in this headline, yet its content has everything to do with women of color's superior sensitivities and oracular abilities.

Capitalism and technology have a symbiotic relationship, as Marx noted, and looking to technology to solve our problems has been part of the problem. Now we look to Black women and women of color for the same reason that we used to fetishize Indigenous women, because their "natural" traits like care, community-mindedness, and nonconflictual relationships with their environment are needed to mitigate the technologies that have always depended upon them.

This is not new, nor is it a paradox. Instead, it is a time-honored technique. This fetishizing of women of color as technological saviors is another form of what Vicente Rafael calls "racial love," an understanding of "positive" racialized traits as differences that justify empire.[42] The expectation that women of color will fix it for us arises from romantic tropes of caring labor and repair.

Calls to diversify the tech industry by hiring more women and people of color run the risk of both deskilling programming as a profession, something we can already see as AI and outsourcing now constitute the majority of programming done for pay, and of reifying women of color as "magic," recuperating women of color activism, digital activism, and design labor as a form of free universal design. Remembering the specific and complex histories of women of color, children, feminist gamers, and others engaged in digital community defense work, who have always cared for the internet even when or, indeed, because it didn't care for them, allows us to envision a different future.

Utopian visions of an anticarceral woman or BIPOC-run internet threaten to solidify essentialist ideas of whose bodies are good for what kind of digital work. Just as Indigenous women were seen as "naturally" good at building circuits, women of color have become both disenfranchised and fetishized as the internet's saviors, eliding the ways in which they already saved us by saving themselves.

Navajo women's labor creating chips for calculators, transistor radios, and other early media devices was understood as creative cultural labor, and thus *not* labor; a similar strategy for understanding women of color's critique of technology depends upon their insights supposedly arising "naturally" from self-interest. This enables its marginalization from capital—it doesn't pay to do

this work, though it should. Women of color's unwaged work calling out networked inequality is a vital part of the labor of infrastructural repair. And this has been the case since well before the dawn of computing.

As feminist theorist Silvia Federici explains, "starting with the Mexican and Chinese Revolution, the most antisystematic struggles of the last century have not been fought only or primarily by waged workers, Marx's projected revolutionary subjects, but have been fought by rural, indigenous, anticolonial, antiapartheid, feminist movements."[43] Thus, the vitality and resurgence of woman of color feminism can be the precondition for a *revolutionary* digital culture. Though at times the record-breaking capitalization and rapid development of epoch-defining projects like OpenAI make it difficult to imagine otherwise, this is not the first hype cycle, the first time that "everything is different." The chapters in this book make the case that women of color's embodied labor and malleable identities as disrupters, nurturers, and muses of diversity-utopias have long been deployed to negotiate these shifts, and as Federici argues, women of color have often challenged them. As Alondra Nelson writes of AI's possibilities, "when tackling AI governance, it is crucial for leaders to consider not only what specific threats they fear from AI but what type of society they want to build."[44] Woman of color feminism is premised upon the belief that it is possible and necessary to build societies that include them, for to do so is to guarantee access to viable lifeworlds for everyone.

Methods

This book is not a comprehensive history of women of color and the internet, nor does it attempt to describe women of color's online behavior, experiences, or activities as a population. Rather, it uses women of color feminism as an analytic tool to understand the history of technology "from below" and thus the ways that technology development licenses new kinds of gendered and racialized technological labor, social and family connection, and diversity work.

Most electronic components are not now or ever were made by Navajo women, most social media influencers are not queer, Vietnamese, or refugees, and most virtual reality media is neither about women of color refugees nor about racial diversity education.

The subjects of my chapters are thus, in some ways, atypical examples of women of color's enmeshment as both agents and objects during the formation of key digital inflection points. I chose them in order to tell the story of technological development otherwise, centering women of color in the telling. I examine these specific examples of women of color who created the conditions for digital scale during under examined periods of digital history: the postwar period, the 2000s, and the 2020s, which seemed like comparative lulls in internet history because these less glamorous eras have received less scholarly attention than the rollout of the World Wide Web in the 1990s and the rise of the great technology monopolies in the 2010s.

The scholarship on digital and factory labor has proven very useful in this research, as has recent work in Black and feminist digital studies recovering the neglected history of women and people of color's digital innovation.[45] I have benefited greatly from research by Charlton McIlwain, Catherine Knight Steele, Rayvon Fouché, André Brock, Venus Green, and others who write eloquently about Black women's and people's histories of creativity, persistence, and achievement as users and innovators during periods preceding Web 2.0.[46]

This book is centered around women of color's voices as well as digital and paper archives. I met some of the Navajo women who worked at the Fairchild Semiconductor plant in person and am most grateful for their generosity in speaking to me. I spoke to Hyphen-Labs members in person and over Zoom about their virtual reality project Brooks' Brain Lab to learn more about their intentions, conditions of production, and situatedness as women of color. In cases where I discussed celebrities like Tila Tequila I prioritized her voice over those of the massive archive of journalistic and other sources about her and quoted extensively from her memoir. However, I purposely chose not to reproduce the tweets, social media content, and public statements she posted after suffering a brain aneurysm and other forms of injury, especially when they might reflect poorly on her or expose her to ridicule. In this, I followed the ethos of the "Feminist Data Manifest-No," a document written by archivists and information and science researchers that advocates against the use of data about vulnerable people in perpetuity and without their permission.[47]

As mentioned earlier, the term "woman of color" is controversial, and many nonwhite women do not feel hailed by it.[48] It is both a source of passionate personal and political identification as well as a term that can stereotype nonwhite women as deficient and stigmatized victims in countries where they constitute the majority. It can assume a kinship that is neither actually felt nor structurally coherent. Many of the women I write about in this book did not identify or were even aware of this term; nonetheless, they share North American identities complicated by U.S. militarism, settler colonialism, state sanctioned incarceration, and transnationality. For example, Tila Tequila was an icon for queer women of color but did not identify herself as such. Nonetheless, I use this term to describe the subjects of this book because they occupy similar structural positions determined by their racialization and gender.

I aim throughout to avoid perpetuating the dualism of agency and resistance versus power and institutions that often structures research about women of color. In the last twenty years, scholars and artists have turned away from a focus on racial suffering as the defining feature of race on digital platforms toward affective states like Black joy, repair, building, curation, and productive glitchiness, providing a nuanced perspective about how it feels to create racial modalities in partnership with infrastructure, content, and other bodyminds.[49] In this book I work with small-scale, specific moments of disruption to digital capitalism's flows engendered by women of color's labor. Though racial capitalism has, as it has always done, extracted vast amounts of their labor and lives to build the very infrastructures that disadvantage them, in these chapters I analyze instances during which women of color's labor and identities both build and at the same time create a different space within increasingly dystopian worlds of inequality and alienation, on their *own time*.[50]

Instead of focusing only on damage, trauma, or neglect I highlight the sometimes-joyful strategies that women of color have employed to create spaces for themselves within technocapitalism, and how those spaces came to define the features that are taken for granted when we use digital technologies. Woman of color feminist writing is often grounded in embodied, personal, and particular experiences of intersecting identities, histories, and intergenerational networks. Thus, I start and end this book with autobiographical

sections on my own investments in this topic, focusing on Japanese American internment and my formerly incarcerated family's imbrications with the technology industry.

Japanese Internment Camps and Race Science: A Personal Story

My own circuitous history as a woman of color within the integrated circuit of digital racial capital informs this book. My family's migration from farms to prison camps to factories to the academy, from Japan to the laundries and agricultural fields of California and then on to the "relocation" camps for Japanese and Japanese Americans built on Indigenous land at Heart Mountain, Wyoming, and Amache, Colorado, and eventually to factory work in frozen foods, electronics, and digital technology led me to this research and to my job. Scholars who have written about women's labor in the digital industries use the metaphor of the integrated circuit to describe their foundational yet obscured and neglected role.[51] Circuits join components together, routing signal traffic between formerly separated parts, letting them talk to each other across different spaces. My story brings together what Iyko Day calls the "triangulation of Native, alien, and settler positions" that characterize the many instances of North American settler colonialism.[52] In its telling I focus on the ways that the Japanese American women who returned from World War II internment camps built on Native land were recruited to work in the electronics industries and how their work was later performed by Navajo women, and eventually sent overseas to U.S. projects of settler modernity like the Fairchild Semiconductor Company's new Southeast Asian factories built in 1972.

Jodi Kim defines settler modernity as "an ensemble of relations significantly structured and continually reproduced through manifold regimes, relations, and forms of debt, and in particular through debt imperialism."[53] Internment camps were structured around debt as a relation that would stretch into the twenty-first century. Japanese Americans were imprisoned and required to work as farmers for the war effort; as servants for local families; as staff for the camp kitchens, gardens, and general physical plant; and as teachers, doctors, and nurses in order to pay part of the debt incurred by Japan to the U.S. when it bombed Pearl Harbor. Decades

later, these formerly imprisoned Japanese Americans would be sent $20,000 checks from the U.S. government to partially compensate them for the debt that the U.S. government incurred by removing them from their homes and stealing their futures. And as my paternal grandmother discovered, the postwar period extended the work of settler modernity by employing Indigenous, Latinx, and Asian and Asian American women to create the cheap electronics that would later be used to create the forms of rule that sustain it.

The story of integrated circuit production is the story of women of color whose work is made to talk to each other: as journalist Rachel Grossman wrote in 1985, "Asian electronics workers share much more than they know with their California co-workers . . . the Californian workers finish and test the products made in Malaysia, so starting a web of interdependence that reaches into the world's economic and political processes."[54] Circuits are typically hidden inside a device; they are its engine and its heart but we do not see them. (Devices that turn the inside out, like transparent Swatch watches and clear gaming computer cases, perversely reinforce the notion that human beings and the work of their hands could have had nothing to do with their creation. My students have told me that they assumed that Apple iPhones had to have been built by computers because they were so complex.)

Similarly, the Japanese and Japanese Americans whose labor built the Santa Clara Valley that would later be called Silicon Valley were routed from internment camps into electronics and other factory work that in some cases mimicked the *form* of the camp. Many Asian Americans and Latinx people worked as agricultural laborers before becoming a part of the electronics industries. My grandmother Nellie Nakamura's story illustrates what it felt like to build them through the circuits of personal and embodied history.

Japanese American relocation camps were already built upon a history of Indigenous dispossession, a circuit connecting the Shiprock Fairchild Plant—which is situated near the Four Corners area where New Mexico, Utah, Arizona, and Colorado come together—with the locale of internment. Four out of the ten Japanese American "relocation centers" are located in these states. As Jodi Byrd writes, many internment camps for Japanese were located on or near Indian reservations that were remote, undeveloped places that were ceded to Indigenous people because they lacked

value. In some cases, Indians were employed to build the camp barracks that the Japanese and Japanese American prisoners would occupy after they arrived. Heart Mountain Relocation Camp in Wyoming is named after the nearby Heart Mountain, whose shape reminded the Crow Indian people who lived there of a buffalo heart. The area was part of the southwestern quadrant of the territory designated for the Crow in the Treaty of Fort Laramie in 1851.[55] In 1943 it became the third largest town in Wyoming after Executive Order 9066 sent 10,767 Japanese and Japanese Americans to live there.

My paternal grandmother, Nellie Nakamura, and her family were relocated from Mountain View, California, to Heart Mountain Relocation Camp near Cody, Wyoming, in 1942. She was a U.S. citizen who was born in Agnew, California, in 1902 and who spoke fluent English, but in 1922 she married an Issei, a man born in Japan whose lack of English meant that he could not work in anything other than service industries like gardening or laundry work. She lost her U.S. citizenship under the Cable Act, which granted citizenship to American-born women who had lost it by marrying foreign-born men but continued to deny it to women who married men "ineligible for citizenship," a category that included Asian immigrants. She was able to get it back in 1931 while pregnant with her son Kenny. As she tells it, a "woman assemblywoman took up the cause and said the government was wrong to take away the citizenship of spouses who married Asian immigrants." (Though my grandmother would certainly have never identified as a woman of color, she was keenly aware of the common interest that women had in supporting each other.) Her four children were all U.S. citizens. Though they lived in the camp for only one year, Kenny, the child she carried when she regained her U.S. citizenship and was again able to transact business and buy and sell property in her own name, died of spinal meningitis in its hospital at age eleven after swimming in the camp swimming hole. This hospital also had a special ward with barred rooms for the people who "went crazy," driven mad by grief and the stress of imprisonment and dispossession.[56]

The Nakamuras were able to leave camp early because her brother, my charming, native English-speaking, wavy-haired, and tall great-uncle Roy Tsuruda, obtained a pass to work in Minneapolis with his wife as servants for a white family who responded to the War

Relocation Service's request for employers to "sponsor" Japanese American families on the other side of the country. Nellie and her family were permitted to accompany him, so long as they were all able to support themselves by finding work. Roy badly wanted to contribute to the war effort by finding a job as a machinist, which he was later able to do. They all lived together in a large house in Minneapolis where the children attended its excellent public schools until the war ended and they were allowed to return to their homes in California.

Grandma Nellie and her family were eventually able to move into a house in the heart of what was to be Silicon Valley, not far from where they had lived before the war. They moved from rental to rental until 1950 when they were able to buy a small house in Los Altos near El Camino Real. Nellie worked as a housekeeper for Ivor Winters, a Stanford English professor, and his wife, author Janet Lewis, who bought the Nakamuras their house under their own names and resold it to them to circumvent the housing discrimination that made it difficult for Nisei to buy real estate. The Duveneck family, local Quakers who had been active in the anti-internment protest and helped many families after the war,[57] assisted many other returning families in this way. When she was in her mid-fifties an employment agency advertised that local electronics companies were looking for young Japanese American women "aged 35 and younger" to do assembly work. An advertisement that appeared in the *Rafu Shimpo*, a bilingual English- and Japanese-language newspaper from this period, advertises work for wirers, solderers, and inspectors ages twenty-three to forty-three, with "two years of recent military type wiring" required, and an advertisement for a "female electro-mechanical assembler for micro miniature components with or without experience." Though my grandmother got her job from an employment agency rather than an ad, the newspapers that targeted Japanese returned from the war are full of classified advertisements for positions in new industries such as airline travel and electronics assembly.[58] She lied about her age and her level of experience and was hired right away.

I felt a thrill of recognition when reading woman of color feminist Cherríe Moraga's story about her mother: "I remember my mother doing piecework for the electronics plant in our neighborhood. In the late evening, she would sit in front of the T.V. set, wrapping cop-

HELP WANTED—(Continued)

YOUNG SALES GIRL. After school or after noon. Crenshaw area. Phone MA 6-3970.

ASSEMBLERS

MICRO-ELECTRONIC ASSEMBLER TRAINEES

No experience required. Work available 1st & 2nd shifts. Excellent working conditions and benefits.

Please phone for appointment
398-6229 Ext. 442

An equal opportunity employer

Figure 2. Japanese-language newspaper *Rafu Shimpo* classified ad for female electro-mechanical assembler for micro miniature components with or without experience, September 18, 1967.

ELECTRONICS

Applications now being taken for people interested in permanent positions with a commercial company.

- WIRERS
- SOLDERERS

Two years recent military type wiring required.

- INSPECTORS

Printed Circuit Board . . .

Two years recent soldering experience required.

Age 23 to 43

Interviews: 8:30 A.M. to 3:00 P.M. Monday through Thursday

SCANTLIN ELECTRONICS

2236 S. Barrington WLA

Figure 3. Japanese-language newspaper *Rafu Shimpo* classified ad for wirers, solderers, and inspectors ages twenty-three to forty-three, two years' recent military type wiring required, March 17, 1961.

per wires into the backs of circuit boards, talking about 'keeping up with the younger girls.' By that time, she was already in her mid-fifties."[59] Like many women of color they passed as younger—in my grandmother's case, twenty years younger—than they were in order to become part of the integrated circuit of production. The *bracero* program and Japanese and Japanese Americans return migrants from internment camps supplied cheap labor for agriculture and electronics

manufacturing.[60] During internment, camp residents had always worked as teachers, nurses, gardeners, and so on, but as was the case for much of their labor before camp, they were paid well below minimum wage. Unlike Moraga's mother, my grandmother did not do piecework at home. Instead, she was employed as a solderer for an engineer at Kaar Electronics and later at Kaiser Aerospace, where she finished her career. She retired at sixty-five and died in 2010 at the age of 107.

Her oldest child, my father, David Nakamura, graduated from the University of California, Berkeley, with a degree in business, paying his tuition using the GI Bill. His family could not have afforded to send him otherwise; he was too young to serve in the military during internment, and in any case, Heart Mountain had the highest level of draft resistance of any camp. He stayed close to home and worked at several high-technology companies that were established in the 1950s and '60s, and was eventually hired by William Shockley, the founder of Shockley Semiconductor Labs. Shockley was both a "primary architect of the computer age," having received a Nobel Prize with two other scientists in 1956 for having invented the transistor, and also a very public racist and eugenicist. He espoused the voluntary sterilization of Black women and donated to the Repository for Germinal Choice, a sperm bank founded in 1979 that advertised itself as a resource for women who wanted to have "superior children." All the donors were white, as were the recipients. Shockley has since been censured by the editorial board of *Science,* which links all mention of him in the journal to an editorial describing his racist ideology, and acknowledges and apologizes for the journal's complicity in defending his views in earlier years. According to my father, Shockley told him that because he was Asian, he was more likely to have intelligent children; this was in keeping with his "scientific" publications, which used statistical analysis to argue that Jews and Asians had superior potential for achievement and condemned Black people as inferior.[61] These views may well have played a major role in reducing the racial diversity of Silicon Valley, a feature of the industry to this day, given Shockley's history of hiring the scientists and engineers that later built Fairchild Semiconductor and other flagship companies.

My other grandmother, Misao Shinsako, did not become part of the integrated circuit of woman of color's labor in the technology industry. She did not speak English fluently because she was a

kibei, a woman who had been born in the United States and thus a citizen, but returned to Japan as a child and was raised there. She and her three children and husband were living in Los Angeles where she worked in the garment industry when they were sent to the Granada Internment Camp in Amache, Colorado. Everyone called it Camp Amache. Unlike Nellie she couldn't work as a maid or secretary, nor did she have personable English-speaking relatives who had useful wartime skills like machining metal, so she and her family spent three years behind barbed wire in Colorado. As A. Naomi Paik writes, "rightlessness and the camps permanently change the subject, far beyond the time and space of imprisonment," and this is even more the case when the infrastructure of the prison persists beyond that time and space.[62] For their family didn't really leave the camp after the war.

When the camps closed in 1945, the Shinsako family were recruited as laborers at a frozen food factory at Seabrook Farms, New Jersey, the home of Bird's Eye Frozen Foods and one of the largest suppliers of provisions to the military. They boarded a bus sent to Camp Amache by the factory where they went to live in shared dormitory housing with other families who were war refugees, former camp inmates, and other racialized people who had no place else to go. Seabrook Farm was part of a layered regime of confinement that resembled Amache Camp; while Amache was built on formerly Native lands, Seabrook was a plantation worked by unfree Black labor before it was repurposed as a factory farm that employed the Japanese partly to break up Black protest against working conditions. These places were not exceptions to or interruptions of liberal democracy, they were constitutive of it and of the inattention economy that would allow so many of the workers who built and labor for the "Magnificent Seven" companies (Apple, Amazon, Nvidia, Tesla, Meta, Microsoft, and Alphabet) that constitute more than 30 percent of the Standard and Poor's market capitalization—to remain unseen and unrewarded.[63] They were rather, as social theorist Nikhil Pal Singh describes it, "zones of internal exclusion within liberal-democratic societies (plantations, reservations, ghettos, and prisons) and in sites where liberalism's expansionist impulse and universalizing force have been able to evade their own constitutional restraints (the frontier, the colony, the state of emergency, the occupation, and the counterinsurgency)."[64]

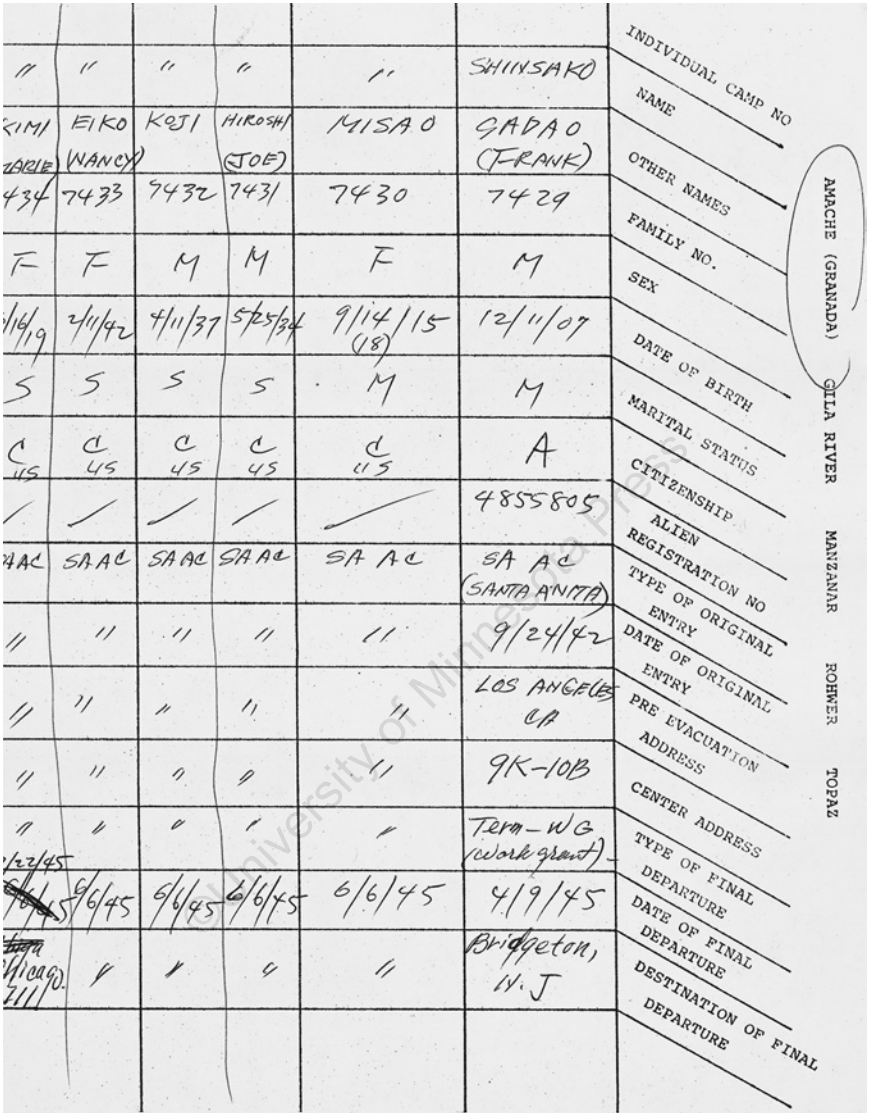
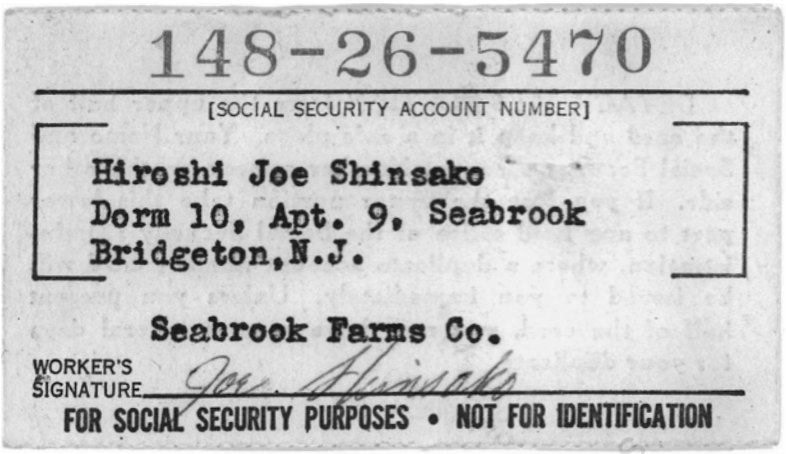


Figure 4. Release paperwork for Shinsako family.

After the Japanese left the camp, prisons and jails with a majority Black population became the primary source of work and income in the town. As cultural anthropologist Hearth Pearson writes, "the confinement of racialized people has been at the center of [the


148-26-5470

[SOCIAL SECURITY ACCOUNT NUMBER]

Hiroshi Joe Shinsako
Dorm 10, Apt. 9, Seabrook
Bridgeton, N.J.

Seabrook Farms Co.

WORKER'S SIGNATURE Joe Shinsako

FOR SOCIAL SECURITY PURPOSES • NOT FOR IDENTIFICATION

Figure 5. Social security card from Joe Shinsako.

town]'s social, political, and economic systems for almost four hundred years. It is as central today as it was during plantation slavery."[65] Misao Shinsako's children moved directly from the Granada Camp School to the Seabrook Farms School, and my uncle's social security card heartbreakingly lists "Dorm 10, Apartment 9, Seabrook, Bridgeton, New Jersey" as his permanent residence.

I could not find any family photographs of life at Seabrook Farms, but by searching for my grandmother's name I was able to locate a picture from the Densho Digital Archive of Japanese American history that depicted three uniformed women working on a corn-cutting factory line. One of them is facing away from the camera, and the other two are visible in profile and from the front. They are wearing white caps and dresses, and though I have stared at the image many times I can't tell which of them is my grandmother. The Shinsako family stayed at Seabrook processing vegetables until they had saved enough money to return to Los Angeles, where my grandmother again became a garment worker. It took them over five years.[66]

Both of my grandmothers and their children received the $20,000 payment from the 1988 Civil Liberties Act that President Ronald Reagan approved as reparations for Japanese Americans interned in camp. Included with the redress checks, which weren't issued until the early 1990s, was an apology letter written by then-president

Figure 6. Picture of Misao Shinsako working on corn canning factory line at Seabrook Farms. Creative Commons Attribution-Noncommercial 2.5 license, Seabrook Educational and Cultural Center, Rutgers University Community Repository.

George H. W. Bush. My uncle Koji Shinsako saved his letter, which was found among his things after he died in 2020. Like him, most of my family who lived through that period are gone, and those who are still here don't want to talk about it. Their stories trace the

interdependence between internment camps and the new postwar industries—semiconductors, frozen foods, garment work—which employed formerly dispossessed women of color who, when they were lucky, raised children who could participate in the integrated circuit of digital racial capital as businesspeople and entrepreneurs. Racial capitalism, bolstered by quasi-scientific projects like the eugenics mission at the heart of Fairchild, Silicon Valley's most influential company, relies upon the labor of Asian and Latinx workers who then, as now, tended and harvested our food for below-market prices.[67] The inattention economy and the forms of capitalism it enables are similarly interdependent upon the arrangements of race and gender that make some work paid and some unpaid, some people's time valuable and other people's time worth almost nothing.

I received my PhD degree in 1996 in English, and though I wrote my dissertation on Henry James, Rudyard Kipling, Edith Wharton, and Thomas Hardy, I was really only interested in a completely different topic: race, gender, and the internet. Though William Shockley might have felt vindicated in his eugenic theories about intelligence by my choice of occupation, he would have been completely wrong. I became interested in the internet while strenuously avoiding my dissertation, spending most of my evenings logging onto a local ISP to access LambdaMOO, a multiuser programmable chatroom created by Pavel Curtis and other workers at the Stanford Research Institute (SRI) that went live on a Stanford server in 1990. By 1996, I could not help but notice how many users were working alongside the programmers, providing the advice and technical support that made the space available and functional for new users. I saw that all the programmers were men, and that many of the maintainers were women. The internet had very few women and nonwhite users in the early 1990s, and there were *very* few women of color.

Many women of color I met were in hiding, using male avatars assumed to be white because their race and gender was unspecified. When I criticized the racist and sexist representations and hate speech that surfaced in the chatroom, my complaints were dismissed as too thin-skinned. It was another professor, a specialist in writing and composition, who told me that if I didn't want to be harassed, I should use the avatar-editing tool to erase my gender

and race. In that moment I had two realizations: first, that the internet was a space where racism and misogyny were viewed as artifacts of technology that could be *avoided* using technology, and second, that if I intended to stay the ethos of the place dictated that people who identified bugs were obligated to fix it themselves. This book is my answer to this call. Calling attention to the indispensable workers who are not acknowledged as such because they are women of color can help us mobilize a strong critique of the asymmetry of power that both produces and was produced by computational culture.

The three specific inflection points in the development history of the digital technologies and the forms of exchange and labor they enabled that I discuss in this book's chapters were all made possible by women of color's technological labor. Each chapter examines a specific period during which women of labor's work disappeared and was subsumed into the totalizing epochs of technological development that are labeled sequentially as versions 1, 2, and 3 of "the web." As I described earlier, I read these through the building of infrastructures by new forms of labor that themselves created the means for others to labor using computers: first, the age of the postwar electronic component industry; the birth of Web 2.0, also known as the social web or service-based internet; and the dawn of Web 3.0 in the 2020s. In 1965 The Fairchild Semiconductor Corporation opened a state-of-the-art circuit manufacturing plant on Navajo land staffed almost exclusively by Indigenous women. In chapter 1, "Indigenous Circuits," I analyze the company's annual reports, brochures, internal newsletters, and other materials to show how Navajo women's painstaking work between 1965 and 1975 assembling circuits using microscopes was celebrated as artisanal Indian labor akin to jewelry making or blanket weaving. Because they were sited in Shiprock, New Mexico, on the Navajo reservation, physically remote from most other places, their work was difficult to see. However, their story anticipated the representation of Silicon Valley as a site of liberal multiculturalism by configuring women of color's labor as creative rather than technical labor.

This chapter doesn't focus on Indigenous people's role in making the earliest video games such as the bellwether Channel F, the first console that used game cartridges, or satellites, or missiles, or

the other products that Fairchild workers told me that they knew the company was building. It is surely the case that their labor contributed to these products, especially the high-reliability weapons and defense infrastructures that used the components built there. Instead, in this chapter I analyze how indigeneity itself became a resource that helped a burgeoning new company in an industry struggling to scale represent itself as connected to nature through its connection to Navajo people.

These skillful women of color circuit builders and testers who were paid less than minimum wage to start were viewed as inspired artisanal creators, motivated by romantic primitivism, craft, and creativity. Though Fairchild closed the plant after the American Indian Movement seized it in protest of working conditions they viewed as unfair, many of the women and men who worked at the Fairchild plant still live nearby. As was the case abroad in offshore electronics factories, many of the women had never held waged jobs before and took great pride in supporting their families. These stories differ significantly from the romantic idea about assembly work created by industry and the press, complicating and enriching what seems like a straightforward narrative of economic exploitation and unacknowledged labor.

If you are holding a digital device in your hands, it was almost certainly touched by a woman of color before you, most likely the Southeast Asian woman or women who built it. In chapter 2, "The Queen of Myspace: Tila Tequila and the Asian American Roots of Social Media," I trace the roots of the first global social media platform through the work of a queer Vietnamese American refugee woman's hands. Tila, a former sex worker and model, was the first person to perform the never-ending work of creating digital intimacy by offering viewers access to her clothed and unclothed body, personal posts, chats, and videos. She was also the first person to experience racism, sexism, and death threats on a scale that resembles what professional content moderators deal with today, with a key difference: She was also most likely the first to view vast quantities of harmful content that was directed at herself. In this chapter, I analyze this woman of color's unprecedented publicity and exposure to harm as a formative feature in the contemporary social network.

The job that Tila Tequila invented for herself—the influencer—is

now the most coveted and paradoxically the most attainable-seeming form of work for a generation of young people who grew up watching YouTube, Twitch, and TikTok rather than television or film. I read her story of record-breaking and platform-defining popularity, as well as her eventual cancellation and shaming as she aligned herself with white supremacists, through David Eng and Shinhee Han's theory of Asian American racial melancholia and dissociation.[68] Tila Tequila was part of a generation of Asian American young people who suppressed or disassociated themselves from anti-Asian racism as a cause of their psychic suffering. Rather than receiving respect, admiration, or compensation for her skill in adding new affordances to Myspace and increasing its value to users and shareholders, she was despised for creating a solution to a problem that was seen as belonging to her own culturally deficient social position—the lack of "attention" for young women who didn't conform to traditionally racialized beauty standards and could not break into the predigital media star system. Her position as a woman of color excluded from this system required her to help create a new economy: the "attention economy."[69]

In 2017, the BBC News website published an article about a virtual reality title by woman of color design collective Hyphen-Labs entitled "The Virtual Reality That Turns You into a Black Woman." I found this title shocking and memorable given that less than twenty years before, avatar-based video games like *Rust* had been critiqued for assigning users random digital bodies, some of which were Black women, a move that players protested strongly. In chapter 3, I analyze the persistent desire to use visual digital technologies like virtual reality to put users in the shoes of other races, genders, and identities in order to feel their pain in the context of the new and vast market for racial empathy devices and applications after 2020.

I entitled this chapter "The Toxic Embodiments of Artificial Diversity: Feeling Good About Feeling Bad in the Metaverse" to capture the attractions of cross-racial passing and sympathy during the transition to Web 3.0. Though the metaverse and virtual reality did not become the dominant new platform that Meta and other companies predicted they would be, they have become spaces for virtual embodiment where Black, refugee, and disabled identities have become fungible commodities. New virtual reality–based

companies like Mursion launched training modules using VR and AI to simulate Black and other "diverse" bodies in order to rebrand identity tourism as a pillar of racial empathy. This company's project of using virtual reality to create artificial diversity uses the labor of workers paid to perform degrading versions of racialized, disabled, and gendered bodies. This new form of toxic embodiment uses visual immersion to produce value for the digital diversity complex and the forms of disavowal of racist and sexist workplace discrimination it makes possible.

Why Women of Color and Technology Now?

Women of color are the firsts and the lasts of digital technology—the first to be experimented upon as laborers and signs and symbols of modernity, progress, craft, and sexuality, and the last to be seen. Therefore they occupy a unique position in relation to technology's uncertain future and its unacknowledged past, between possibility and technoskepticism.[70]

As Astra Taylor writes, "capitalism is dedicated to ensuring that as much vital labor as possible goes uncompensated."[71] Who benefits from the obfuscation of women of color's vital labor in relation to digital technologies, as infrastructure makers, as fungible signs of diversity and liberal tolerance, and as social media producers? Capitalism requires that reproductive labor, the labor that sustains life through care, be sequestered away from the wage economy. My goal in writing this book is to focus specifically on instances of women of color's technological work in early, middle, and late platform capitalism to argue for recognition and material compensation, capturing an alternative technological imaginary or counterhistory that gestures toward a new logic of reparation.

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Indigenous Circuits
NAVAJO WOMEN AND THE RACIALIZATION OF EARLY ELECTRONIC MANUFACTURE

This chapter focuses on a group of women of color who are almost never associated with electronics manufacture or the digital revolution—Navajo women. Their flexible labor from 1965 to 1975 in Shiprock, New Mexico, as insourced workers at one of Fairchild Semiconductor's state-of-the-art circuit manufacturing plants exemplifies the ways that women of color have borne and continue to bear the burden of digital device production.[1] If we mean to theorize how race and racism become part of the building and workings of digital platforms, we must, as Cottom advises us, pay attention to how women of color's labor is necessary to produce the "networked scale, the logics of obfuscation, and the mechanisms of predatory inclusion" that obscure them.[2] In this case, to obscure does not mean to hide, for Indigenous women's work was made very visible and was celebrated in the Fairchild Corporation's marketing materials and in the journalistic accounts of the workers at the plant. Rather, the inattention paid to the digital labor of Indigenous women works by obscuring who they are and what they do *outside* of the enclosure of the factory, the lab, and the platform.

In her definition of predatory inclusion, Cottom describes how African American women were given "access" to higher education through digital platforms that extracted high prices that could only be paid through exploitative student loans. This kind of inclusion in the platform economy for women of color is really only "inclusion-as" sources of wealth and perpetual indebtedness for the benefit of digital product builders. Long before the platform was ever named as such, Indigenous women were also included in the digital by

being "included-as": included as mystical, folkloric crafters of circuits by virtue of their race and gender who were represented as grateful and privileged by their inclusion. This story obfuscates a parallel narrative about the ways that reservations worked as hosts for new manufacturing companies in the period, for in many ways this settler-industrial campaign waged by postwar industry and the government subsidies that supported it were also an instance of predatory inclusion.[3] Celebrating Navajo women's success working in factories on the cutting edge of semiconductor development achieved a strategy that mirrored that of the federal government at the time, which was to support the growth of manufacturing on Indian land as a way of "including" them in the modern age and then removing them from their homelands. The Navajo women at Shiprock were included as skillful and valued workers in building infrastructure by subsuming them and their racial traits to the needs of the science and engineering lab and the factory rather than to the wider, lived context of their lives on ancestral lands that the federal government's Termination and Relocation program meant to do away with.

It is important that the women who had worked at the plant remembered their jobs there in a different way—not as a means toward becoming "high-tech," modern, and mobile, but rather as a way to earn the money that would sustain them in their existing and beloved homes, families, and land. The plant had a significant impact on the community: According to an appraisal report produced for Fairchild by Arnold and Porter, a Washington D.C. law firm, the plant had a yearly payroll of over $3.5 million. The firm estimated the population of Shiprock as 9,000 residents, and over 1000 people, 98 percent of them Navajo, worked there. Most of them were women, as the report put it "about half are married, 48% are single, and the remainder are either widowed or divorced from their husbands."[4] The jobs that were meant to move the Navajo people off the reservation as part of a systematic governmental campaign of alienation and dispossession was instead experienced by many of the "Fairchild Ladies" as sustaining the personal autonomy and sovereignty that filled gas tanks, purchased bread, and supported the local economy. Even though wages were low, they made the most of what they brought in; a loaf of bread cost eighteen cents, and a gallon of gas cost twenty-five to thirty-five cents. If you

drove your truck to the town of Gallup, New Mexico, a tank of gas could be bought for three dollars.

This was not the first time that women of color's "nimble fingers" were represented as a digital resource, for young women in Asia and Mexico, among other places, were actively recruited to work in the electronics industry before and during this period. In 1950s Japan and 1970s Malaysia, advertisements by companies like Matsushita credited their success to the "divine fingers of young Japanese women" whose dexterity was "passed down to us by our ancestors" and responsible for nation-building.[5] At the same time, very little nuance or detail is provided to understand their experience as anything other than the building blocks of modernity. They are, as Latinx STS scholar and historian Iván Chaar López puts it in his study of the Mexican women who were recruited to work in maquiladoras, an "absent presence" in the history of computing.[6] When women of color are included in the narrative of the postwar period's technological infrastructure building, they are described *as* their traits and even body parts that made them both inextricable from of the machines that they were building and invisible as human beings whose work, despite this new governmental-industrial complex, I read as a contextual and contingent push toward sovereignty.

Similarly, a brochure entitled "Malaysia: The Solid State for Electronics" published in 1976 reads: "The manual dexterity of the oriental female is famous the world over . . . Who, therefore, could be better qualified by nature and inheritance to contribute to the efficiency of a bench-assembly production line than the oriental girl?"[7] As Jefferson Cowie describes, the "nimble fingers" phrase was also applied to Latino women working in maquiladoras for RCA and other electronics firms, including Fairchild.[8] While Fairchild and other electronics firms maintained plants in the United States that employed assembly workers in places like San Rafael, California, and Portsmouth, Maine, by the 1980s electronic assembly had become not just women's work but non-U.S. women of color's work.[9]

Yet, the persistent association between women of color and electronics manufacture under globalization can obscure the labor of those living within the boundaries of the United States—particularly Indigenous women—in the early history of the digital revolution. As Chickasaw scholar Jodi Byrd writes, American Indians are

invoked as "past tense presences," as "spectral . . . lamentable casualties of national progress."[10] Though Navajo women were in the *vanguard* of this history as workers at one of Fairchild's most technologically advanced plants, their material contributions to U.S. "national progress" as a high-tech nation both contradicted and was used to reinforce the story of Silicon Valley as a narrative of white male achievement. The Fairchild Semiconductor company was the mother of the semiconductor industry and its "absolute leader in technology": Fairchild *was* Silicon Valley in those days.[11] Reading this history through Indigenous women's electronic living labor helps us understand how this gendered and racialized work that might seem like an exception and a novelty, a footnote in the history of technological development, would later become a norm.

Women of color living in formerly militarized zones such as Southeast and East Asia and Mexico who then and now create the digital infrastructure that we use every day would be similarly celebrated as exceptional workers *because* of their distance from modernity. These early electronics manufacturing workers were perceived as paradoxically both preternaturally skillful and right-less, labor that was both in the service of the United States as a technological and later digital nation and at the same time not of it.[12]

Shiprock is located on multiple borderlands. It is near the Four Corners region where Utah, Arizona, Colorado, and New Mexico meet, and it is also on the border between the United States and the Navajo Nation. In 1964 a staff aide recommended to Fairchild Semiconductor general manager Robert Noyce that the division establish a pilot plant for assembling transistors in Shiprock, New Mexico. The company acquired a $712,000 loan from the Navajo reservation to build the plant, which was eventually to cover 34,000 square feet.[13] Producing these labor-intensive electronic components on Navajo land allowed the plant to legally pay less than the U.S. minimum wage, and it permitted them to satisfy the legal requirement that weapons for the U.S. military must be made domestically. The plant produced "high rel," or high-reliability components, used for military applications; the acceptable failure rate for these components was 2 percent or less.[14] The plant ran 24/7 and employed three shifts of workers: day shift, swing shift, and night shift. Some women preferred the second and third shift

because they were paid a bit more. Fairchild had assembly plants in Singapore and Korea that were even cheaper than the Shiprock plant, and all their assembly work would eventually migrate there, as would almost all device production work. But during the 1960s and '70s, the plant occupied land that became a temporary special economic zone that was *already* within a sovereign nation situated within the United States, and listening to the voices of those who worked there helps connect the dots between racialized supply chain workers who keep the industry going across Mexico, China, and the internally colonized United States.

Starting the story of women of color and digital culture with the Fairchild Ladies, as they were called and called each other, disrupts the idea that devices have no embodied history before they come to us. Acknowledging Indigenous lives and labor makes it impossible to believe in the idea of the United States as a "new land" that was empty before settlers arrived. Similarly, studying Indigenous women's labor building circuits precludes the idea that digital culture was made possible by settler-innovators who created products in labs and garages by themselves. This is not a fight over origins, but rather a reminder that reading the digital by "activating indigenous presences as the point of critical inquiry" provides insight into the ways that race and gender continue to structure digital culture and infrastructure.[15]

Yaqui information studies scholar Marisa Duarte urges that "we think about the devices, systems, and networks through which information flows in and around Native communities."[16] The story of the Fairchild Ladies is part of that history, part of an integrated circuit of production through which indigeneity both passes unnoticed and negotiates a transitory space between formerly separated categories like work and craft, paid labor and labors of love, that would later come to define platform capitalism. Their voices are not represented in scholarly or historical research on technology nor in accounts of the American Indian Movement whose representatives would later take over and close the plant in protest over working conditions and the refusal to allow workers to unionize.

Tiziana Terranova's early research on the internet's structural ability to extract "free labor" from its users revealed how the digital economy was founded on the exploitation of users' fun, creative

labor.[17] In this chapter, I look to a much earlier period in the history of computing, the 1960s and '70s, to see how low-wage labor that was decidedly not fun—circuit building and testing—was strategically represented by industry as creative, enjoyable, and "Indigenous." Just as Matsushita celebrated Japanese women's taste, dexterity, and care as national and gendered traits, so too did Fairchild represent the Navajo women who created the material circuits and other digital components as naturally a part of the nation's drive toward modernity and economic dominance.

Images of Navajo workers appear frequently in the archive of visual materials that document the history of Fairchild Semiconductor. In this chapter I analyze internal documents from this period, such as company newsletters and press releases, as well as public-facing media like annual reports and brochures, Bureau of Indian Affairs press releases and journalistic coverage by magazines such as *Business Week*. These accounts paint a picture of Navajo women workers as uniquely suited by temperament, culture, and gender as ideal predigital digital workers.[18] However, the conditions of work at the plant contrast with romantic notions of Indigenous women as "divine" and spiritual inheritors of Indigenous craft and creativity.

My reading of these materials reveals how Fairchild intentionally recruited young female workers from among the Navajo population using Native language radio and local newspaper advertisements.[19] As Cowie writes of young Mexican women working for RCA: "Management's standard explanation for its preference for young female workers typically rested on the idea that women's mental and physical characteristics made them peculiarly suited to the intricacies of electrical assembly work."[20] Similarly, the hundreds of Navajo women who worked at the semiconductor plant were understood through the lens of specific "mental and physical characteristics" such as docility, manual dexterity, and affective investment in Native material craft. The visual rhetoric that described their unique aptitude for the work drew heavily on existing ideas of Indians as creative-cultural handworkers.

A close examination of how Navajo women's labor was exploited as a visual and symbolic resource as well as a material good shows us how Indigenous women's labor producing circuits in a state-of-the-art factory on an Indian reservation came to be understood as

affective labor, or a "labor of love." In her work on women's affective labor in digital economies Kylie Jarrett uses the term women's work "to designate the social, reproductive work typically differentiated from productive economics of the industrial workplace."[21] Similarly, a 1969 Fairchild brochure celebrates Indian women circuit makers as culture workers who produced circuits as part of the "reproductive" labor of expressing Navajo culture, rather than merely for wages.

Indigenous Workers at Fairchild Semiconductor

The story of Fairchild's plant on Navajo land is not part of a narrative of development that fits comfortably in the history of the digital industries. Though documentary histories of Fairchild abound and no history of Silicon Valley fails to mention the company, the Shiprock plant is rarely discussed in these accounts, or at best appears as a footnote or a brief mention or digression from the story of outsourcing production to Southeast Asia. The company was regarded as a pioneer because of its willingness to take risks, to invent new manufacturing processes, and to venture onto foreign shores in search of cheap labor, an act that "helped to launch the PC revolution, which begot the commercial Internet, which begot everything else."[22] Fairchild's strategy of sourcing labor domestically from female workers of color in the 1960s, to outsourcing to other countries such as Mexico in the 1970s, and eventually to offshoring in Asia set the standard for electronics companies' hardware production. Likewise, American Indian history tends to include the Fairchild plant as an example of failed economic development partnerships or as part of the history of the American Indian Movement's protests, but does not connect it to digital culture or history.

Fairchild was one of the first chip manufacturers to outsource production to Asia. This is recognized as an epochal event in the history of computing, an innovation that permitted the remarkable growth of the electronics and eventually the computing and personal digital device industry. However, the history of offshore outsourcing to Asia runs parallel with chip fabrication projects within and across U.S. borders, specifically on Navajo land and in Mexico, respectively. In 1964 the Bracero Program officially ended, and in

1965 the Border Industrialization Program (BIP) began on the U.S.–Mexico border. By 1973 Fairchild and other semiconductor manufacturers were operating plants in Mexico under this program, in addition to plants in Singapore, Hong Kong, and Seoul.

In 1962 Charlie Sporck, a top executive at Fairchild Semiconductor and, later, president and CEO of National Semiconductor, two of the largest and most important manufacturers of integrated circuits, knew that the industry was "running into limitations as to where we could sell the product."[23] The majority of the "product" was sold to the military, and Sporck realized that Fairchild needed to reduce labor costs in order to break into the "vast consumer market out there" for electronic devices, such as calculators, games, and computers.[24] And indeed, the components that were to be produced at the plant were used in "virtually all electronic systems, most notably computers, stereo high-fidelity systems, television and other home entertainment equipment as well as guidance and control systems for the Apollo space program."[25] In an interview recorded as part of the "Silicon Genesis: An Oral History of Semiconductor Technology" project, Sporck recalls how the quest for cheaper labor and lower overhead drove Fairchild to open a plant in Hong Kong, a move that pioneered electronics manufacture outsourcing to this and other locales in Southeast Asia, Mexico, and Southern California.

However, the interview takes an odd turn. As Sporck warms to his work of explaining how Fairchild started the "mad rush into Southeast Asia by all companies" in the 1960s, the interviewer interrupts, asking, "Well, did you also go to Shiprock, New Mexico to the Indian reservation?" Sporck replies, "Yeah, that's not one of the . . ." The interviewer continues, "I noticed you didn't bring that up." Sporck replies, "No, we did, that was at the, just about the time we went to Portland, Maine. We looked elsewhere in Shiprock, looked like a possibility and we did locate down there. It never worked out, though. We were really screwing up the whole societal structure at the Indian tribe. You know, the women were making money and the guys were drinking it up and it was a failure."[26]

Though Sporck describes the plant as a "failure," it was depicted as uniquely successful during its years of operation. The archive of materials about the plant depicts it as doing well because it was *in line with* the "societal structure of the tribe," rather than in conflict with it.

Most Navajo men at the plant worked as machinists, fixing the machines that women used to create and test these circuits. These jobs provided stability and independence, for though wages started at seventy-five cents an hour, below the U.S. minimum, the average wage was $1.78 an hour, enough to fill the truck with gas, buy groceries, and do the reproductive work of caring for families.[27] These jobs allowed single and married women to earn enough money to support their families and they were close enough that they could walk to them together in the morning and the evening. Because the plant was centrally located in Shiprock, near the chapter house, the children could be cared for by grandmothers and older relatives while their mothers worked in the plant.

There were other options that the company provided to address the need for child care: According to a 1969 internal Fairchild report, the Shiprock Child Care Center (SCC), which was run by Mr. and Mrs. J. DeGraff, a Mormon couple, was intended to provide workers' children a place to go while their parents were away, as well as training in "home economics." Mrs. DeGraff believed that "Indian women need to learn a great deal about caring for children, running a house, and cooking," but that they are "good students" and "have made great progress."[28]

Insourcing on the Reservation

Fairchild opened its state-of-the-art semiconductor assembly plant on the twenty-five-thousand-square-mile Navajo reservation in Shiprock, New Mexico, in 1965. The plant grew from a pilot project employing fifty-five people to a very large integrated-circuit manufacturing facility where hundreds of Navajo women and some men worked on circuit assembly between 1965 and 1975; while accounts as to the exact number of Navajo employed vary, in 1966 Fairchild was the "largest of several electronics plants now located in Indian areas," and "at its height, the plant provided work for more than 1,000 Navajos. Fairchild became the largest industrial employer in New Mexico and the largest employer of Indians in the country."[29] The plant was owned by the Navajo Tribal Council and leased by Fairchild for six thousand dollars a month. It boasted a very low failure rate—5 percent or less, in contrast to rates in the twentieth percentile at other plants—and received several awards for its

innovative practices.[30] This insourced Navajo labor was particularly profitable, for it provided many benefits and circumvented the liabilities that come with employing U.S. citizens or union members. Insourced labor streamlines production processes, allows a team to "work closely with the company's supply chain management department," and, above all, reduces reliance on external parties, all of which helped Fairchild achieve the goal of cheap domestic production, rapid prototyping, and securing industrial secrets.[31] Though outsourcing circuit creation to global women of color would eventually provide the scale the industry needed at the lowest cost, the logic of building the plant on a reservation extended insourcing's traditional benefits to an internally colonized workforce who were represented as *under*-employed. Because nonwaged occupations such as farming, child rearing, elder care, and sheep herding are not seen as "work," Navajo women's labor could be viewed as surplus, and its capture by Fairchild, General Dynamics, and other companies built on reservations as part of a strategy of population management. The arrangement was even more beneficial for the company than the kind of insourced labor described in organizational literature, for though the Navajo workers were not contract workers, neither were they really part of an "in-house team." For unlike the engineers who worked at the plant, almost all of whom stayed with the company and were transferred to other locations, the Navajo workers were not offered the opportunity to continue working for the company after the plant closed.

As historian Colleen O'Neill writes, "In 1974, prior to its closing, Fairchild employed 922 Navajos, most of whom were women. Fairchild was one of the largest employers of Navajo labor on the reservation, second only to public sector employees, including the Bureau of Indian Affairs and the Navajo nation."[32] In most histories of Silicon Valley, domestic manufacture is assumed to have given way to foreign manufacture starting in the 1960s, when the first large plants in Asia and Mexico opened. Widening the perspective on outsourcing to include insourcing practices like the production of semiconductors on Navajo land reveals the racialized roots of computing's material culture.

Reservations provided spaces of exception to U.S. laws on minimum wage; in this way they were like foreign countries. At the same time, American mythologies about Indianness gave these

workers a desirable identity as culturally foreign yet familiar. In this way, Fairchild's Shiprock plant was far more than just an outlier. Instead, the company represented insourcing on Indigenous land as a new and innovative model for cheap domestic electronics production. In Fairchild's promotional materials and in journalistic accounts, Navajo workers were always represented as different from white workers, as possessing innate racial and cultural traits that could be enhanced or rehabilitated to produce chips accurately, quickly, and painlessly. The visual archive of promotional materials, brochures, annual reports, and press releases about the Fairchild Shiprock plant and its workers reveals how electronics assembly work became both gendered and identified with specific racialized qualities. Analysis of documents from the period that describe the plant's remarkable early success and its eventual closure in 1975 reveal potent and durable claims and beliefs about gender, race, and labor styles that would quickly be appropriated to describe the Asian women workers who eventually replaced them.

How and why did the most advanced semiconductor manufacturer in the world build a state-of-the-art electronics assembly plant on a Navajo reservation in 1965? A 1969 Fairchild news release explains that the plant was "the culmination of joint efforts of the Navajo People, the U.S. Bureau of Indian Affairs (B.I.A), and Fairchild." Though cheap, plentiful workers and tax benefits helped lure electronics companies to the reservation, Navajo leadership helped push the project forward. Raymond Nakai, chairman of the Navajo Nation from 1963 to 1971, and the self-styled first "modern" Navajo leader, was instrumental in bringing Fairchild to Shiprock. He spoke fervently about the necessity of transforming the Navajo into a "modern" Indian tribe, and what better way to do so than to put its members to work making chips, potent signs of futurity that were half the size of a fingernail? The incongruity of this form of labor—the creation of the most advanced devices the world had yet known, tiny bits of matter that could tell a satellite where to point or a missile where to land, by women who were represented as primitive and untouched by time—was not lost on tribal leaders.

In his address dedicating the newly built Shiprock plant, Nakai said, "It is a brilliant chapter that we write here in the dedication

of this magnificent plant. It signals the real and early industrialization of the Navajo reservation. It marks the advancement of the Navajo nation from an Agrarian Nation to an Industrial Nation."[33] This attempt to rebrand the Navajo as modern through their labor within electronics manufacture seems designed to counter the notion of Indians as "suffering from a racial inability to advance," as Philip Joseph Deloria puts it.[34] This new notion of the Navajo as "industrial" produced a complicated identity whose formation relied on the idea that the tribe could be modern, even hypermodern, precisely as a result of being distinctively Indian. Indian-identified traits and practices such as painstaking attention to craft and an affinity for metalwork and textiles were deployed to position the Navajo on the cutting edge of a technological moment specifically because they possessed a racialized set of creative-cultural skills in traditional, premodern artisanal handwork.

The building of the Shiprock plant was very much in line with the 1961 Task Force on Indian Affairs recommendations, which urged that reservations attract light industry as part of the "key to the economic and social competency program," which would "increase Indian economic self-sufficiency, and eventually terminate all services from the federal government to Native Americans."[35] As Peter Iverson writes, "The Navajo sought to lure other large-scale industry with cheap land leases, favorable construction arrangements, and a trainable work force. Two major firms accepted the Navajos' invitation: Fairchild Semiconductor and the General Dynamics corporation."[36] In turn, Fairchild benefited from a $700,000 loan from the Navajo to finance plant build-out, free equipment from the BIA supplied from "federal excess property sources," a very low hourly wage, freedom from real estate taxes, and funding for training programs supported by the Department of Labor.[37] These factors all mattered, but in the end, product quality and low wages kept the plant in business and allowed it to expand.

Navajo Women as Early Creative Class Workers

Circuit manufacture was performed using tweezers, a microscope, and other tools that required painstaking attention to detail, excellent eyesight, high standards of quality, and intense focus. Not all who started to work there continued—as Jim Tutt, a Navajo process

engineer who worked at Fairchild until 1974, put it, "It was tedious work under a microscope. They couldn't handle it, some of them, [because they had to spend] so many hours a day looking at it."[38] Despite these daunting conditions, the hundreds of Navajo women who stayed on excelled at this work, and the industrial discourse produced by and about the plant attributed its success to the female gender of its workers as well as Indian racial traits. At Fairchild, the preference for women assembly workers was so strong that men were effectively shut out of the majority of jobs at the Fairchild plant, and Nakai had to work hard to pressure the company into hiring more men at the plant.[39]

A Fairchild company newsletter published a story titled "Fairchild Shiprock: A Success Story," citing the "tremendous job" that the Navajo "ladies," pictured hovering over microscopes, were doing assembling integrated circuits. To explain the plant's success, the article equates creative-cultural skills such as weaving and silversmithing with circuit building. Both Fairchild's corporate newsletter and *Businessweek* credited plant manager Paul Driscoll with discovering and exploiting the "untapped wealth of natural characteristics of the Navajo . . . the inherent flexibility and dexterity of the Indians"; "for example, after years of rug weaving, Indians were able to visualize complicated patterns and could, therefore, memorize complex integrated circuit designs and make subjective decisions in sorting and quality control."[40]

In the days before either outsourcing or insourcing, when integrated circuits were manufactured in the same complexes or even buildings that housed the male engineers who envisioned and designed them, immigrant women of color were hailed as the ideal workforce because they were mobile, cheap, and, above all, flexible. Engineers were able to test new design or manufacturing processes or fabricate prototypes for new components because the workers whose hands made them were in the same building, allowing them to iterate quickly. Additionally, workers could be laid off at any time and could not move to look for alternative forms of work, while their employers could close plants and reopen them in locales with the most favorable conditions. The notion that Indians were "inherently flexible" underwrites the idea that women of color were not only suited to precarious labor; they preferred it. The closure of the plant proved devastating to its workers, who could not find jobs

to replace the ones they lost. Many of the "ladies" cried when they heard the news.

As historian Guy Senese writes, "employee availability" was highly desired by industry, which influenced its choice to open a plant on an Indian reservation. The almost complete lack of other wage-based employment options in Indian country and an extremely high unemployment rate almost guaranteed a favorable environment for employers. He describes the plant as part of an ongoing project of "Indian labor exploitation," writing that both "quality and low cost of Indian labor was, along with liberal government loan and tax relief, a major attraction for industry."[41] "Quality," defined as a low failure rate, was a major issue in the industry; because many parts of the chip production process required artisanal handwork, failure was quite common and could have serious consequences, particularly for Fairchild's military and space program contracts, which were still a major part of its business.[42] Thus, in Fairchild's outward-facing publications, such as brochures and press releases, as well as in journalistic accounts of the Shiprock project, quality is discussed rather than cost. And it was a specific kind of quality: Indian craftsmanship.

The argument that circuit quality was a natural outcome of Indian racio-cultural traits is made quite overtly in Fairchild's 1969 brochure celebrating the new Shiprock plant and its workers. The first page features a large photograph of a rectangular brown, black, and white rug, woven in a geometric pattern composed of connecting and intersecting right angles (Figure 7, top). Adjoining it is a short paragraph: "Thank you for helping us celebrate the dedication of Fairchild Semiconductor's new Shiprock facility—a partnership in progress."[43] The following pages depict a woman weaving the same type of rug, her face partially obscured by the weft threads as she gazes down at her work (Figure 7, bottom). The accompanying text reminds the reader that "weaving, like all Navajo arts, is done with unique imagination and craftsmanship, and it has been done that way for centuries." Just as this idyllic tribute to Navajo craft is getting started, the brochure transitions to a photograph of a Navajo woman standing over a microscope, gazing at the viewer, as a white male face gazes over her shoulder, supervising and admiring her work (Figure 8, top). The text negotiates the transition from traditional artisanal cultural work to industrial

Figure 7. Shiprock Dedication Commemorative Brochure, September 6, [1969], lot X5184.2009, folder 102725169, Computer History Museum, Mountain View, California.

wage labor by asserting that "building electronic devices, transistors and integrated circuits, also requires this same personal commitment to perfection. And so, it was very natural that when Fairchild Semiconductor needed to expand its operations, its managers looked at an area of highly skilled people living in and around Shiprock, New Mexico."[44]

This appeal to "nature" as justification for converting "highly skilled" female cultural labor such as weaving rugs into high-tech factory labor is signaled by the following image, which depicts a Fairchild flagship 9040 integrated circuit, "used in communications satellites like COMSAT," enlarged so that its geometry fills the whole page (Figure 8, bottom). The resemblance between the pattern of the rug depicted on the first page and the circuit is striking and uncanny. It makes the visual argument that Indian rugs are merely a different material iteration of the same pattern or aesthetic tradition found within the integrated circuit. The opposing page states, "The blending of innate Navajo skill and Semiconductor's precision assembly techniques has made the Shiprock plant one of Fairchild's best facilities—not just in terms of production but in quality as well."[45]

Again, the notion of a female and inherently flexible worker whose nature it is to be both adaptable and culturally suited, or hardwired, to craft circuit designs onto either yarn or metal appeals to a romantic anticapitalist notion of what Indians are and the role they play in U.S. histories of technology.[46] This nostalgic appeal to Indian identity as a unique and valuable commodity in the world of high-tech manufacture, as both a vanishing resource and an example of and participant in the nation's unstoppable drive toward modernity, is completed on the brochure's last page. The brochure's last image is a photograph of the sun setting behind the majestic Shiprock Mountain, the namesake for the Navajo reservation, superimposed by a poem, "Song of the Earth Spirit, Origin Legend." The text reads, "it is lovely indeed, it is lovely indeed / I, I am the spirit within the earth / The feet of the earth are my feet / The legs of the earth are my legs," and so forth.[47] It is safe to say that unattributed "origin legend" poetry is not a standard feature of industrial brochures. Including it shored up claims that circuit manufacture was naturally Indigenous people's work.

The year 1969 was an opportune time to argue for the spiritual

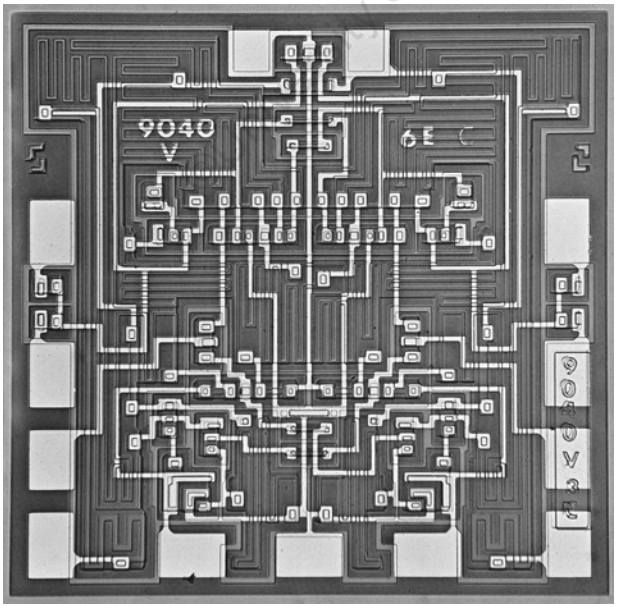


Figure 8. Shiprock Dedication Commemorative Brochure, September 6, [1969], lot X5184.2009, folder 102725169, Computer History Museum, Mountain View, California.

and natural qualities of Indian high-tech manufacturing as an antidote to the anomie and alienation of American corporate culture. Counterculture gurus such as the poet Gary Snyder and the publishing entrepreneur Stewart Brand viewed Indians as intimately connected to nature and as a model for the counterculture.[48] Snyder blended near Eastern and Indigenous religious traditions when he identified himself as a "Buddhist shaman," and Brand's multimedia show "America Needs Indians," performed at the Trips Festival in San Francisco's Fillmore West, used material gathered from his visits with Indians living on the Warm Springs Reservation in Oregon. Brand would go on to found the *Whole Earth Catalog,* a foundational series of books that defined the DIY movement for counterculture enthusiasts in the United States, which spun off the most influential early online community, the Sausalito-based internet service provider "The Well," or "Whole Earth 'Lectronic Link." This completed the transition "from counterculture to cyberculture" during the last half of the twentieth century, a cultural formation that Fred Turner documents in his book of the same name.[49]

The 1969 Fairchild brochure and other materials describing the plant assert that replacing rugs with circuits is, rather than a cultural loss or, worse yet, a form of cultural imperialism, instead an extension of an existing, Indigenous cultural practice; it is culture work for the nascent information age. It posits that Indigenous design informed electronic circuit design—a kind of colonialism in reverse—despite the lack of involvement of Indigenous people in the company's research and development arm.

The argument that Navajo women were good at their assembly jobs because they were skilled blanket weavers and jewelry makers appears throughout contemporary accounts of the plant. Journalistic accounts, BIA press releases, and Fairchild internal documents alike depicted Indians as the first informationalized "creative class" workers who excelled at their jobs because they were personally and emotionally fulfilled.[50] The seed of this argument can be found in the Shiprock brochure that depicts naturally happy workers, expressing their creativity by creating electronic artifacts that resemble Indigenous artifacts.

Depicting electronics manufacture as a high-tech version of blanket weaving performed by willing and skillful Indigenous women served two goals: It permitted the incursion of factories into Indian reservations to be seen as a *continuation of* rather than

a break from "traditional" Indian activities, and it pioneered the blurring of the line between wage labor and creative-cultural labor; one seamlessly became the other. Indeed, one may have *replaced* the other. This discourse attempted to make the real issue at hand—unionization—irrelevant. The brochure's photographs of satisfied Navajo women busy at their looms and microscopes was especially appealing given the intense competition between states and non-U.S. countries to attract industry by offering freedom from taxes and organized labor.

Fairchild engineering manager George Wells recounts his "proudest moment" as having successfully "faced down the union threat" at the company's San Rafael diode plant in California in 1969. Though 75 percent of the workforce, which consisted of 51 percent "minority workers" at the time, favored unionization in straw polls, Wells "kept that plant from going union," remarking that "if that plant had fallen, Fairchild would have become vulnerable, and potentially, the Valley would have been unionized within a few years." Manager Jim Diller also remembers being "very frightened" of the industry's workforce unionizing. This perception of unionization as a social contagion that could have damaged the Valley by empowering minority workers strongly motivated managers to resist any form of organized labor. Though many of the Fairchild plant's workers did not feel strongly about unionization, the American Indian Movement made it a major justification of their closing and occupation of the plant in 1975.

The 1970s were a fortuitous decade for Fairchild to assert the connections between nature and technology: Chip manufacture is a notoriously dirty business, and workers at Fairchild and other semiconductor manufacturers were falling victim to pollution-related disease and starting to blame the company. "By the mid-1970s, reports of chemical exposures among production workers had begun to surface" in San Jose, California.[51] Given the already high rates of pollution on the reservation from the extraction of resources such as uranium, gas, coal, and oil, semiconductor manufacture continued the ongoing practice of environmental degradation in a spot renowned for its natural beauty.[52] Ultimately, the Navajo Nation failed to benefit economically as much as it had expected from the plant and was left to deal with the detritus and its long-term consequences.

Navajo identity had a heavy burden to bear. In the face of concerns about high-tech pollution, increasingly empowered labor organizations, and a newly politicized and visible American Indian civil rights movement, Indigenous electronic workers at Shiprock were pressed into service as examples of the peaceful coexistence and integration of the past and the future, the primitive and the modern, creativity and capitalism. Because their labor was understood as cultural, emotional, and originating in essential Indian traits, unions could be depicted as superfluous and beside the point. Navajo circuit builders were cited as evidence that digital work—the work of the hand and its digits—could be painlessly transferred from the Indigenous cultural context into the world of technological commercial innovation, benefiting both in the process.

Navajo people were described by their managers as having "patience, respect for private property (hence a low theft rate), lack of militancy, and pride in their work."[53] They were the ideal workforce, because in contrast to striking workers in other parts of the country, they could not relocate; Fairchild's 1969 brochure claims that "the real value of this progress lies in the creation of meaningful jobs for those who have not had jobs, jobs which will keep them in the land they love and among the people they know."[54]

The rootedness and vulnerability of the Navajo worker was rhetorically respun into an act of purposeful and care-driven cultural preservation on the part of the corporation. The original rationale for bringing industry to the reservation, which was to gradually eliminate federal support from the federal government to Native Americans, was represented as part of a plan to help them stay on their reservations and retain their ancestral homelands.

The benefits of a trained and seasoned Indigenous labor force that was new to industrial forms of labor were not lost on managers at other factories in Shiprock. As C. J. Jameson, manager of General Dynamics's Shiprock plant, said, "They don't have the bad habits people have in more industrial areas."[55] This is an eloquent illustration of how racialization works; prior beliefs about Indians as unreliable workers unsuited for modern forms of labor are transformed into assertions of the positive value of "primitive" habits. This shift demonstrates the fluidity and mutability of gender and race stereotyping; Indians were described as careful, docile, and

hardworking when it helped their managers understand and explain productivity through the lens of race and gender.

This strategy was one of the first iterations of an exceptionally effective argument to justify digital labor exploitation by depicting it as an outlet for the expression of cultural and racial identity. Attention to detail and pattern, careful handcraft, stoicism, and flexibility are made, not born—they are invoked in response to the needs of global capital to travel, to justify manufacturing a product in the cheapest place possible.

Race and gender are themselves forms of flexible capital. Navajo women were understood and perceived as docile, flexible, and natural electronics workers in order to maintain a compelling narrative that justifies, even celebrates, the yoking of corporate interests to Indigenous governance. When this myth no longer served the romantic narrative of creative factory work, Indigenous workers were once again understood as unruly and primitive. When Latinas and Asian, African Americans, and, later, Indigenous women's labor was needed to build industry, they were in turn celebrated for their "nimble fingers and passive personalities."[56] American Indian women, as well as Mexican women working in maquiladoras, were described in much the same way as "Orientals": as ideal workers in the digital industries, because of their experience with fine crafting of jewelry and textiles.[57]

In our present day and for the past few decades, Asian fingers have been "nimble," but in the 1960s and '70s, Navajo women's fingers were envisioned this way. In this case, it can be seen how race—the understanding of a specific population as possessing traits and behaviors that belong to a race, not an individual—is a process, not a product.

Images of rug weaving are an integral part of Shiprock brochures' visual argument that Navajos were natural circuit assembly workers. Weaving and crafting are mentioned in every publication that attempts to explain the plant's success. However, unlike silversmithing, jewelry making, and other Indigenous Navajo practices that were cited as an argument for why and how they were so good at their work, rug weaving was a specifically female activity. As Benny Klain discovered during his interviews with Indigenous rug and blanket weavers in his 2008 documentary *Weaving Worlds,* weaving was a reliable source of personal income for women during

hard times as well as an important creative outlet and spiritual practice, and as one weaver explained, it "kept us fed."[58] Yet at the same time, the low prices offered by Indian trading post owners and traveling rug buyers guaranteed that Indian women weavers' labor was not compensated fairly, and these blankets are still a potent emblem of the exploitation of Indigenous women's knowledge and labor.

Navajo weaving had a particularly complex cultural identity. According to Diné historian Jennifer Nez Denetdale, weaving had a double status as both authentic and inauthentic; many believed Navajo weaving to be a cultural appropriation of Pueblo weaving and thus a skill "learned" from another tribe that was imitative or polluting. Denetdale reads weaving as an important "intellectual tradition," as does Angela Haas in her essay "Wampum as Hypertext."[59] The affinity and historical links between weaving, digital computing, and women figures centrally throughout cyberfeminist theory, most famously in Haraway's "A Cyborg Manifesto" and early cyberfeminist theorist Sadie Plant's *Zeros + Ones*.[60]

Silicon Valley business discourse created an archive of materials that represented Navajo women as natural cyborgs, indeed, as embodying nature itself using silicon as their medium. Though Plant does not mention Indigenous women in her work, she argues for the close affinity between weaving and software production: "Textiles themselves are very literally the software linings of all technology; it is their microprocesses which underlie it all: the spindle and the wheel used in spinning yarn are the basis of all later axles, wheels, and rotations; the interlaced threads of the loom compose the most abstract processes of fabrication."[61]

The discourse about Fairchild's Shiprock operation described Navajo women's affinity for electronics manufacture as both reflecting and satisfying an intrinsic gendered and racialized drive toward intricacy, detail, and quality. The liberal discourse of the 1970s assuaged its conscience by celebrating what was in many ways traditional factory work performed by Native Americans by suturing it to an emergent discourse of multiculturalism as modernity. How could this semiconductor production be exploitative when *these* women did it, for didn't it look so much like the original "free labor" or "native" cultural production such as weaving blankets that Indians had done for centuries without pay?

Thus, it was semiconductor and electronics manufacture, among the most tedious of jobs in the long supply chain that produces our digital media devices and the vast array of technologies we use today, that was redefined and envisioned as creative labor, labor that women of color do to express themselves. A BIA news release titled "Industries Turn to Indians for Precision Workers" claims that "the Indian, with a natural affinity for precision work, is equally at home as a high-climbing steel structural worker and as a weaver of intricate designs. Somewhere between the two extremes lies electronic factory work, which calls for skill that is rooted in pride of workmanship."[62] Semiconductor manufacture was made to seem like an act of Navajo cultural preservation as well as a pragmatic bid for economic success.

Not incidentally, Navajo women's digital traits were identified after the company learned about the tax incentives available to subsidize the project, the lack of unions and other employment options in the area, and the generous donation of heavy equipment by the U.S. government gratis as part of an incentive to develop "light industry" as an "occupational education" for Indians.

Navajo women did not make circuits because their brains naturally "thought" in patterns of right-angle colors and shapes. They did not make them well because they had inherent Indian virtues such as stoicism, pride in craftswomanship, or an inherent and inborn manual dexterity. And Fairchild did not hire Navajo women *because* of these traits. Many were attracted to their jobs at the plant because their jobs were clean, "indoor" work that paid a regular wage and allowed "young and old" to walk, laugh, and chat on their way to work and during breaks. Some had never had regular jobs before, and these were in effect the only jobs available to them. Women held on to their ten-year pins, badges, and other artifacts from their jobs at Fairchild because they remembered the work as an important part of their lives and their connections to each other. Above all, the plant's regular wages allowed them to support their families. The lack of jobs in the area had led many younger people to leave the reservation in search of employment and much of the sadness and disappointment that the plant had closed was due to increased difficulty in maintaining families and connections with children in particular.

Unfortunately, though in 1969 Fairchild's president and CEO

Dr. C. Lester Hogan stated, "In the next several years we expect to see expansion of this nearly all Navajo operated plant, concurrent with future development of the Shiprock community and increased opportunities for all Navajos," this was not to be.[63] The production of advanced electronic components by Navajo women turned out to be a time-limited project that ended in 1975, when the plant was taken over by American Indian Movement (AIM) members led by Russell Means. After the eight-day takeover ended, Fairchild closed the plant permanently, and the Navajo were no longer the digital model minority. Fairchild cited the unstable labor environment as the reason, but many suspected that this had to do with a desire to move *all* operations offshore, where wages were even lower than they were in Navajo country, and workers less inclined to protest conditions. In addition, in the wake of the Alcatraz Occupation (1969–71) and the Wounded Knee incident (1973), AIM was perceived as a militant group and certainly not one that Fairchild wanted to confront directly.

The reasons stated for the occupation cited worker layoffs, but others speculated that AIM's desire to unionize a famously never-unionized industry contributed to the closure as well.[64] Two conflicting views of Indigenous women—as inherently digital workers who could "see complex patterns" and effortlessly, perfectly, and "naturally" re-create them on miniature circuits, and as militant aiders and abettors of militant men or, worse yet, as themselves militant—collided in this moment. While some Navajo mourn the closure to this day, imagining a Navajo Silicon Valley, others are relieved that the reservation was saved from this fate.[65]

After the loss of the plant, the Navajo Nation continued to build its own digital infrastructure, charting a path of autonomy and self-sufficiency through partnerships with institutions like the Bill and Melinda Gates Foundation's Native American Access to Technology Program (NAATP) and the Navajo Nation Tribal Utility Authority (NNTUA), funded in part by a USDA Broadband initiatives program grant. After Bill Clinton's 2000 visit to the tribe to discuss broadband infrastructure, the tribe's NNTUA implemented a strategy to build out its own networks and technical training programs in order to make access more affordable. Duarte views the tribe's emphasis on ownership and regulation as a crucial part of its leadership in digital and design innovation.[66]

Race and Digital Platforms

In *Indians in Unexpected Places,* Deloria writes that the American custom of imagining Indians in terms of "primitivism, technological incompetence, physical distance, and cultural difference" has remained "familiar currency in contemporary dealings with Native people."[67] Fairchild's argument for the unique benefits afforded to hypermodern technologies by Indigenous women exploited this currency to paint a new and appealing picture of both Indians and electronic culture as intimately joined rather than on opposite sides.

Nick Montfort and Ian Bogost define "platform" as "*whatever* the programmer takes for granted when developing, and whatever, from another side, the user is required to have working in order to use particular software."[68] This book is concerned with women of color's often invisible and absolutely central role in building that "whatever." The existence of cheap, female labor is taken for granted as a precondition of digital media's existence. Apps, software, and the parts of computing that users see are always a response to hardware and its constraints. Chief among these constraints is, and has always been, expense. There are excellent reasons to read female labor as an indispensable part of a communication platform, for the resources that they afford are necessary to complete the circuit of digital media commerce and development.[69] Innovation and technology adoption are impossible without access to hardware that can be produced flexibly, cheaply, and consistently, as it was on Navajo land from 1965 to 1975.

Many of the circuits manufactured in Shiprock were "low level," basic components often used to create more complex devices. The mythology that the Navajo women who built them transferred their complex skills as craftswomen directly to the devices is itself a form of magical thinking. At the same time, imaging the products as completely divorced from the identities of their makers reinforces the artificial separation between, as Rosner and colleagues put it, "cognitive (masculine, innovative, high-status) and manual (feminine, menial, low-status)" styles of labor.[70] "Manual" labor is embodied, fleshy, and agentive. The time and energy spent creating technology is part of an economy of care; though some of the workers did not know where the components they were making were going, many of them were told by supervisors that they were building spaceships and rockets.

Learning from women of color technology workers helps us get beyond surface readings of digital culture. Not seeing them means not seeing software's procedural codes, its hardware, its infrastructures, its histories, and its racial and gender formations, and in so doing we may miss the point of what the digital is. Computing has always had what Ted Friedman calls the "beige box problem": Advertisers had a terrible time marketing a product that looked so dull; there was seemingly nothing to see.[71] In the 1997 "Intel Inside" campaign, an extremely durable advertising effort that lent a distinctive style and story to microprocessor manufacturing, human figures fully covered in "bunny suits," or clean suits, danced and capered to catchy music. The Intel "bunny people" proved very popular, appearing both as live dancers at electronics show keynote addresses and as stuffed dolls, and the name was trademarked. Many digital devices manufactured by companies that used Intel chips shipped with paper stickers that reminded the consumer that there was "Intel Inside," a claim that had to be taken on faith, since most consumers had no desire and ideally no need to examine the contents of their devices. However, if we look inside computing hardware, we will not see dancing bunny-suited clean room workers, happily making chips for free.

Instead, we see Asian women, Latinas, and Navajo women as well as other women of color. Looking inside digital culture means both looking back in time to the roots of the computing industry and the specific material production practices that position race and gender as commodities in electronics factories. This labor is temporally hidden, within an early period of digital computing history, as well as spatially hidden in economically sequestered zones like reservations, offshore factories, and within homes. We must look to locales and bodies not commonly associated with these technologies, in out-of-the-way places, to see how women of color operate as a key aspect of digital platform production.

Digital labor is hidden from users in closed factories in Asia, visible to us only as illegally recorded cell phone video on YouTube or TikTok or through the efforts of investigative reporters who overcome significant barriers to access—again, nothing to see.[72] But as Nicholas Mirzoeff reminds us in *The Right to Look,* visual culture's political project enjoins us to look precisely at those objects, practices, and artifacts that either protest their own innocence

or document subaltern experiences.[73] On the spectrum of digital labor, factory work soldering chips for iPhones, missiles, and servers is as close to the machine as one can get, as close to the means of digital production—the computer—as can be imagined. It is not creative labor, nor is it free. It is fascinating that, during a pivotal moment in early computing history, the industry's foremost electronics manufacturing company represented it that way. This story of digital device manufacture on Indian land shows us how the discourse of women's Indigenous cultural production has been used to explain the key role that women of color play within the integrated circuit of production.

Since that time Navajo craftswomen have woven the story of the plant into wool and silver. In 1994 Navajo weaver Marilou Schulz was commissioned by the Intel Corporation to create a remarkable woven piece that faithfully reproduced the map of the first Pentium processor entitled "Replica of a Chip," which was "so detailed that it marked each region with its corresponding function in the real chip."[74] Some of her other pieces of textile art represented computer circuits that were produced by Fairchild, such as the 9040 reproduced in the Fairchild annual report. Artist Jeanette Dale worked at the plant cutting chips with a diamond saw in 1973 and for the last forty years has created award-winning "deep stamp" coral and turquoise bracelets. The beautiful handwork that Navajo women have created to retell this story of Indigenous craft in the postindustrial age is both an act of preservation and a challenge. After many years of inattention to this particular moment of parallel postwar Indigenous and technological development, their work affirms the tribe's mastery of craft and care extolled in the settler-industrial story about its source while questioning the eugenic premise behind its original telling.

The abandoned Fairchild plant building stands as a reminder of an alternate future for U.S. digital infrastructure. The chip shortage of 2020 that made cars, video game consoles, and a variety of other electronics impossible to get revealed the fragility of the United States' hardware supply chain. Despite new investments in chip factories in the United States, the culture of "substantial iteration between designers and manufacturers" perfected in Taiwan, where engineers and assemblers and testers work together closely as they did at the Fairchild plant, is impossible to replicate here because

skilled assembly workers are too difficult to find and no longer live in the United States.[75] But fifty years ago, before the Fairchild Ladies were fired, the company's engineers designed and tested new processes on the fly because they worked side by side with them at the plant. Many photographs kept by the company depict white-coated scientists and engineers peering over the shoulders of Navajo women sitting in long rows at their microscopes. U.S. dreams of reclaiming and "re-shoring" chip manufacture participates in the persistent not-seeing of Indigenous and later U.S. women of color who were among the industry's first workers.

What's to be gained, then, from studying Indigenous women's work building early computing components and infrastructure? First, it is because certain populations are excluded from eligibility for "computational personhood" that they can be powerful symbols of nurturing, care, and healing from technological harm. This sentimental belief of women of color's rehabilitative powers acknowledges one truth and one lie: the lie that whiteness is technology's precondition, and the truth that their strategies of surviving, thriving, and enduring within it can help us find our way today.[76]

My goal in recounting this story is to remind us to cultivate a habit of mind that sees women of color's work underlying everything that we do with computing. I chose the story of Indigenous women's digital work in the postwar period as the first case study in this book because it models what was to come. By representing the labor of semiconductor manufacture as a "labor of love" or, more accurately, as agentive or creative race and gender labor rather than as alienated or exploited labor, the Fairchild company modeled a powerful narrative about networked and social infrastructure building as "naturally" emerging from women's and nonwhite users' needs for cultural expression, and therefore not deserving of payment. As I argue in other chapters, weaving blankets, semiconductor production, and, later, social network building, content production, and work in the metaverse were all made to fall under the rubric of women's "culture." Digital infrastructure building work starting in the 1960s is posited as an intrinsic part of the Indian or women of color's psyche, an expression of cultural essence imperiled, yet ultimately enabled, by the "modern" world.

2

The Queen of Myspace
TILA TEQUILA AND THE ASIAN AMERICAN ROOTS OF SOCIAL MEDIA

In 2007, Tila Tequila—a bisexual, Vietnamese American refugee—was the most popular person on Myspace, the first global social network. Myspace was the most popular social network in the world from 2005 to 2009 and the most-visited site on the web in 2006.[1] As the "biggest Myspace star," and the first person to build a personal "brand" during a year when "the corporate world [was] gazing anxiously at the social networking phenomenon and wondering if it has anything to offer,"[2] Tequila garnered over 1.5 million "friends," according to *TIME* magazine, which called her the "Madonna of MySpace," and the "queen of Myspace." At the same time, *TIME* and other media outlets were completely baffled by what she was and what she meant: "As for what she does for a living, there isn't really a word for it yet."[3]

Tequila was an object of fascination and a puzzle because in 2007 her career was sui generis; a *New York Times* essay about her entitled "She's Famous (and So Can You)" describes her as "something entirely new, a celebrity created not by a studio or a network but fan by fan, click by click, from the ground up on MySpace."[4] The queerness of her niche in the digital media ecosystem of the 2000s is reflected in this article's many questions: "how, one may ask, is it possible for a personality who great hunks of the citizenry never imagined existed to build up a social network more populous than Dallas? How can Tila Tequila have become enormously famous having done little of note beyond appearing as Playboy's Cyber Girl of the Week? When exactly in the Warholian arc of fame did we arrive at a point where we create celebrities of people

so little accomplished that they make Paris Hilton look like Marie Curie?" The grammatically awkward construction of the title—"She's Famous (and So Can You)," as if fame were a verb rather than a noun—reflects the inscrutability of Tila Tequila, born Nguyễn Thị Thiên Thanh in 1981 in a refugee camp in Singapore, part of the "post-1975" generation of "young Vietnamese who were born in Vietnam or in the United States after the official end of the Vietnam War."[5]

The proposition that the reader can replicate Tequila's fame reads as both utopian, capturing the zeitgeist of the internet economy in the years between the economic crashes of 2001 and 2008, and as profoundly mistaken. However, there *was* something exceptional about Tequila's internet celebrity in the aughts: She prototyped the job of the "influencer," or "creator," and was the first to couple seeming effortlessness or "fun" with continuous labor, adaptability to rapidly shifting technological features and protocols, and the performance of "realness," or vulnerability on digital platforms. Graphic designer Claire Ejanda, who worked for Tila creating page templates, coding, and running the page in her absence, attributes Tequila's success to a prescient insight into the creator economy and how it would come to work: She "understood the importance of connection, accessibility, and transparency—and wasn't afraid to be personal in REAL TIME during an era when the internet was all about anonymity. Tila's enthusiasm for connecting in real time with her followers laid out the foundation for the now widely-used 'social media marketing' technique."[6]

Seventeen years later, in 2023, the "creator economy" is a global industry valued at $250 billion and is projected to grow to $480 billion by 2027.[7] YouTube estimates that its creators' work supported over 390,000 full-time jobs, four times the number of those employed by General Motors. Most Americans between the ages of eighteen and twenty-nine follow an influencer on social media; almost 20 percent of young males in one study saw social media influencing work as the only viable career path for themselves, and the trait that surveys show that they value the most is "authenticity."[8] Tila was one of the first to understand this: During the height of her popularity, she wrote that "my fans loved that I didn't hide anything. My life was like a live reality show on the Internet, twenty-four hours a day, way before MTV got ahold of it."

Being available and "real" at all times came with hazards that felt new to culture commentators in 2006 but familiar to women of color then and now: Tequila remarks that the media's representation of her as "little accomplished" was mirrored and amplified by the comments she received on her web and Myspace pages: "I'm short, I'm ugly, I'm a gremlin, I'm trash, I'm a whore." "I've been called pretty much every horrible thing you could find listed in the dictionary, plus some words that no dictionary will ever print."[9] Her critics' opinions of her unlikely and undeserved celebrity elides both the dangers and economic and cultural importance of "influencer" work.

Although Tequila is perhaps the first true internet influencer, why is she so seldom cited as such? In an industry built upon the capture of human attention, why is it so difficult to pay attention to the very public and, for many, increasingly nostalgic period during which Myspace collaborated with Tila Tequila to build the infrastructure for social networking sites? To erase her presence means to script a different origin story organized around a non-Asian, nonqueer entrepreneurial design sensibility and set of goals enacted by white male entrepreneurs who worked alone to build a virtual club or "space" for users to inhabit. Tila Tequila was not the first person to build a network around herself, but her elision from the history of social media implies that it was empty space because she, a queer woman of color, was the first to occupy it.

The "nested precarities of creative labor on social media" affect women and people of color the most deeply because they were designed that way.[10] Tila's race, gender, and sexuality were commodities that were read as obstacles. Her role and value as a queer woman of color content creator was not anomalous but rather *symptomatic.* She was both the first social media star and thus the first to experience what Lorenz describes as "the terrifying damage that the firehose of social media attention can inflict on a person,"[11] and a woman of color whose wayward life was conditioned and influenced by U.S. militarism and its racialized misogyny, setting a precedent for a massive industry. Social media enjoins users to adopt the position of a person with limited, revocable, and nontransparent rights, a position familiar to the refugee and a structural and legal move that licensed the misogynist and racist internet—that is to say, the internet as we know it today.[12]

Though a significant proportion of Generation Z, those born after 2000, aspire to become influencers, few of them know who Tila Tequila is, though their parents most likely do. Looking at the 2000s—that period of time after the popularization of the web in the 1990s and the rise of social media and the shift to the hyperprofitable Web 2.0 period at the end of the decade—helps us see how the earliest social media networks exploited and were shaped by the race, gender, and sexuality of their creators. This was the cultural moment when Ashton Kutcher became the first person to acquire over a million followers on Twitter; Amazon had not yet turned a profit; and social networks like Facebook were organized around educational attainment, affiliation, and already existing relationships and had not yet dominated the market. Tila Tequila both defined what digital creator labor was and is remembered today as a racial turncoat and an embarrassment. She has a very small social media presence on YouTube, Instagram, and X, and is now regarded as a curiosity, an obscure former celebrity. In 2016 she ran a GoFundMe to ask for help paying her rent.

Yến Lê Espiritu encourages critical refugee scholars to "conceptualize 'the refugee' as both a critical idea and as a social actor whose life, when traced, illuminates the interconnections of colonization, war, and global social change."[13] In this chapter, I read the social media industry's development through the figure of the queer Asian American refugee woman who was both its most visible figure and its most valuable content creator and builder during a pivotal moment in its development and, after her turn to American fascism, one of its most hated. I read her through the lens of critical refugee and Asian American studies because these fields focus on the "legal-political (and social, civil) category of the not-quite-human: immigrant, coolie, neocolonial, transnational laborer, sex worker, call center operator, etc.," roles that Tila made digital for the first time on Myspace and that she was made to occupy before it.[14] Tila's formative position as a woman of color refugee placed her within the category of the not-quite-human and blurred the line between these roles just as the first group—people of color displaced by wars, economic hardship, or genocides—began to create the conditions for the second group's—everyone else's—work to become digital. Though women of color have at times been able to occupy the influencer role, it is much more often the case that they invent

a trend that is co-opted and monetized by white female creators, often without credit being given.[15]

As Sarah T. Roberts writes, Filipina women are a major workforce in the content moderation business precisely because of U.S. post- and neocolonial relations that make transnational labor like call center and sex work cheap and scalable.[16] Similarly, Tila's work posting erotic images, sounds, and words about her life created a new style of cultural or digital intimacy whose liveness and immediacy transcended the genre of porn, was readily available on other parts of the internet, such as the "lifelog," a genre dominated by white men like Justin Hall. And she *knew* this: "There's a million hot naked chicks on the Internet. There's a difference between these girls and me: Those chicks don't talk back to you." Most importantly, engaging a global audience through a constant stream of pictures and words about her sexuality, feelings, and thoughts, in other words, her identity as a woman of color who was publicizing the private *at scale* for the first time, enabled capitalist platform work to continue the project of U.S. neocolonialism by neither protecting its creators nor regulating user behavior. As she explains in her memoir, "I've been called a slut all my life," a life that was already shaped by being part of what theorist Neferti Tadiar calls a "superfluous population" whose social role and value is to "[propel] the innovation of capitalist forms."[17]

The innovation that Tequila made possible was the creation of *the* new capitalist form: the digital labor of the influencer. In her history of social media Taylor Lorenz writes that "no road map existed for what these young female MySpace creators were doing," while acknowledging that Tila was the first to do it.[18] Centering the figure of the queer Asian female refugee as a model for online celebrity's unprecedented digital reach and rightlessness reveals how the "road map" or business model for all users was implicated from the beginning in identities that had always and *already* attracted unchecked racism and misogyny. Social media's innovation is to conjure the user not as a human with civil rights that are taken away when they go online, but rather as a stateless subject to whom rights were never afforded. It is no coincidence that life online was not considered "real" in the 2000s, a moment that also saw the rise of transgender identity and other identities online.[19] A racialized and gendered model of platformized digital space became part of

a new capitalist formation whose origins in U.S. militarism and the use of Asian, Indigenous, and other women of color to build its infrastructure are little acknowledged by design. It is no accident that the industry now known for profiting from other people's data, swaying elections, and starting genocides in formerly colonized countries got started through the manual, mediated, and affective labor of a queer female Vietnamese refugee.

Refugee labor needs to be understood in the context of intense conflict, dispossession, and violence. In her study of Vietnamese American refugees, Asian American theorist Mimi Nguyen describes the "refugee condition" as being characterized on the one hand by the requirement to be permanently grateful for the "gift of freedom," and on the other by possessing a "traumatic consciousness . . . [in which] one is not at one with oneself, that one is divorced from and dispossessed of self-knowledge."[20] This reduction of the refugee to a series of pathological formations meant to compensate for trauma simply reproduces the dualisms and analogies that produce a not-quite-human person. Nguyen reads right-wing conservative performances by Vietnamese refugees or "refugee patriots" as examples of the ways that gratitude to the United States for the "gift of freedom" must be performed in public as a tribute and affirmation of "neoliberal subjectivization in an era of the world as target."[21]

Tila's very visible turn to the right wing after her fame had waned was read by many as a cynical and insincere attempt to regain the public's attention after Myspace became less popular. I read her instead as enacting her own "neoliberal subjectivization" as a "refugee patriot" whose self-identified trauma emerged from both the circumstances of her migration as a refugee and her life as a professional social media star who was exposed to immense amounts of racial and gender violence in that job. Yến Lê Espiritu reads the entrepreneurialism and the drive to success of Vietnamese refugees' children as "an index of the ongoing costs of war; not only for the witnesses and survivors but for their children," and as part of the "generational trauma of war memory."[22] The way that Tila succeeded—through her labor selling access to herself as a commodity on a platform that understood her as only that—made her both a star and eventually a pariah, for her turn to a theatrical form of right-wing patriotism made her ungrievable

and no longer eligible for public sympathy even as an object of nostalgia. This was in keeping with the way that she describes herself as a young woman who had no place and no value other than her own ability to sell herself. Myspace both enabled her to create a new neoliberal business model for them organized around commodifiable entrepreneurs of the self—influencers—and exposed her to the unmitigated and traumatizing flow of online violence that may have contributed to her struggles with mental health.

Tila Tequila's Myspace profile page solidified the link between person and object that characterizes what Anne Anlin Cheng calls "ornamentalism," "the forging of the sense of personness through artificial and prosthetic extensions" that is constitutive of the "yellow woman."[23] The internet and its myriad social sites were Tila's extensions. In a series of techno-orientalist visual moves, she is often pictured in lingerie posing with laptops as well as Orientalist signifiers like kimonos, swords, and cars. One profile picture on her Myspace page depicts a black-and-white silhouette image of her holding a sword in profile with the subtitle "the baddest bitch on the block!" Her previous modeling work for print media posed her with modified Japanese street-racing cars. She was a quantified person before the term came into being, described in regard to numbers of networked fans as part and parcel of her personal qualities.[24] Her scalability and success optimizing and extending her personal network farther than anyone had ever done before is evidenced by her "friend" count ("follower" was not yet a term of art in the industry), which is always one of the first data appended to her name in accounts of her impact on the industry and her life.[25] The notion of the Asian and Asian American as "inscrutable," fundamentally unknowable, as "invisible, silent, impenetrable, flat, distant, and withholding," or even, as leaked Harvard admission notes reveal, a "bad" or nonexistent personality was not a contradiction, but rather a productive feature of this new form of digital ornamentalist work.[26] The willingness and desire to be *known* by millions of people, to render public that which ought to be private, to turn the inside to the outside, to use digital words, images, and sounds in order to, as Cheng writes, "[turn] things into persons" or into data, was warranted by Tequila's race and gender.[27] She coupled repetitive and iterative visual access to her body (pictures from the massive archive of erotic and often nude photographs from the

2000s still show up on her Instagram account regularly) with daily, sometimes hourly posts that spoke directly to the reader about her interior states, pairing this new kind of digital intimacy, liveness, and exposure with psychological and physical risk that both exploited the Asian female hypersexual racial formation and upended it.

The narrative of Tila Tequila as being and coming from "nothing" built the salvific notion of the internet as a space for equal access to capital, for unbridled "self-making," through economic, affective, and datafied investments in platforms at the macro and the micro levels, an arrangement that would later become known as "platform capitalism" and "surveillance capitalism"—terms that describe a planetary shift toward "calculated" life and mass datafication of populations for profit.[28] And it is precisely because "invisibility is foundational to Asian American racial formation" that a queer Asian diasporic woman could, perhaps even had to, become social media's most popular person. Myspace had achieved something that no other media company had done—it made an Asian American woman a star, but it did so by prototyping forms of personal exposure and violation that were both characteristic of a type of refugee condition and would come to seem normal and indeed part and parcel of how celebrity works in the late twentieth and early twenty-first centuries. Making the Asian American woman's body and mind seemingly transparent and infinitely available and visible worked as proof of concept of social networking's power and reach.

There are important resonances between the feminized labor that Asian women perform on assembly lines and prototyping influencer work; both are often framed as experiments that as such ought to be exempt from traditional regulation and worker protections because they take place in zones that must remain protected because they are on the edge of the innovation economy. Tila represents the work of photograph editing, writing daily posts, recording voice messages for fans, responding to users' comments, moderating content, and web page and graphic design in some sense as regimented, repetitive, factory-like *manual* labor: As she writes, "I built it with my tiny little hands and my tiny little fan base, and it grew from there."[29] Both the tedious work of electronic assembly and crafting, traditionally performed by women of color, and keyboard-

based work building the world's most popular Myspace account involved repetitive movement. Every time Friendster deleted all of Tila's friends and nude pictures, she added them back one at a time, by hand, thousands of times.[30] Ejanda notes that before Myspace allowed users to automatically accept friend requests, "it was Tila and I who manually clicked the accept button for . . . the most popular page on the planet."[31]

In order to understand social media, one must look at Asian and Asian American women and the infrastructure that they built.[32] They built it literally, through the manual labor that Tila Tequila describes as the driver of her success, and as assembly line workers who powered the semiconductor industry's move to Southeast Asia, which was absolutely necessary for the industry to expand and innovate. Both types of work involved risks to body and soul.[33] Because the private is political, I write about her as a woman of color who, like the Navajo women who worked building circuits and components at the Shiprock, New Mexico, Fairchild factory, was in a place that she was both not expected to be, and was racialized as an ideal worker for the digital age due to her self-marketing of her hyper(hetero)sexualization, what Anne Cheng calls the "spectacular syncretic thingness of the yellow woman."[34]

This was both digital content creation and platform-building work. Tequila was the first to popularize and later advocate for key technical features that let users "import some functionality that promotes or drives revenue" to themselves or to other corporations, that is, to monetize.[35] When Myspace was acquired by NewsCorp for $580 million in a record-breaking deal, the company's directors revoked site users' ability to employ third-party distribution software like music and video players. Tequila claimed to be the first to use independent developer Indie911's music player site, the "Hooka.com," a widget that paid creators and fans a percentage of its profits. She agitated strongly to let users continue to host it on their pages; her protest was published in several newspapers.[36] Myspace wanted users to add their proprietary music player widget, "Snocap," instead: This widget did not violate the platform's ban on "unauthorised commercial transactions," such as advertising outside of its official channels, but it also did not share revenue with users.[37] Tequila was the highest-profile person to campaign to keep the Hooka.com, but her effort to enable creators to profit from

music distribution on the site failed and she was eventually forced to take the widget down. The Hooka.com was too profitable for creators because, unlike Spotify, the app that would come to dominate the market in music streaming, it routed 10 percent of its revenue to fans as commissions for sales they provided links to, 70 percent to the artist, and 20 percent to itself.[38]

Despite this, Tila was able to monetize herself and her content using other platforms that she could control more effectively. Tequila's virality and strategy for attracting the largest group of followers on mainstream social media originated in the early racialized social networks like AsianAvenue.com, which built the markets for Myspace and later Facebook. Cultivating digital intimacies with strangers, some of whom were paying monthly fees for access, aligned Tila Tequila's bisexual identity with her public, intimate performance of it for new users who had not yet heard of sexting, had seen pornography on webcams but had never communicated individually with a performer, and had not yet normalized the use of financial payment software. Tila's Hot Spot served members private chats and exclusive pictures and videos in exchange for a monthly fee, prefiguring the viral platform OnlyFans. Her successful marketing of branded goods, web-based storefronts, and personal appearances prototyped the "brand deals" that later influencers would monetize in ways that Myspace's policies did not allow her to. Her television show *A Shot at Love with Tila Tequila* was the first to cross over from born-digital to broadcast media, a pattern that foreshadowed the mobility of influencers across platforms. It was also the first and, so far, only program in the genre that centered an Asian American, one of its most underrepresented groups, and a significant number of queer contestants.[39]

Lorenz writes that the "homegrown celebrities" who drove traffic to Myspace were not taken seriously because they were "too far outside the mainstream, and too early." During the early days of social networking, being racialized or queer were obstacles to attracting followers. Though women of color influencers would later attract large followings based on these identities and would thus build the platform economy on Twitter in particular through their labor creating Black Twitter, during this period they were just as Lorenz describes: "too early." This was ultimately a justification for Tequila's disposability.[40] She was the first public "queer of color"

person to perform the kinds of coalitional and intersectional identities that her followers and viewers of her show coveted as the gay rights movement both moved online and gathered political support.[41] Political economic approaches to social media labor describe workers' requirements to be "always on" within a highly unpredictable workplace, "characterized by precarity and inequalities in terms of gender, sexuality, race, ethnicity, and more."[42] Tila was recruited to transfer a large new user base to the platform when it was first launched, and she was always central to this formation at Myspace: When CEO "Tom [Anderson] returned to Friendster for inspiration . . . this time, he wouldn't steal a feature, he would steal a person." The story of her recruitment specifically to build the platform and route her followers to it is well known: "I joined MySpace in September 2003," Nguyen recalls. "At that time no one was on there at all. I felt like a loser while all the cool kids were at some other school. So I mass e-mailed between 30,000 and 50,000 people and told them to come over. Everybody joined overnight."[43]

Tequila's identity as a queer Asian American refugee was intrinsic to what Myspace would become: a global platform whose interfacial logics and technical features would create a matrix for popular and political culture for the next twenty years. This Ur-social network's practices of poor content moderation, advertising-driven profit models, and monopolistic growth set a pattern for later networks like Facebook, whose "groups" feature would foster racist extremism by using its algorithms to actively suggest groups that increased polarization toward the Right.[44] Relatedly, the twinning of digital celebrity and online harassment, misogyny, and abuse are not the inevitable technosocial formations they seem today, but rather emerged from a history of failure in the courts to regulate platforms' hate speech, specifically anti-Asian hate speech. In 2001, in one of the earliest legal cases of racial discrimination against an internet service provider, Saad Noah sued AOL/Time Warner for failing to take down numerous posts to its "Beliefs Islam" and "Koran" chatrooms that "insulted, threatened, mocked, ridiculed, and spread misinformation about Islam." Noah produced over twenty pages of "vulgar posts" to support his claim that AOL failed to enforce its terms of service rules prohibiting hate speech in its chatrooms. His class action "two count complaint alleges violation of Title II of the Civil Rights Act of 1964 by discrimination in public

accommodation (42 U.S.C. § 2000a), and breach of contract" was dismissed by the 4th Circuit Court of Appeals in 2004, which ruled that "Section 230 of the Communications Act immunizes AOL from claims that it violated the Civil Rights Act of 1964 when it provided chat rooms in which subscribers mocked Noah's religious beliefs."[45]

This application of Section 230 that holds platforms harmless for the content that is posted by users would license and enable what Tila Tequila would a few years later be among the first humans to experience: "fame" and online abuse both *at scale* and as features of each other. As she describes in her memoir, "I get more hate NOW than I ever have before. The more successful I become, the worse it gets. Even I get bummed out sometimes by the things the haters say."

Women of color create technological possibilities that become sutured to their racial and gender identities. Like Saad Noah, Tequila's foreignness and Asianness made it permissible and possible for platforms to host viral racism and misogyny, and to do so legally, under Section 230; protection for Islam was unpopular post 9/11, and racialized violence against Vietnamese "boat people" was intrinsic to the Far Right movement that would also scale during this period using some of the tools and audiences that Tequila had been recruited to popularize and build. The Obama administration's October 2011 "America's Pacific Century" policy plan marked a "pivot" from the Middle East to the Asia-Pacific, centering the region as the most "crucial sphere of influence" and the site where U.S. military resources would be concentrated.[46] The perception of Asia and Asians as enemies and as unfair economic competitors became a central part of an American white power movement that traced its animus back to the Vietnam War. As Kathleen Belew writes in *Bring the War Home,* in the early 1980s the contemporary "Viet-Klan" targeted Vietnamese refugees who, "displaced from their homeland by the same military engagement that fomented Klan paramilitarism—looked to some like economic competitors."[47] Ex-Vietnam vets and the pro-veteran movement energized both the rise of the KKK and the "widespread mistrust of public institutions" like the media; this mistrust and its targets would later normalize the use of social media by extremist hate groups like the Proud Boys.

Tila Tequila grew up in the 1980s in Ainslee, Texas, in the same

state as the KKK's Camp Mai Lai, which "trained" white militants, as well as "leftist paramilitary movements, such as the Brown Berets, a Latino group."[48] This was not the contradiction that it seemed, for women and people of color were valuable allies to the white power movement precisely because they could attract nonwhite members to it. In the 2020s public figures like right-wing media commentator Candace Owens and Enrique Tarrio of the Proud Boys are valued as especially effective recruiters of nonwhite members to the movement. Tila's recruitment to Myspace and her role in its developmental history is deeply imbricated with a fetishistic desire for Asian women. Tom Anderson stole technical features such as "friending" from AsianAvenue.com while he was there "hitting on Asian women," in founder Ben Sun's words. After Myspace's parent company Intermix tried and failed to purchase AsianAvenue.com, Anderson started an Asian porn site called Team Asia, which Intermix forced him to take down. This may explain why, when it was time to "steal a person" to build the network, Anderson chose Tila.

"Yellow fever," the objectifying sexual desire for Asian women by white men, both shaped platform innovation and came to characterize the white supremacist movement. Weeks before American fascist and white supremacist Richard Spencer posed for photographs with Tila at his 2016 pro-Trump rally, he was asked to explain how his having dated Asian women was consistent with his belief in racial purity. Though he "now opposes inter-racial dating," he said, "there is something about the Asian girls," Spencer said. "They are cute. They are smart. They have a kind of thing going on."[49]

Ratchetry, Wayward Women, and the Racialized Social Network

Tila's racial mutability as a woman of color who chose a Latinx last name, a woman who claimed the "ghetto" as her home after having spent the first eight years of life either in refugee camps or behind the locked gates of a strict Buddhist temple complex, enabled her to signify a range of associations. At the same time, she distanced herself from her racial identity as an Asian American woman. She did not know that she was Asian for most of her youth: "I was

really confused then, [because] at first I thought I was black, then I thought I was Hispanic and joined a cholo gang."[50] If dissociation is characterized by the fragmentation of the self, a process hastened by the traumas of U.S. militarism and a "firehose" of social media harassment, this was reflected in her simultaneous omission of Asianness as a factor in her life, and by the identification with instead what was then called "urban" culture, a term that euphemistically signified a global nonwhiteness and the sexual license that went along with it. Later, this dissociation became more literal, as she posted about her alter-ego "Jane" having taken over her account.[51]

Tila Tequila also became a dis-associative object, a person to disidentify with, precisely by those groups that might have claimed and supported her. At the turn of the 2000s the *Disgrasian* blog regularly published articles mocking her self-professed mental illness and blasted her behavior as "attention seeking," an irony today given the attention-economy model that characterizes the nature of work in the twenty-first century. Tila Tequila is not included in the "digital genealogy of Asian America."[52] She is unassimilable to queer theory despite having launched the first queer reality dating show, disavowed by both Asian Americanists and Asian Americans (a Vietnamese American colleague of mine said, "We don't claim her"), and unreadable by digital media scholars whose definitions of innovation exclude women of color. Her work had been criminalized, or deplatformed, several times before: "The place to be then was AsianAvenue.com. It was like MySpace, but for Asians. I was so big and caused such a commotion that they kicked my ass off. Fine by me. I wanted bigger and better anyhow."[53] This is also the case for Asian American and other "ethnic" digital platforms more generally: As internet critic Joanne McNeil writes, they could not "reap the benefits of a more diverse Internet. As of yet, these companies are rarely mentioned in internet history books."[54]

Tila sits at the crossroads of Southeast Asian refugee history and internet platform development. The imposition of a global, compulsory "instrumentality of reason"[55] produced by networked computing overlaps with the United States' military engagement in Vietnam and both were part of a similar project: to consolidate U.S. economic, political, and cultural hegemony. In 1965, the year American troops entered Vietnam, two computers at MIT's Lincoln

Lab communicated with one another using packet-switching technology for the first time. U.S. troops left Vietnam in 1973, the same year that the University College of London in England and the Royal Radar Establishment in Norway connected to ARPANET in order to form the first global network, and the term "internet" was born. In 1974 Vinton Cerf and Bob Kahn published "A Protocol for Packet Network Interconnection," which details the design of TCP, one year before the Vietnam War officially ended and the People's Republic of Vietnam was founded. The hegemony of social networking as an American project that would spread around the world and the growth of U.S. empire in Asia grew alongside each other.

Tila Tequila's early life as a refugee was full of loss and grief, and she rarely referred to her childhood as anything but a source of confusion, loneliness, and pain. She was one of the "close to 800,000 individuals who left Vietnam by boat, survived, and sought refuge in camps in Malaysia, Indonesia, the Philippines, and Hong Kong" in the largest postwar refugee migration project undertaken by the United States.[56] Tila's family was placed in a Singaporean refugee camp, and though she doesn't mention its name, it was most likely the facility on Hawkins Road, a UNHRC-managed ex-British military barracks built three years before the Nguyen family arrived and the only camp on the island.[57] While many were grateful to be there, citing the schools, kind workers, small cash allowance, and relative freedom they enjoyed, nonetheless it was still a place that residents could not voluntarily leave, a place where, as former residents such as Nguyen Le Hanh describes, people who had been raped, drowned, and displaced were detained. As she says, "some were pregnant, some were fighting, they were hungry for days. Some would die on the boat and be thrown overboard."[58] Tequila's mother was pregnant with her during the passage.

If Tila's family had stayed in Singapore, she, her mother, and her sister might have worked in a very different part of the digital supply chain, perhaps for Fairchild Semiconductor or at one of the many new chip and semiconductor plants in Southeast Asia that enabled the computer revolution. I see a kinship separated by space but not time between her and the many Asian feminized workers who built the semiconductor industry while she was building websites on AsianAvenue.com and Friendster. Both of their handwork, creating the means by which the networked computer keyboard

became the means of cultural production and at that keyboard, was necessary to create a new system. By the mid-1990s, Singapore's leveraging of multinational corporate investment allowed it to transform from a "struggling Third World economy" to a site of "no fewer than eleven of the world's most advanced chip fabrication facilities, operated by leading multinationals."[59] This movement of Asian female migrants into low-wage assembly work as a labor force displaced from their previous modes of life through war, militarism, and capitalist development indexed the global restructuring of the division of labor under neoliberal capitalism, and it overlapped with the earliest days of influencer work.

The Nguyen family were among the four hundred thousand refugees that the United States permitted to enter the country in its largest resettlement program to date. Tila describes her childhood as "shitty," growing up "without love" and in poverty. She describes working at swap meets with her parents, being sent to a school for difficult youth, and eventually running away from home, living on the streets, doing sex work to survive, and experiencing parental rejection.

Tila Tequila's work on Myspace both reflects and emerges from her status as a queer Asian American refugee whose personal narrative of technological proficiency and mediatic virality was read as both evidence of American neoliberalism's success and ability to reward hard work and its roots in, as Eric Tang puts it, the "long, unresolved colonial and imperial project carried out by the United States in Southeast Asia, a white supremacist project that wrought unprecedented death and destruction in Vietnam."[60] The Asian model minority trope has never applied to most Southeast Asian refugees. They were the beneficiaries of what Tang calls "refugee exceptionalism—the ideologies and discursive practices that figure refugees as necessarily in the hyperghetto but never of it."[61] Tila Tequila's origin story of having grown up in a racialized ghetto allowed her to be read both ways: as an exceptional refugee that had been in but not "of" the ghetto, and at the same time as a signifier of Myspace's identification as a racially and sexually diverse, enticingly edgy, and licentious space. This was part of Myspace's identity as early as 2007, when white users were already associating Myspace with a "ghetto," and its hypercustomized pages with words like "glitter," "gaudy," "tacky," "bling," "cluttered," and "pimp out."

As danah boyd puts it, "the same fear and racism that underpinned much of white flight in urban settings is also present in the perception of MySpace."[62] By the time that Facebook began to overtake Myspace as the most popular social network in 2010, the backlash against queer, "emo," unabashedly sexual, and aesthetically excessive profile page design and content in favor of Facebook's "clean" and uniform design aligned with a digital turn toward respectability, or as Jessa Lingel puts it, a "gentrified" internet that signaled the shift to Web 2.0.[63]

The triumph of Facebook, a network organized around educational attainment and access, over Myspace was also part of a backlash against the "ghetto" sexuality associated with the platform and with queer and racialized people whose performances of self were excessive, messy, and public.

In an extended meditation of Black online discourse entitled "Ratchetry and Racism," digital theorist André Brock differentiates between the terms "ghetto" and "ratchet," explaining that "*ratchet* conjures up someone who has no filter or propriety," and what's more, someone who is not in the least ashamed or abashed about it.[64] Social media incentivized users who wanted to go viral to either have no filter or to convincingly perform its lack. As Brock notes, "ratchet" is "short-hand for crass materialism, promiscuity, ignorance, inappropriateness, dishabille, and occasionally violence," and it is inextricably linked to Blackness and women of color's sexuality.[65] By 2010, Tila had over four million friends on Myspace, and the conditions were right for her to fulfill one of her main aspirations: to cross over into "traditional" media. Despite its "trashiness," her MTV reality queer interracial dating show *A Shot at Love with Tila Tequila* (2007–8) debuted at No. 1 in its time period across all cable channels in the network's target demographic of eighteen- to thirty-four-year-old viewers. Much of the energy and tension in the episodes lies in Tila's introduction to contestants' families and her self-proclamation as "a bisexual," a revelation that shocks the mostly white older relatives and friends of contestants. Tila's signature outfits, a bikini top and Daisy Duke shorts and either cowboy boots or high heels, embodied the gaudy, blinged, and pimped-out visual style of Myspace's personalized pages. Both she and the network shared a ratchet digital identity that became a target for the respectability politics that would accompany the rise of Facebook

and other Web 2.0 platforms. As Brock argues, "ratchet is a Black Southern cultural export—a form of expression intervening against the ways in which respectability politics denigrates women of color."[66]

"Memory Is the Amnesia You Like": Early Content Moderation and Digital Trauma

Tila was born in 1981, just barely within the window of time between 1980 and 2000 that defines generations as either Generation X or millennial.[67] She was, like the "parachute" children whom David Eng and Shinhee Han study in *Racial Melancholia, Racial Dissociation: On the Social and Psychic Lives of Asian Americans,* a first-generation Asian American immigrant who came of age within a postracial "national landscape in which issues of race and racism are said to be irrelevant to the law, artifacts of the past," and, like them, she did so alone.[68] In her memoir she describes being "alone at 11." Though she describes her online abuse by "haters" as incessant and extreme, requiring her to work continually to manage it, she does not attribute any of it directly to racism, focusing instead on gender-based harassment: One chapter of her memoir is entitled "Sluts."

The words "racism" and "refugee" do not appear in Tila Tequila's memoir. Similarly, the few scholarly articles that focus specifically on her do not mention her race at all, focusing instead on the newness of her online celebrity or her ambiguous bisexuality.[69] In omitting overt references to race and racism, Tila dissociated ratchetry from racism. In doing so, she rewrote the history of unmoderated social media to better fit the postracial ideology of the period. Her narrative of struggle and triumph over "haters" and the predigital media industries that would never give her the visibility or career that she wanted suppressed or dissociated race from the pervasive harassment and abuse that women, people of color, and trans people still suffer online. However, racism and other abusive speech were endemic on both Myspace and other sites that Tila created; as a visitor to TilasHotSpot, I noticed many virulently racist posts in comment sections. Tequila built her career on her "outness," her unprecedented publicness as a person who made herself accessible to millions of strangers on a new platform that has become a domi-

nant logic of the twenty-first century, yet dissociated herself from her racial identity, disavowing it as an obstacle that she overcame.

Dissociation is a protective strategy that allows the ego to continue to function when under unbearable stress or threat, but at the cost of not knowing. As Eng and Shin argue, the Generation Y Asian youth they studied employed racial dissociation—the disavowal of racism as a factor in their suffering—as a "psychic mechanism" to "process social predicaments associated with discrimination and exclusion as well as psychic difficulties connected to loss and grief."[70]

In their study of the psychological harms of content moderation, Steiger and colleagues use the term "vicarious trauma" interchangeably with "PTSD" to emphasize that exposure to watching others endure violence and harm produces "significant psychological damage to moderators."[71] Like Tila, the majority of the over hundred thousand people employed as commercial content moderators today are women of color or global majority women, and they performed this work for some of the same reasons that Tila performed hers. As I mentioned earlier, Filipino content moderation follows some of the same circuits of "American colonial extraction" of care as nursing, child raising, and cleaning. Documentary films like *The Cleaners* show how content moderation workers suffer from the lasting trauma and psychic damage of viewing violent material at scale. Alden Sajor Marte-Wood and Stephanie Dimatulac Santos situate this work within colonial "infostructures of feeling" that demand the sacrifice of the body and mind of the Southeast Asian worker to digital capital's drive toward a "better experience" for U.S. social media users.[72] Bartkowski views this work as affective labor and pain borne by women of color that are a "functional necessity of empire."[73] We now know moderation to be one of the most traumatizing occupations one can have; "a significant number get PTSD, depression, anxiety, and insomnia," and suicidality or suicidal ideation is strongly associated with this type of work.

What if, however, the trauma is not vicarious but rather firsthand and directed at you personally? Studies of content moderation have scaled up along with the growth of the platform industries, and there is little information about the psychological effects of viewing abusive or traumatizing material from the 2000s, when social networking was not yet producing the vast volume of content

that it does now. Yet we know that there was vast amounts of it, for platforms at that time did not use the algorithmic filtering software that identify "trigger" words and automate the curation of speech that streamline the work of the moderator. However, because Tila performed this "intimate work" on a scale that resembles what content moderators do today, she was most likely one of the first people to view vast quantities of harmful content that was directed at herself.

Commercial content moderation, euphemistically known as "trust and safety," was minimal during the birth of social media, often consisting of only a few people with little or no training even in the largest companies. Tila was both a test subject for the very first commercial content moderation systems and herself a moderator who screened or hired others to screen hateful comments on her own site. The effects of social media's growth and unfettered attention to market share above trust or safety are still emerging today; however, it is well known that young women of color are particularly vulnerable because they are more subjected to discrimination and harassment by design and by custom. Thus, content moderation was both intrinsic to the work of social network building and the responsibility of those least equipped to address it effectively. Myspace's growth is attributed to its attention to market share over and above its enforcement of its terms of service agreement which officially prohibited hate speech and harassment but rarely removed it.

Digital nostalgia for the 2000s has grown in recent years—as McNeil writes, "fondness for MySpace has grown as time passes. It has come to represent a particular moment of freedom and drama online, especially to those too young to remember it."[74] Nostalgia is a form of selective memory, or of amnesia; it is a desire for an alternative past built upon the present's suppression and strategic forgetting of those parts unassimilable to that vision. Feeling nostalgia for Myspace alongside contempt or disavowal of the person who built and defined its uses and meanings for a generation of users permits another form of dissociation, or the separation of one thing into its parts, or the separation of a person from her community.

It's not quite right to call Tila forgotten, for I have never mentioned her name to a group of people over the age of twenty without someone knowing who she was. Rather, she's been strategically suppressed. Tequila has been dis-associated from scholarly studies

of Myspace and social networking, at times never mentioned, or mentioned only in passing. Despite her position as the most visible and widely known Asian American media producer of the 2000s, both digital media scholars and Asian Americanists ignore her,[75] in contrast to trade press and popular books from that period that mention her as a key figure in the rise of Myspace.[76] Sometimes this dissociation shows up as dissociative omission; *Rise* individually names several Asian American contestants and winners of reality television shows without naming Tila Tequila, an Asian American who hosted one of the most popular and groundbreaking programs in the genre and was the center of every episode.[77] This compendium of Asian American cultural production covers the same time span as social media's rise and features articles on Ben Sun's AsianAvenue.com and highlights the contributions of the Asian American YouTubers who helped grow the platform. In 2011, three out of the top twenty most subscribed channels on YouTube starred Asian Americans, yet Tila Tequila is not mentioned at all.[78]

Tila Tequila has not been forgotten; rather, she has been consigned to the "part of collective memory sanctified not by nostalgia but by mass aversion."[79] This serves two purposes: First, to strategically forget the traumatic experiences of women, queer people, and people of color online in the 2010s permits disavowal of the adverse mental health effects that abuse at scale have made possible, abuse that became normative and taken for granted on the internet because of the identities of its original targets. Second, averting our gaze from her and the queer legacy of social media that she created allows viewers to separate queer politics from technoliberalism. As O'Neil writes, affective states like freedom and drama have been curtailed as the digital work of the influencer has become a prevalent economic logic rather than a site for community and experimentation with gender and sexual politics before monetization.

Digital Ritual Abuse and Cancellation as Disavowal

Despite her record-breaking friend count, Tila is associated with the fall of social media rather than given credit for its rise. As journalist Bridget Todd puts it, "When I saw Tila Tequila doing the Nazi salute in a restaurant with a bunch of alt right dirtbags, that was the nail in the coffin . . . that moment crystallized where we started and unfortunately, where we ended up."[80] To Todd, Tila's trajectory

mirrored the fall of the internet itself; both were great experiments in publicity, intimacy, and exchange, and as she puts it, both turned out the same way: worse than anyone could have imagined at the time.[81] Because Tila was the only queer woman of color with her own television show, because her self-representation validated the idea that their sexualities and social positions could be not only reflected in digital media but celebrated, she was mourned as if she, along with the pre-Trump political climate of relative tolerance, were gone. She was not gone, yet at the same time as Todd puts it, her "coffin" was being nailed shut by her association with the same homophobic, racist white men that her Myspace page and television show had existed to rebuke. She had become part of a new experiment enabled by social networks: She was the first to experience digital social death, or cancellation.

In her memoir Tila defines herself as, above all, a survivor who used the internet to "[pull] myself up from nothing to finally be someone." This persistent narrative of Tila as formerly "nothing" and no one appears in both her own writing and in the press coverage of her rise to fame, and it is evident in the reporting of her fall. Having started as nothing, her return to that state was regarded as a return to the natural order of things and a relief. Journalists and readers who would consider themselves progressive or liberal took great pleasure in her victimization and abjection, and the spectacle of her being pelted with bottles, dog feces, and other garbage during an Insane Clown Posse concert in 2010 was met with derision. This was a physical manifestation of what she described in her memoir as her everyday online experience having been called "every name in the book, and some that are too bad to print." Even though photographs of her face after the concert show visible cuts and bruises, these were discounted by reporters, one of whom wrote: "An air of violence permeated the crowd. From where I stood, it all seemed fundamentally harmless. Sure, people were throwing shit but it was mostly water bottles (glass bottles weren't allowed) and Tequila didn't seem to be suffering anything worse than surface cuts and bruises. Of course, it goes without saying that performers should not be physically abused while they bless the world with the products of their imagination, but this was Tila fucking Tequila, after all, and I would be lying if I said that I hadn't come to see a freak show unfold."[82]

A firsthand account of the "Tila Tequila incident" entitled "When Juggalos Attack" reported that not everyone participated in the ritual abuse of this "tiny, solitary woman being abused by a massive, enraged crowd." Comedian Tom Green stood on a small stage in front of Tila after she took her top off and the crowd started to "get really violent," screening her from some of the bottles and other objects thrown at her and dancing to the song she was singing in order to distract the crowd. After throwing some of the bottles back into the crowd he walked to Tila, gave her a respectful air hug, and left the stage.[83]

CNN reported that a witness said, "She took her top off and they got really violent"; Tequila continued to perform even after her face started bleeding, and she was seen "holding a towel to her head, blood pouring down her face." The crowd eventually chased Tila off the stage to her trailer and broke its windows. She had been canceled, and the way that journalists covered this event reflected the same "intense contempt" that the crowd showed her. Nathaniel Rabin calls her a "universally reviled bisexual Asian exhibitionist," and many reported how pleasurable they found the spectacle of her public humiliation. The YouTube video of this event's comments section reflects both the sadism that was sanctioned by almost everyone who wrote about it and the backlash against it: After one person posted "this hits different today," another replied, "I remember that night. She got what was coming to her." The term "cancel" also has deep roots with Asian American women creators, for it was Asian American activist Suey Park who is given credit for inventing the term and the practice when she tagged "a blatantly racist tweet about Asians" that appeared on *The Colbert Report*'s Twitter account with the hashtag #cancelcolbert in 2014. The satirical tweet read "I am willing to show #Asian community I care by introducing the Ching-Chong Ding-Dong Foundation for Sensitivity to Orientals or Whatever."[84] Park was herself canceled and forced to go into hiding to escape harassment and death threats.

A Digital Methodology for the Oppressed

The loss of what was once the most-viewed profile on the internet creates the paradox of excessive publicity coupled with no primary source. It's striking that someone so famous could be at the same

time so forgotten; though the traces of her are everywhere on the internet, it's hard to find her. Her Myspace page has been deleted, her own website is defunct, and the Internet Archive has captured only static pages. Other than interviews, her own memoir, and screen captures from the Internet Archive and other websites like Tila's Hot Spot, there's little of her left to see. Myspace inadvertently fueled some of this forgetting by accidentally deleting all of its users' data on March 18, 2019, when it was revealed that the company had lost all of its user content before 2015 in a botched server migration, and that it had kept no backups. Over fifty million songs and twelve years' worth of content were permanently lost.[85] Her thousands of blog posts and updates, answers to users' questions, and archive of images contributing to inventing digital intimacy on social networks are no longer accessible, and I rely on video and print interviews by journalists, her own memoir, and her television show as source material.

What's the right way to remember digitally public people who belong to vulnerable groups, and whom we have witnessed, minute by minute, experiencing the pain of scale, along with their attempts to moderate that pain? Tila had an answer to this question in 2007, but it was, as usual, too early to signify. That year *Newsweek* interviewed Tila and asked her about another young woman whose celebrity grew concurrently with hers, but on legacy rather than digital media. When asked whether she would perform with Britney Spears, Tila replied, "Have you ever met Britney? I haven't. But I was at the VMAs front row when she was performing. It was interesting, because that was my first time seeing her. I got to see the whole action live. She was definitely nervous. I felt bad for her. I think right now she needs more people to look out for her. She wasn't ready. No one's really watching her back. My heart goes out to her."[86]

The media industries, especially social media, the industry that young women of color like Tila built, are spaces of economic and bodily vulnerability for young women. Social networking history is linked through her to colonization, war, and global social change. At the same time, Tila Tequila is a person as well as a social actor. Therefore, I do not reproduce images or content from her digital media platforms or journalistic coverage of her activities with the Far Right after 2016. I do not focus on her damage. Archivist and

information scholar Tonia Sutherland urges researchers to exercise caution and care when reproducing images of Black pain and death, out of respect for families who, as a result of digital and social media, have lost the ability to control the viral circulation of harmful and out-of-context use of images of their loved ones. This pain is felt most acutely when a vulnerable person like a child or a person suffering from physical or mental illness has died a traumatic death, reproducing the scopic regime of publicity that motivated lynching postcards and other documents of racialized violence. Relatedly, ethnographer Eric Tang chose to cite only the interview material in his study of Cambodian refugees in the hyper-ghetto that met his sole informant's only criteria: that he share the details of her life, including some of its most difficult and private moments, only in the context of her resilience and resourcefulness in negotiating them.

The problem of social media's ephemeral digital archive is a similar problem that scholars of women, people of color, colonized people, and slaves have faced for many years: People who are not deemed important often do not or are not permitted to leave findable traces behind. As Espiritu asks of refugees' narratives, "which memories are erased, forgotten, or postponed and archived for future release?"[87] Though, as Jessica Marie Johnson and others describe, this digital opacity can be a protective feature for people whose data has already been bought, sold, saved, and otherwise made into fuel for digital capitalism; it requires those of us who write about them to consider new methods.[88] Historian Saidiya Hartman has written about being "forced to grapple with the power and authority of the archive and the limits it sets on what can be known, whose perspective matters, and who is endowed with the gravity and authority of historical actor" in her writing about Black girls' lives in cities. She reads both the artifacts that document their lives as well as the voids in the record as "moments of withholding, escape, and possibility."[89] Though the girls she brings to life so vividly in *Wayward Lives, Beautiful Experiments* are in many ways the opposite of Tila Tequila as they were not public people, having left few traces while Tila's job was to create vast, if more ephemeral, amounts of them, they shared this with her: They were "credited with nothing . . . they remain surplus women of no significance, girls deemed unfit for history and destined to be minor figures."[90]

Tila Tequila was a major figure who *became* a minor one, and she has this in common with these girls and the category of "surplus woman" that she was born into: Her work building the first major social network was part of a "beautiful experiment(s)—to make living an art—undertaken by those often described as promiscuous, reckless, wild, and wayward." Similarly, Espiritu writes that "the children of Vietnam War refugees have a 'wayward archive, a grasping at the ineffable, and dialogues with ghosts.'"[91] Tila Tequila made digitally distributing "living" not an art but rather a business, albeit one that she could not profit from, and the dominant paradigm through which young people view work today. There was beauty in this experiment, indeed it could be said to be premised on Asian female beauty, but there is also that "excess of life" that André Brock calls ratchetry, a sexual and gendered waywardness that created the digital's libidinal economy.[92] Ultimately, the experiment could not resist capture. As Lauren Berlant and Michael Warner wrote in 1996, "queer and other insurgents have long striven, often dangerously or scandalously, to cultivate what good folks used to call criminal intimacies."[93] Tila's invention and infrastructural building of a new form of digital intimacy crossed the boundaries separating straight from queer, private from public, and respectable from criminal, and could not be, and still cannot be, interpellated into a revisionist straight narrative of techno-social development.

Even though, as one headline put it in 2007, "everyone loves Tila," I didn't, but neither could I look away from her.[94] I was fascinated by the clever ways that she engaged with her online "friends," her frequent and often very sweet and insightful comments on fans' posts, her advice to women about how to assert their sexuality and to deal with harassment online, her vulnerability coupled with a defiant refusal to become less visible on the platform when the press slammed her as slutty, stupid, and talentless. The world of internet celebrity that she was building, punctuated by words like "pow!" was not for me, but watching the techniques she invented and perfected to build audiences around her (admittedly pretty bad) music, her mastery of the platform, her seeming imperviousness to the pervasive racist comments and posts I saw on her site and on other social media, and her sincere desire to construct a sexually empowered, ratchet female subjectivity seemed like a

disruptive model for what internet celebrity and Asian American women could be. She was the first queer Asian American woman internet celebrity, a rebuke to the model minority stereotype of the personality-less or soulless Asian that me and my other Asian friends lived with at home and at school, and she was evidence that you did not have to conform to it to participate in building technology infrastructure.

My interest in her was deeply ambivalent. In her memoir, she insists upon her own technological as well as mediatic achievements and claims that if she were a man she would have been given credit as a "tech mogul" for having been the first to use the embedded music player widget that would define the network as a space for music distribution. There are two ways that I saw myself in her: I shared her frustration about technology as a field reserved for men, and she, like my mother, was incarcerated as an infant and for much of her childhood. My mother was seven months old when her family entered Colorado's Granada Relocation Camp where Japanese Americans removed from the West Coast were imprisoned in 1942, and almost four years old when the family left camp in 1945 to work at the Seabrook factory farm in New Jersey. Tila was around eight years old when her family left the walled Buddhist compound where they had been living, and my mother was around the same age when the family left the Seabrook factory dorms to return to Los Angeles.

Vivian Huang describes the "fleshy invisibility of Asian American queer women in plain sight, but also the obfuscation of their work—even to people looking for it."[95] Tila Tequila was consummately a person in "plain sight," whose participation in digital technological experimentation and progress was made subject to the constitutive sequestration and obscurity that accompanies women of color, whose work is undervalued, disavowed, or forgotten. Being seen as a caring person whose sacrifice created the conditions of hospitality for others matters greatly to people whose "fleshy invisibility" is made even more invisible behind the digital screen. In "Circuits of Care," Marte-Wood and Santos emphasize the deeply felt desire of the women who do this painful work to have their contribution and their suffering seen and acknowledged by the users who benefit from their invisible labor. In making their work conditions visible, they claim the right to be known as workers who have

chosen to endure spiritual penance in the service of other people's digital pleasure and comfort.[96]

Omitting Tila Tequila from the history of social media validates a narrative of digital platforms as the inevitable result of technologically inventive white men's efforts to connect the world rather than their use of women of color's sexuality to draw users who otherwise might not have logged on. Yet she is in the bones of all social media sites, in the sounds, the images, the merch, the paywalls, the purchased intimacy. Disavowing or forgetting her also enables social media companies and users to imagine a digital future that was not founded on the experience of online abuse of women and people of color at scale. Omitting her from the story enables a wholesale dissociation from and disavowal of the reason that electronics are cheap and the internet is ubiquitous, setting aside the increasing evidence that social media's psychological harms are mainly visited on young women and women of color, and disavowing women of color's labor, especially when it is affective, gendered, and sexualized labor, as not technical. Conventional histories of Silicon Valley write Asian women's creative labor out of the picture of platform development. Remembering the specific and complex histories of the women of color who have always cared for the technoculture, even when—or indeed because—it didn't care for them, allows us to envision a future outside the cycle of digital racial capitalism.

3

The Toxic Embodiments of Artificial Diversity

FEELING GOOD ABOUT FEELING BAD IN THE METAVERSE

On July 23, 2022, the Federal Trade Commission (FTC) announced that it was seeking to block the social networking company Meta's acquisition of Within, a virtual reality studio that developed the popular fitness app Supernatural. As part of its argument that Meta is "buying its way to the top" rather than competing, the FTC also "alleges that Meta and Zuckerberg are planning to expand Meta's virtual reality empire with this attempt to illegally acquire a dedicated fitness app that *proves the value of virtual reality to users.*"[1]

Meta is existentially invested in getting users to believe in virtual reality's value, since the company has bet heavily on its pivot from social media networks to "the metaverse." As of July 2024, the company's Reality Labs division had burned almost $50 billion, partly due to its aggressive investments in headsets acquired from competing companies like Oculus and Beat Games.[2] As then-FTC Chief Lina Khan told reporters, the agency's lawsuit was *preemptive,* part of an attempt to remediate the mistakes made twenty years ago. Facebook's acquisitions of Instagram and WhatsApp, as well as Google's acquisition of Double Click and AdMob, made it possible for the ongoing age of consolidation that characterized Web 2.0. As Khan said, "You have to remember that these were acquisitions that at the time similarly seemed small, seemed trivial, seemed like they wouldn't really be a big deal. And so I think we're in a process of looking to make sure we're not replicating those mistakes and, you know, trying to address these harms in the first instance rather

than waiting a decade or so before we say, ah, we got it wrong."[3] Judge Edward Davila denied the FTC's request to block the acquisition in February 2023, and the company was acquired by Meta later that month.[4]

Khan warned that what may seem like a small acquisition can scale monstrously over time, and that allowing Meta or any one company to obtain a monopoly on metaverse-related hardware and software may have outsize effects. It is because social networking companies like Meta and internet search companies like Google were initially viewed as unthreatening (if massive) startups for such a long period of time rather than as traditional companies that they were permitted to buy up their competition. We are at a similar inflection point marked by market consolidation in the early 2020s, a moment marked as the third period of the web—Web 3.0.

The race to dominate this new internet centers on Web 3.0's three main technologies—artificial intelligence, cryptocurrencies and other blockchain related applications, and the metaverse. The metaverse has always been the most in need of a compelling story to argue for its place in the new information economy. Users of ChatGPT don't need to be told what AI is for: Anyone who has used it to write a college essay, generate an annual performance review, or write an abstract can explain its importance as well as its threat to human labor. Though most people have never owned cryptocurrency, they have heard of Bitcoin and witnessed its remarkable rise in value; by December 2024 the price of one Bitcoin broke $100,000 for the first time, an increase attributed to the election earlier that year of "crypto-friendly" President Donald Trump. It is *not yet* clear what the metaverse is for, which is precisely why, according to Khan's thinking about regulation, no one company or platform ought to be able to define its uses, meanings, or values.

As digital media historian David Parisi writes of haptics, virtual reality is a prime example of a technology that is always on the verge of having arrived. Though haptics and virtual reality are distinct and separate ways of interacting with technology, they have intimate connections with each other.[5] Both touch-based haptic interfaces and visually immersive virtual reality interfaces are represented by the industries that create and sell them as more presence based, more emotionally and physically authentic, and more intimate than visual or aural media. Because they address the body

through "sensing" rather than seeing or hearing, they are described as a means to directly access users' feelings. Companies and advertisers need compelling new cultural scripts to convince consumers to buy new devices, and VR's claim to realness or post-mediation has particular value during a moment when the media is more mistrusted than it has been in many decades.

Virtual reality makes unique claims to immediacy and psychological intimacy. It is because virtual reality is both an old platform, dating back at least thirty years, *and* a part of the Web 3.0 platform economy that is still in search of a compelling identity. Women of color's virtual bodies, and specifically their suffering, figure so prominently in content and advertising about the technology in order to meet this need. The campaign to brand VR as a social justice tool that puts the user in the shoes of refugees, migrants, and other Others began in the 2010s, as both for-profit and nonprofit platforms came together to assert surprisingly similar claims. Companies like Meta and civil society organizations like the United Nations created converging campaigns to argue that virtual reality could create realness only by putting us in the least desirable shoes of all: that of women of color, specifically nonwhite refugees, technology workers, and poor favela dwellers, so that we could "experience" their suffering and could feel good about feeling bad. That is to say, VR users could enter an onramp to empathy through the virtual bodies of suffering people and avatars.

Though Meta's goal was to sell headsets and the UN's was to increase public awareness of refugees, the climate, and other social issues, both defined virtual reality as a "presence-based" technology that provides a direct route to bodily identification in order to assert its value as a curative to contemporary racial and gender anxieties. Famously, producer Chris Milk called VR an "empathy machine" that automates antiracism for white people and global minority people. Milk's *Clouds Over Sidra* (2015), *My Beautiful Home* (2018), and Google Immerse's *Dezzie's Story* (2017) visually situate the user in Black and Muslim women and children's homes, private spaces, and points of view as proof of concept for the metaverse's power to address racism through technologized embodiment.

The murder of George Floyd and the mobilization of #BLM coupled with the pandemic produced a confluence of factors—hasty and unplanned shifts to remote work and videoconferencing, U.S. racial

trauma, and the massive growth and capitalization of the technology industry—that made pairing VR with racial empathy profitable. After 2020, what the FTC termed the "value of virtual reality to users" shifted to address new policy requirements and social pressure for corporations to publicly perform antiracism. This need was particularly intense for technology companies, already under fire for having exacerbated inequality, racism, and sexism through high-profile cases having to do with spreading misinformation and algorithmic discrimination. Virtual reality's promise to increase users' empathy for women of color overlapped with the rapid growth of the diversity industrial complex and the need for technology companies to demonstrate material commitments to addressing systemic racism. In 2018 Kimberly Springer defined the "diversity industrial complex" as an institutional formation whose main goal is to protect companies and organizations from harassment complaints and discrimination lawsuits. In this chapter, I analyze how virtual reality became a delivery vehicle for this social project.[6]

Virtual reality seems to solve a problem that artificial intelligence creates—the immiseration and devaluing of humans as machines take our jobs—by making available the last kind of work that machines can't do: creating feelings, specifically "good" feelings. As Lauren Berlant puts it, empathy and compassion are perceived as valuable and "fundamental assets," because they take the place of "the promise of progress or rights and resources."[7] The suffering of refugees, people of color, women, and the disabled proxied in VR seeks to automate humane recognition.[8] Oculus and other VR studios that scaled up during the medium's mass marketization period identified virtual reality platforms and content as inherently racially virtuous, "turning" users into women of color, disabled people, and other DEI-friendly bodies to create pleasurable forms of evasive empathy. I compare and contrast this discourse of evasion with post-2020 AI-driven techniques for capturing women of color's virtual images employed by Mursion, a remote training company that employs live-action contract-labor actors using motion capture and voice-altering technology to simulate avatars of different races and genders. This substitution of white actors for Black virtual bodies in metaverse training simulations for teachers, office workers, and others to practice "difficult conversations" is, as

Apryl Williams asserts, a form of "digital Blackface."[9] It gestures toward a dystopian virtual economy where women of color workers have been entirely replaced by avatars, substituting empathy for diversity.

I conclude this chapter with an analysis of virtual reality media produced by BIPOC creators—the Hyphen-Labs Collective and artist Stephanie Dinkins—that make nontraumatic, nurturing, immersive digital spaces that center women of color. Hyphen-Labs' Brooks' Brain Lab and Dinkins's Secret Garden refuse commercial fantasies of delivering diversity education by "seeing through" women of color's virtual bodies, offering instead the experience of moving through navigable space where women of color exist without being linked with trauma, pathos, or "difficult interactions." These *virtual* reality titles allow users to experience points of view outside of the white and male experience that is the medium's default perspective. These works depict Black women's bodies as *neither* sites for pleasurable suffering and false identification nor as unwilling and exploited workers in the digital diversity industrial complex. In these works, women of color exist without the requirement to enrich white users' diversity goals. These projects don't claim to fix white people's problems with empathy through toxic reembodiment as a suffering woman of color. These works use VR to avoid the discourse of "diversity" and empathy altogether, creating instead dynamic worlds where our bodies can be *at rest* and can exist without the need to show off the technology's features or to teach anyone anything.[10]

Mursion was launched in 2015 to provide pre-service teachers with live simulated online interactions that would prepare them to work with "special needs" children. The product was developed in central Florida with funding from Lockheed Martin, an aerospace/defense company, and many of its simulation specialists came from local entertainment companies like Disney and Universal Studios.[11] Mursion's real-time avatar-based "virtual reality diversity training" pivoted from staging live VR scenarios for aspiring teachers, managers, and other professionals to learn how to manage students or clients or fire employees to "soft skills" training with a focus on diversity, equity, and inclusion.[12] Its website describes how the platform's use of artificial intelligence allows a single "simulation specialist," often a professional actor, to "parachute into" several

different avatars at once, while AI "seamlessly syncs non-verbal communication and voice morphing." Mursion's use of AI and VR enables a single worker to embody themselves as *multiple* women of color, disabled people, and other "diverse" bodies to fill what was, in the early 2020s, an extremely profitable need: to build artificially Black, disabled, and gendered avatars or digital bodies *at scale* for workplaces fearful of being sued or publicly critiqued for tolerating racism. During and after the pandemic, work had abruptly become a digitally mediated, screen-based activity, and formerly in-person workers who had never used Zoom or Teams were suddenly exposed to both common and new types of "difficult interactions" while spending up to eight hours a day online working at home. Thus, a niche industry—training teachers to negotiate difficult interpersonal situations in the classroom—was repurposed to serve a much broader remit; to teach "kindness" during a moment of widespread anti-Asian and anti-Black racism.

During this time news outlets began reporting one new form of internet racism that will always be associated with the pandemic: Zoombombing. Many teachers, government workers, and student organizations attempting to do their work on Zoom were deluged with terrifying racist and violent imagery and language that took many by surprise. (Online video game players, having been exposed to extreme forms of racism and online violence for decades were, on the other hand, surprised that everyone else was so surprised.) Black activists, scholars, and student organizations found their meetings invaded by anonymous users who spammed the chat with the "n" word, projected images of nooses, white people in Blackface, and swastikas. When the South Carolina Black Students' Association moved their yearly celebratory cookout to Zoom to mark the end of the academic year, it was bombed by racist images. Though the college's president called on students to report any future incidents to the school's DEI office, the damage was done.[13]

The inattention economy excludes women of color's labor in what is euphemistically called "DEI work" from the category of real, compensated work in the age of AI and Web 3.0. Instead, institutional formations like Diversity Offices are created to incorporate and contain the disruptive effects of racial and gender oppression. The women of color students and workers at South Carolina who organized this supportive event and attempted to protect other students from metaverse-based attacks were, like students of color

all over the country, doing the work of diversity for free by creating restorative, content-less space for the community. To add insult to injury, after reporting the incident the group was sent to the university's diversity officer, a paradigmatic role in the neoliberal university's diversity industrial complex, for both emotional *and* technical support. DEI offices were unready to and often came across as uninterested in protecting these students from racist Zoombombing because they did not see digital spaces as part of their "campus." As anyone who teaches or learns knows, Zoom is now an extension of the classroom. Zoom's metaverses were spaces where students of color were laboring to support each other through institutional racism, under the waterline and beneath the notice of the diversity industrial complex that benefits from the creation and punishment of difference.

Racial inequalities and resentments inevitably found their way onto work platforms like Slack and Teams. Fears of "woke" and "cancel culture" aroused resentment and anxiety as people struggled with the trauma of the pandemic. VR posited itself as Zoom's opposite—as a technology of empathy, unmediated feeling, and sentiment—by creating what Toni Morrison terms a "substitute language" that dodged the recognition of racist behavior by encoding it in euphemisms like exhortations to "walk in someone else's shoes," and Mursion's promises to teach white, male, and able-bodied people effective "soft skills" to navigate "difficult interactions."[14] These terms both gestured toward and evaded racial dysfunction built into platforms that were not really new, but that had millions of inexperienced and fearful new users who were at the same time adjusting to a new racial climate.

Mursion has been publicly criticized for requiring its workers to pretend to be Black, disabled, or female by using avatars that resemble these identities. On the other hand, this is not entirely new: Just as content moderation is a global woman of color's job, so too is the work of DEI, only this time the workers don't have to *be* women of color; they just needed to use avatars that look like them. The pre-2020 rhetoric of VR as an "empathy machine" had been appropriated and repurposed as the metaverse-based diversity industrial complex, rebranding the metaverse as a space where racism against women of color can be rehearsed, critiqued, and checked off a box of training requirements.

The year 2014 marked a key moment in the identification of VR

with racial empathy. This was the year that Facebook purchased headset-maker Oculus Studio, initiating its move to own the technology's dominant hardware platforms and titles and extending its existing empire.[15] Facebook changed its name to Meta in 2021 as part of its investment in a metaverse defined as a technology of empathy and compassion in order to rehabilitate its image as a callous and unfeeling company.[16] As a 2021 *New York Times* article put it, "the move punctuates how Mark Zuckerberg, the chief executive, plans to refocus his Silicon Valley company on what he sees as the next digital frontier, which is the unification of disparate digital worlds into something called the metaverse."[17]

Facebook pivoted to the metaverse because the platform was *already* identified with empathy, specifically empathy for racialized minorities, disabled people, and incarcerated people. While earlier virtual reality platforms like the Virtual Boy Nintendo game peripheral released in 1995 seemed to offer access to fantastic environments and experiences, in the 2010s virtual reality sought to become ubiquitous and also racialized and gendered itself as a compassionate technology meant to teach ethical decision-making and moral education about the world. Its cultural meaning as an "empathy machine" intended to give it new gravitas as a newly intense locus for consequential experiences, such as experiencing blindness or solitary confinement, learning about homelessness and poverty, and "living life" as a refugee. Commercial studios, the press, and civil society organizations represented VR as a privileged platform for internally motivated social change that leveraged personal sentiment. Two years before Zuckerberg's virtual visit to Puerto Rico, the United Nations Sustainable Development Goals (SDG), "a special initiative of the UN Secretary-General administered by the UN Development Programme (UNDP)" launched "UN-VR," a series of virtual reality videos. This followed decades of investment by the UNHCR in video games as teaching and outreach tools meant to increase concern for climate change, empathy for refugees, and awareness of food insecurity. The headset became an extension of gamespace as empathy space, a new device for pleasurable sadness, compassion, and the privilege of going wherever one wanted to go in virtual space.

When Zuckerberg claimed in 2017 that "one of the most powerful features of VR is empathy," the substitute language of virtual

presence for racial accountability evaded charges of a stunning *lack* of racial empathy. For when he issued this claim it was part of a public apology he published on Facebook after broadcasting images of himself in 2017 projecting his avatar and high fiving a coworker in Facebook's social VR tool "Spaces" laid over onto video of a hurricane-damaged and flooded Puerto Rican neighborhood.[18] Superimposing a technology demonstration over video of displaced people of color encapsulates the value of virtual reality of users who desire presence while evading responsibility.

Industry claims that VR is a socially connective and feeling technology were also part of a defensive strategy meant to also address consumer anger about "platform capitalism," and the general monetization of personal data harvested to produce profits for a few large companies.[19] Hence, the emergence of VR as a technology for empathy during conditions of economic and psychic precarity that digital technologies helped produce.[20]

Virtual reality's entrepreneurial class took up this strategy shortly afterward, focusing on the notion that headset-based VR is a tool for racial reembodiment and thus a remedy for racism through technologized sentimentality. In 2018, Oculus marked the release of its first mass-market priced headset, the $199 Oculus Go, with an advertising campaign entitled "Open Your Eyes." This video is filmed using a first-person point of view meant to simulate what VR feels like coupled with a second-person narrative voice. The sixty-second video opens with a striking close-up image of a beautiful young white girl's eyes opening while a woman's voice-over tells the viewer to "open your eyes." The point of view switches to first person, accentuating the change in perspective experienced within the headset and linking it with nonwhite bodies and spaces. As the voice-over tells the viewer, in VR you will stand alongside Black mourners at a candlelight vigil, an Indigenous man beating a drum at a ceremony, and an Asian drag queen touching up their makeup before a show, implicitly including them as intimate and welcome participants in a parade of racial and gender difference.

"Open Your Eyes" echoes and reproduces the same multicultural global village imagery that early "internet" companies like MCI created in the 1990s.[21] However, Oculus identified itself with a DEI mission by representing in much more direct terms what the headset can provide *ideologically*. While these earlier discourses claimed that

Figure 9. "Open Your Eyes" screen capture.

the internet could "turn you" into a different race or gender through role-playing that felt real but wasn't real, the Oculus Go commercial shows that VR can bring you to racialized spaces, like Indigenous rituals and street protests and vigils mourning the deaths of people of color, to make you *feel in your body* why racism is wrong. While identity tourism provided the pleasure of travel and consumption without accountability, virtual reality's embodiments a generation later meant to be didactic, rehabilitative, and overtly virtuous.

Utopian claims that these media are not narrative but rather *presence,* not 360-degree visual representation but rather *experience,* offer a way out of racism as an institutional and systemic problem.[22] This narrative invites the user to be *with as a way of being as,* to perform copresence within virtual spaces that can be navigated at will, in contrast to the lack of mobility experienced by the real-life women and people of color whose lives are the source material for these media.

The confluence of alienating and often soul-crushing digital remote work and increased social, cultural, and economic investments in projects designed to promote "diversity, equity, and inclusion" invigorated the medium's claims to "fixing" racism and sexism by automating cross-racial empathy. Of course, virtual reality doesn't have the capacity to "turn" users into Black, female,

disabled, or any other DEI-categorizable identity, but its claims to create a consequence-free rehearsal space for experiencing diversity were deeply appealing and marketable during a particularly painful moment in racial politics. VR's repackaging as the metaverse gives it the feeling of newness, the aura of a next-generation technology, that companies like Meta and educational training company Mursion exploit to create and extend the system of racial digital capital that excludes women of color from profit and ownership while exploiting their digital images and labor.[23]

"Welcome to My Beautiful Home": The Virtual Reality of Disaster

During the late 2010s commercial VR studios Pathos, Oculus, Lightsail, and Within created several racial diversity industry complex titles for companies like Google and the *New York Times*.[24] Virtual reality documentaries narrated by women and girls of color like *Clouds Over Sidra, My Beautiful Home,* and *Dezzie's Story* welcome viewers into the narrators' private spaces in refugee camps, favelas, and Parisian apartments and provide racial absolution framed as cutting-edge immersion. Their work as virtual reality's documentary subjects providing digital presence, hospitality, and access to their lives and bodies within war-torn, immiserated, and inhospitable scenes such as a Lebanese refugee camp, a favela, and a cucumber farm enables a fantasy of virtuous empathy on the part of the viewer.

VR needed virtuous proxies or points of identification during a moment when the platform's main and most profitable forms of content were pornography and gaming.[25] These unsavory associations made it necessary to reidentify VR with a new visual genre: virtual reality for social good, or virtuous virtual reality. This new type of virtual reality makes documentary claims to preserve and transmit the experiences of disadvantaged and suffering people, animals, and places through immersive stereoscopic video. Virtuous VR is a cultural alibi for a digital media culture that has taken a wrong turn, toward distraction, detachment, and misinformation. Its industrial strategy is to represent VR as inherently more ethical, empathetic, and virtuous than any other media has ever been—hence, the value of Global South women of color, nonwhite refugee

women, and trans women in documentary virtual reality. In *Clouds Over Sidra,* one of the most well-known titles about racial empathy, twelve-year-old refugee Sidra narrates her life in the dusty Za'atari Refugee Camp where she and her family live after fleeing Syria. This eight-minute, 360-degree video was screened at Davos and at high-level UN donor meetings, and the agency claimed that its ability to immerse the viewer in the experience of a young Muslim refugee "moved" viewers to greatly increase their donations.

In *My Beautiful Home,* a VR documentary set in Kibera, a neighborhood in Kenya that is "Africa's largest slum," an African woman of color serves as the narrative point of view and the credits identify her as a coauthor. Her name is Lucy Ochieng, and she explains how she was invited to tell her story about how it feels to live in a place that most people view as impoverished and without resources.[26] Despite this gesture of inclusion and consultation, *My Beautiful Home* cannot help but invoke a touristic gaze intended to change hearts and minds.[27] This title critiques slum tours while at the same time providing the viewer with a new platform for staring, probing, and feeling sites of suffering. *Feeling good about feeling bad is a pleasure specific to empathetic VR.* "Seeing as" a refugee, a Black man living in the Jim Crow South, or a prisoner in solitary confinement, lets the user have it both ways—immersed in virtue as well as pleasurable suffering. Making racial empathy pleasurable puts the undercommons to work providing empathy content: Their recorded "experiences" become the alibi for virtual reality's excesses and un-virtuous uses.

The Verge describes Lightsail VR's "Racial Identity" series of videos for Google's VR research arm as follows: "There's been a lot of talk in recent years about using virtual reality to foster empathy, so it's appropriate that Google's latest V.R. venture focuses on racism and racial identity."[28] This series of "documentaries" released on February 23, 2017, depicts the lives and homes of gay men, Black women, and other "diverse" Google employees. The series highlights the medium's presence and intimacy, claiming that you will "stand shoulder to shoulder in Virtual Reality with Google employee and experience designer Dezzie and explore her challenges, successes, and sense of identity as you travel with her around Paris and back to her childhood home." Dezzie, the Black female Google UX designer whose apartment becomes a virtual space for the user

to explore, explains how it feels to be excluded growing up in one of the only Black families in a small town in France. The video depicts her standing on a cobblestoned street in her hometown while she describes white French children asking to touch her hair and telling her that she looked like "a clown." As she becomes overwhelmed by emotion and her voice is choked with tears, the viewer has the choice to either ignore her by focusing on other parts of the street and its buildings, or to watch her sobbing, thus participating in the making visible and discernible the "truth" about racial suffering. The viewer is put in the position of the witness whose perspective proxies the experience of another's suffering as a resource for disavowal masked as intense emotional engagement.[29]

Dezzie describes her experiences with racial trauma and social exclusion as an occupational advantage in the world of user experience design, which requires workers to anticipate the needs of unknown users. In this video virtual reality's virtue is alchemical: It converts racial pain into a professional skill by making designers rather than users more empathetic. It is assumed that VR not only needs to be felt to be believed, but cannot be doubted once it is felt. Photographic documentary virtual reality's "empathy machine" projects aim to make us feel both welcomed by and intimate with women of color by emplacing us "shoulder to shoulder," in intimate proximity, proximity that might not be desired by the woman herself, but is compulsory nonetheless. They thrust us into the private spaces of refugee camps, favelas, children's bedrooms, taking advantage of and extending the impossibility of personal space for displaced and disenfranchised people, especially children like Sidra and Dezzie's daughters shown playing in their rooms. These titles all depict women of color's personal virtual space as sites of navigable racial suffering and as a set of diversity resources that display their laundry, artwork, pets, and extended families alongside their tears. VR's navigational interface requires the user to constantly pivot in a circle to find the person who is speaking or the point of view described in the audio narration, peeking and snooping within spaces where their own physical bodies are not only absent but may also be unwelcome.

All the visible space in a virtual reality title is designed to be public and available, viewable and navigable. It leverages this resource against the private space that *doesn't* exist for people whose

lives as marginalized subjects do not afford them privacy. This produces the immersive "volitional mobility" that was always part of new media's original draw, and that makes the viewer complicit in acts of surveillance.[30] As mentioned earlier, this idea of VR as an "empathy machine" is part and parcel of its rebranding as a curative for the digital industries' contributions to producing class inequality, amplifying far-right fascist racism and sexism, and violating users' privacy.

Virtual reality is not by any means the first medium to re-present images of racial suffering to produce feelings of immersion, identification, and empathy for those bodies that are not ours. Virtuous VR about women and children of color licensed prestigious legacy news venues like the BBC, Al Jazeera, the *Guardian,* and the *New York Times* to dip a toe into what was no longer a cutting-edge medium as part of their search for relevance on digital platforms after subscribers became less interested in reading paper newspapers. This strategy was also good for the platforms that they were competing with; the hundreds of titles about refugees, the disabled, and other bodies that users could virtually occupy or sit "shoulder to shoulder" with in VR provided users with a way to feel "good" about using digital media during both a backlash against social media and the racial violence it engenders.

VR for DEI created and capitalized on a new kind of immersive digital entertainment: racial trauma as diversity work. Though visual styles and points of view vary across these individual titles, they all position the user's body to experience painful and pleasurable feelings by witnessing and "feeling" the virtual trauma of others. For example, award-winning VR titles like Nick Park's *We Wait* (2016) depict the drowning of a refugee family in the crossing between Greece and Italy using animated CGI cartoon-like graphics. The sounds of waves from the headset speakers and the feeling of proximity to other bodies as they fall out of the boat create a strong sensation of presence despite the lack of photographic realness.

Sidra's, Lucy's, and Dezzie's VR documentaries depict women of color's suffering as ultimately a triumph of the technological over the personal, feelings of engagement rather than indifference, because they make these spaces that are populated by people who have no control over their space navigable, public, and available to viewers. VR has long claimed to create privileged emotions such

as empathy and engagement, qualities associated with antiracist change. However, as Black feminist theorists Saidiya Hartman, Courtney Baker, and Alisha Gaines explain, the desire to experience empathy for the suffering of Black people while leaving structural racism in place has long underwritten pleasurable forms of cultural appropriation and projection.[31]

The repopularization of virtual reality lies in its new claims to create empathy, immersion, and embodiment to heal a divided world: a world where users are divided from exotic experiences and environments and divided from each other. The terminology used by its marketers, developers, and platforms hew to this logic: They refer to their products as "experiences" as if the 360-degree visual field created by the headset were *less* rather than more mediated in comparison to other documentary forms.

The labor of women and children of color as VR narrators exemplify the way that the digital industries leverage the invisible or previously unknown labor of women of color and make it spectacularly visible. And as I have discussed earlier in this book, this is one hallmark of the inattention economy that makes us both visible and invisible as needed. Navajo women's rug patterns were reproduced in brochures and linked to images of electronic circuits as part of the language of evasion that Morrison writes about as racism's hallmark: to distract the gaze from the real exploitation of Indigenous women's labor by turning it into reproductive, "passionate" labor. Figuring women of color's technology work as labors of love replaces guilt, shame, and defensiveness for past wrongs with a pleasurable empathy, an emotional resource for privileged viewers.

Women and people of color are not the intended viewers of these titles, and they have a very different relation and response to these spectacles of immersive suffering. Seeing Black and refugee bodies shot, drowned, and abused in virtual reality is often experienced as trauma rather than as empathetic compassion, pity, or identification. Nonny de la Peña's controversial *One Dark Night* (2015) immerses viewers in an animated reenactment of Trayvon Martin's killing, situating the user as a witness to the crime by using real-life audio of gunshots recorded at the scene. As Priscilla Ward writes, "after I experienced 'One Dark Night' myself, I stayed to watch other users. Most of the Black people I spoke to after had the same reaction: 'Why would someone create this!?' White users, on the other

Figure 10. "V.R. Helped Me Grasp the Life of a Transgender Wheelchair User."

hand, seemed to be able to get up, move on and go about enjoying the rest of the festival. While this project may have been created to raise awareness around police brutality, it does so by putting the mental and emotional health of African American users at risk."[32] Reproducing intersectional harms for some in the name of reducing them for others trades in an age-old formation justified because it produces white empathy for Black suffering.[33] In 2016 *Engadget* printed a story headlined "V.R. Helped Me Grasp the Life of a Transgender Wheelchair User." The subtitle claims that "the Circle uses V.R.'s strengths and weaknesses to help you be someone else."[34]

The need to "be someone else" in 2016 indexed a moment of racial frustration with diversity discourse that later developed into a vigorous campaign against "wokeness," experienced by many white people as a shaming technique designed to critique them for know-

ingly or unknowingly feeling the wrong feelings and saying the wrong words about people of color. "Being someone else" in VR is a form of identity tourism for the post-multicultural "cancel culture" era.[35] This is why *The Circle,* which "put[s] you in the body of a wheelchair user suffering from post-traumatic stress disorder (PTSD)," appeared in news headlines despite never actually being produced; it demonstrates that the medium is *for* white, male, and nondisabled people. People who were already not-white, in wheelchairs, or occupied other stigmatized identities were not the target audience; they were, instead, the product. This genre of VR media built the idea that the platform's use case was to solve racism rather than contributing to it; they signaled virtuous intentions by merely "ideating" the creation of a trans and disabled virtual body for users who could then feel virtuous and enriched, all while being entertained.[36]

The Circle packaged 360-degree video as a technology of presence, empathy, and cross-racial becoming. Racially virtuous virtual reality credits the headset with the reproduction of a specific stigmatized intersectional identity—that of a transgender person with disabilities—for the consumption of the nondisabled and cisgendered. It is a tool for able-bodied users rather than those it claims to represent. Like the pre-2020 examples I critique in this chapter, virtuous VR produces prototypes or imaginary examples of a new kind of digital embodiment that excludes women of color perspectives in favor of a white industry's versions of imagined experiences of disability, racial trauma, and nonwhiteness. Virtuous VR purports to create racial diversity education while refusing to either give credit to the women of color who have already created this content or pay them to build it.[37] Though after Meta's Oculus acquisition the company funded fellowships and other opportunities for Black VR creators, support did not extend past an initial stage, was not focused on women's or feminist content, and, very importantly, did not protect them from racist harassment after the fact.

Racial empathy VR titles from this period claimed that the medium was a powerful curative to racism and xenophobia: a stronger, more irresistible connection that is not produced by these forms of mediation, because it does away with mediation altogether, tricking your brain into thinking that it is "there." Decades ago Bolter and Grusin's *Remediation,* one of the most prescient early pieces of writing on virtual reality, explained that VR's identity as a way of

knowing, a desire to learn, masks a desire, instead, to *feel:* "empathy is so highly regarded today as a means of knowing presumably because empathy is everything that traditional, Enlightenment reason was not: immediate, embodied, emotional, and culturally determined."[38] Whose labor produces the emotional media that users need to feel in order to feel that they know? Titles such as the *Guardian*'s *6 x 9: A Virtual Experience of Solitary Confinement* depict the first-person point of view of an occupant in a prison cell, substituting point of view for experience.[39] These and other virtuous VR succeed because they create a sensation in the body that mimics the implied *presence* of another as *knowledge* about another. The sensation of "body ownership," of knowing the other through digitized empathy, was beta tested on the virtual bodies and experiences of the most powerless and racialized people in our society—prisoners, refugees, women, and children.[40]

Virtuous virtual reality doesn't preclude more useful ways of addressing the real world that it frames as a site of suffering. Psychology experiments in VR labs have demonstrated that users can indeed take on new attitudes from watching titles about deforestation and racial bias; users have used fewer paper towels and scored better on implicit bias tests after watching titles about beautiful redwood trees and experiencing social exclusion within a raced body.[41] However, trees and people are not the same. Hence, the intense need and desire for these VR titles that tell us how to feel about the suffering of racial others. Feeling and viewing take the place of reform precisely because there seems to be no viable liminal space between the two.

This kind of experience of race and difference in virtual reality mistakes point of view for embodied experience. VR documentaries that claim to give users access to African slums, the lives of Black women living within racist societies, and Syrian refugee camps narrated by women and girls of color employ their voice, images, and spaces to create authenticity. Representations of pain are an especially powerful "conduit for identification," as Saidiya Hartman observes in her classic *Scenes of Subjection:* White readers can enjoy the paradoxical pleasures of empathy by reading slave narratives as sites of identification as a suffering witness, not as a slave. Virtual reality titles that make us better and more empathetic people put us next to the spectacle of the body in pain and exploit the pow-

ers of this conduit. Because the pain can only be felt as the white viewer's *own* pain, invoked by and projected upon the spectacle of Black suffering, the enslaved person's suffering always "escapes and eludes" us. Virtual reality's users—majority white, majority male inhabitants of the overdeveloped world—serve as the "proxy" that replaces the suffering Black body and erases Black sentience. As Hartman writes, "In order for suffering to induce a reaction and stir feelings it must be brought close . . . so, then, how does suffering elude or escape us in the very effort to bring it near? . . . If the Black body is the vehicle of the other's power, pleasure, and profit, then it is no less true that it is the white or near-white body that makes the captive's suffering visible and discernible."[42]

Internet toxicity is often figured as a problem best solved by neoliberal means, by individual transformation or revelation—empathy, or ethics—rather than regulation or policy. If only these designers, these companies, and this industry were more compassionate, they could be trusted to regulate themselves! VR's global claims to produce compassion, to function as "empathy machines," frame racism and toxicity as a problem with a head-mounted solution, rather than as a set of structural relations that require structural solutions.

Lauren Berlant understands compassion as "not so effective as a good in itself" for, like virtual reality, it is fundamentally private and experiential, not political. Compassion relies upon "individual intentions and practices" to remedy inequality rather than systemic material change. By this way of thinking, compassion is a low-value feeling unless accompanied by material redress, an idea that I will address in more detail in the conclusion of this book. VR provides value by multiplying and increasing its force through scale and automation. It claims to do something by making the user feel something. VR tries to tell our bodies when it is time to cry. Thus, it produces the right kind of compassion by automating the labor of feeling pain and sadness on behalf of another. It takes empathy into the realm of nonvirtual human witnessing and connection.

The digital industries have created radically precarious material conditions of life for the global majority.[43] Users in the overdeveloped world—and what is VR if not a totem of that specific space?—must do things they might not otherwise do, instead of feeling something they may not otherwise feel. The desire to sense

empathy in the body, to outsource this labor of compassion, is addictive by design.[44] And while the pleasurable tears of empathy that VR produces may feel bad in a good way, giving in to these virtuous virtual feelings reproduces the circuits of trauma that engendered and perpetuated its use by the military industrial complex—for VR was partly developed by the military to both prepare humans to wage war, and to later rehabilitate them from its traumas.[45]

Earlier VR was also marketed and experienced as a wondrous technology, but by bringing it to market as a compassionate, connecting, and above all empathetic kind of machine, Meta claimed to reinvigorate its earlier image as a network for people of all races, genders, and identities. While Meta had always identified itself against video game companies that were and are stigmatized as engendering violence, and addiction, its pivot toward VR took up digital embodiment as nontoxic, as good for you, as a softer, kinder way to be an-other and experience the pleasures of new media at the same time.

VR companies and entrepreneurs claim that VR is part of the solution rather than an extension of the problem, a creator of idealized compassion-enhancing, dreamlike "experiences" rather than the nightmare of yet more monetized and surveillant digital media platforms and content. And indeed, VR is a radically different viewing experience from other kinds of digital viewing; a survey of any of the viral video compilations of users crying, falling, screaming, or otherwise reacting to VR titles, as well as our own experiences of fear, surprise, delight, and other strong emotions, attests to the power of the medium.

VR for social good makes different claims about this difference. And these claims have always been meant to extend to the medium itself, not just to the specific titles that immerse viewers in worlds of empathy and compassion. VR meant to occupy the unenviable position vacated by the social networks and gaming platforms that licensed and amplified racial and gender hatred and violence: Its identity as "new" gives it access to the disturbing and enticing feelings engendered by the *early* internet, where the exception was the rule, and racism and sexism were the unintended but not unwelcome price to be paid for "disruption."

Many VR documentaries are developed, marketed, and consumed on a foundation of tears. It is not for nothing that pathos

is VR's proof of concept. VR developer and Pathos Labs' founder Romain Vakilitabar ("Vak") describes how the inspiration for his company came from his own tears while watching *Clouds Over Sidra.* Crying is the medium's proof of concept, evidence that it is working as intended.[46] His experience of virtual reality as a technology to produce "good" feelings motivated him to claim a much wider mission than the production of media.

Vak's conversion narrative about crying while wearing the headset is leveraged to support VR's exceptionalism. VR is simultaneously the best, strongest, and most empathetic medium and not a media product at all. Vak disavows the term "filmmaker" in favor of "entrepreneur." Specifically, the most legitimate and admired kind of entrepreneur in tech: an engineer. His origin story explains, "I started with a hypothesis, which was that by using virtual reality you can hack your body into becoming more empathetic."[47] VR's true value is as an effective body "hack," a technology to alter the way that the body processes both media and feelings using virtual reality. Like Soylent Green or other tech industry technologies created to enhance focus by reducing distraction, VR automates the labor of feeling. This time, what's being cured is not the body's need for food, but rather society's need to feel better about itself by feeling something about racism. Milk argued that virtual reality was not just a device for watching video or playing games, but rather itself part of a new diversity industrial complex: "co-presence for good."

VR's capacity to visually include viewers in communities of color stands in for a cross-racial solidarity that was deeply desirable in 2018 to viewers who need to see its value proven. Appeals to racial justice and the use of BIPOC bodies to sell technology are foundational to the stories it tells about its value, but after 2020 the metaverse has seen a decisive shift toward branding itself as a place for "diversity work" rather than play.

As Vak explained in a 2018 interview, "The best and worst thing about it is that nobody in the field of V.R. has any clue what's going on. What this means is that there are no rules yet (yay!) but it also means that a lot of eggs are in a basket that is difficult to predict. There is a lot of speculation and theorists, but I don't really think that anyone knows where the heck the industry is going."[48]

Indeed, in 2022 VR had "no rules" and no accountability, just

like the social media companies that developed the technology and framed it as a restart button for its ethics issues. Thus, it didn't matter whether virtual reality would ever be anything other than a niche platform perpetually on the verge of becoming normalized; its utility lay elsewhere. Meta's campaign to monopolize the metaverse controls the conditions of production for virtual bodies, extending digital racial capitalism's regime of excluding people of color from power and profit while, in the same gesture, extracting real value from reproducing their bodies, voices, and experiences as content. This celebration of chaos and perennial license, of constant emergence twinned with infinite deferral, has given way to a new purpose for the medium as a well-capitalized "empathy machine" for scaling and cornering the market in one of institutional training's biggest new markets: antiracist education.

"The Virtual Reality That Turns You into a Black Woman": Virtual Embodiment, Black Fungibility

In 2017, BBC Magazine published a news story with an incredible headline: "The Virtual Reality That Turns You into a Black Woman" describes woman of color feminist art collective Hyphen Labs' headset-based VR piece Brooks' Brain Lab, an award-winning film that depicts a futuristic beauty shop and its Black female workers and inhabitants. When users look at this mirror, they see a reflection of themselves as a Black woman. When the user looks at Brooks' Brain Lab on the Oculus Rift virtual reality headset, they see themselves reflected in a mirror in a gorgeously animated futuristic hair salon where they are invited to put on a VR headset just like the one they are wearing in real life.

"Brooks" is part of a suite of technological objects in Hyphen's "Neurospeculative Afrofuturisms" series, which includes camera-earrings intended to record and witness police violence and head scarves printed with anti–facial recognition patterns. These objects work in two directions: wearable devices that are meant to protect women and people of color who are likely to be targeted for police surveillance and violence in the real world, and media like the Brooks piece, which provides a beautiful and enjoyable virtual world experience that centers Black and brown women. The BBC headline celebrates the idea of Black women in virtual reality while

Figure 11. VR "that turns you into a Black woman."

at the same time representing them as unusual and exotic, possessing a fungible, portable identity that VR can digitize and transmit to white and male viewers. Black women in this medium are, as Parisi writes of haptic technology, themselves treated as "exotic, foreign, and futurological."[49] The headline's subtitle asks, "Why did design collective Hyphen-Labs create a virtual reality experience populated *exclusively* by Black women?" to point out the rarity and radical potential of women of color building digital environments where *there are no white people.* If VR's claims are to immerse the viewer in a world so viscerally convincing and all-encompassing that it can alter one's own sense of their racial identity, the idea of Black women's immersive digital space is truly transgressive and possibly threatening.

Just two years later the rise of artificial intelligence on virtual reality platforms coupled with a social movement combating anti-Black violence in the United States created a new need for virtual education about racial injustice.

The Digital Diversity Industrial Complex: Simulating Women of Color

In 2021 technology companies committed over $3.8 billion to DEI initiatives. *Fast Company* claimed that "unlike previous collective actions, this moment felt different. . . . Big Tech and Corporate America—predominantly white environments—broke their silence."[50] Of the forty-two tech companies surveyed, Microsoft committed the most at $772.5 million, over 75 percent of which was dedicated to support Black-owned businesses, and relatively smaller amounts were allocated to "education, racial justice, internal initiatives/other" and "loans and deposits in Black-owned banks." In a related report entitled "We Asked 42 Tech Giants About Their DEI Initiatives. Here's What We Found," the "Black in Tech" reporting team found that "one movement that's taken place is a push to bring more Black people on to boards of directors . . . while 71% of companies surveyed currently have a Black board member, 37% of those companies appointed their first Black board member in 2020 or 2021."[51] Prior to 2020 none of these tech companies had offered Juneteenth as a paid holiday: Starting in 2020, more than half did.

In 2021 the NASDAQ stock exchange received permission from the SEC to implement new board diversity requirements for the companies on its lists. These rules require companies to "have, or publicly disclose why they do not have, at least two diverse directors (including at least one self-identified female director and at least one director who self-identifies as an 'underrepresented minority' or LGBTQ+, each as defined below); and publicly disclose board diversity statistics using a standardized format on an annual basis."[52] This resulted in a surge of both hirings into *and* departures from newly created diversity officer roles: Christie Smith, Apple's head of inclusion and diversity, left the company a week after the company pledged $100 million to fight racial injustice. She was the third person to vacate that role after less than three years on the job. The average tenure of a chief diversity officer in the United States is 1.8 years, down from 3.1 years in 2018, partly due to poaching, but possibly also because many companies are "turning to executives who have never held the role before."[53] Executive recruiters were hard-pressed to fill these new, well-paid positions, attributing the demand to the "recent focus on social justice in the wake of the killing of George Floyd."[54]

By 2021 Mursion had ninety-five full-time employees and an additional eighty-five part-time specialists. It had raised more than $35 million on the promise that they could deliver DEI training "at scale" to meet the needs of the remote workplace. In the following section I trace the post-Covid trajectory of virtual reality as a technology that needs the three-dimensional bodies of women of color in its advertising, media and documentary content, and above all in its "diversity work." After 2020 Mursion pivoted to delivering racial sensitivity training to workers, teachers, executives, and others in institutional environments by offering scenarios featuring Black and other BIPOC avatars for customers to rehearse difficult workplace interactions. These bodies are voiced and acted by white workers who feel uniquely exploited by this form of digital Blackface.

Mursion was founded in 2014, the same year that Facebook acquired Oculus Studios. It was originally an educational simulation company that, like many corporate training companies, pivoted to expand its DEI offerings after the NASDAQ was required to publicly disclose diversity metrics. Mursion advertised itself as a live virtual reality solution to interpersonal dysfunction in the workplace, rebranding the technology as even better than Oculus's "global village." In 2020 Mursion CEO Mark Atkinson explained that "movements like Occupy Wall Street, Me Too and Black Lives Matter have gathered momentum, and the world is beginning to care about what we call 'human skills.' Companies need managers who are genuinely empathetic to their colleagues and customers—regardless of age, race, gender, ethnicity—and who build equitable structures, policies and practices in their culture."[55] Mursion builds virtual interactive worlds through motion capture, voice transformation software, and scripted scenarios to allow white workers to impersonate people of color as part of immersive diversity training. This work is meant to supplement or replace the training that DEI officers were responsible for implementing in person before remote work, thus taking away one of the only sources of employment for people of color at technology companies.[56]

Mursion isn't headset based and its avatars are cartoonlike. However, the company benefited from VR's prior identity as a technology of presence, empathy, and direct experience to claim that they can teach workers to be less racist, sexist, and discriminatory. And in so doing, they produce value for the digital diversity complex

and the racial capitalism that it supports. The burgeoning diversity industrial complex needs solutions to address the growing and divisive need for antiracist work, preferably work that can produce empirical data-fied results to justify its need for funding and prove that it is reducing racism. Virtual reality is a scalable platform that meets the need for "diversity work" just at the moment that exactly this kind of work was in such high demand in the United States.

As Atkinson explained, "our customers tell us that the COVID pandemic has heightened the pressure on employers to onboard, train, and provide feedback to employees using virtual collaboration platforms. This challenge of working remotely comes as society is rightly demanding equitable treatment of all employees without regard to race, religion, gender, age, or ethnicity. Never has there been so much pressure on managers to possess the 'human' skills needed to drive employee engagement and business performance." Covid-19 required workers and students to move onto platforms that fail to protect them from the very same problems that DEI efforts claim to fix. Children and teachers were especially vulnerable: As mentioned earlier, Zoombombers attacked classrooms and town hall meetings by spamming swastikas, racial slurs, and porn in video chats. Zoom classrooms forced kids to reveal their domestic spaces and invaded their homes. Requiring children to have their cameras on during virtual classrooms exposed their siblings, personal surroundings, and locations to their peers and their schools, reproducing real-time violations of privacy and dignity that resemble earlier refugee-based VR documentaries.

In some ways this is a continuation of the digital industries' development cycle: As Vak explained, VR social space has been poorly regulated since at least 2016, when sexual harassment and virtual reality "groping" became endemic in social VR sites.[57] New digital intimacies online converged with the growing realization that older styles of diversity training based on face-to-face work interactions are less relevant when most work has been and will continue to be digitally embodied. The wholesale shift from in-person to online work (and I count education as work, since students are working despite not being paid) is an experiment whose effects are not yet known. Racism and misogyny were serious problems before the pandemic, but now they seemed even more unavoidable.

What does it feel like to work as a "simulation specialist" at

Mursion? Who does this work? When BuzzFeed interviewed current and former Mursion workers, several of them described how difficult it was to stomach: "two raised concerns about white actors mimicking Black dialect while acting as Black characters, and other workers who portrayed autistic children in educational simulations stressed how 'uncomfortable' they felt doing so, while at the same time feeling 'concerns about the company's own diversity and inclusion practices.'" The company's cadre of actors, programmers, and script writers described creating live-action simulations where non-autistic actors were encouraged to "imitate self-stimulating actions like 'rocking' and 'hand-flapping' to portray the character," white actors played Black and Asian characters who "called out other characters' acts of discrimination," and white "simulation-specialists" used the "n-word while acting as an avatar of color."[58]

This is horrible work, and it feels horrible. Being stuck at home doing precarious remote work reenacting racial and ableist stereotypes constitutes a new job category or form of work in the age of AI and VR that, like many other jobs keeping the internet clean and usable, is poorly paid and traumatizing. As I described in previous chapters, this digital infrastructure work is hidden under the waterline of visibility and compensability in euphemistically named businesses and offices, and often performed in former U.S. or British colonies, by vulnerable people like refugees, or in this case, out-of-work actors. Internet researcher Sarah Roberts compares paid content moderation work viewing the worst the internet has to offer—videos of beheadings, animal abuse, child abuse, and violent pornography—to a form of sin-eating or penance on behalf of others.[59] Likewise, work impersonating marginalized people so as to let customers practice what it feels like to subject another person to racial aggression and hopefully learn how to avoid it in real life is overtly problematic.

Mursion's focus on individual workers' racist speech is a distraction from the role that racial digital capital plays, which is to both create the conditions for racism to permeate digital space and the workplace and to hide that creation. This example is just one of the inattention economy's new commercial horizons. In keeping with earlier histories of digital media development that stole, concealed, and later disavowed women and people of color's labor building technological systems, the metaverse diversity industrial complex

reproduces a digital form of the racialized body in order, in the end, to get rid of the need for it. The diversity industrial complex needs people and women of color as totems that make visible an institution's "commitment" to antiracism. When the diversity industrial complex makes virtual reality and virtual worlds about women and people of color, it participates in the ongoing extraction of value from real women and people of color.

The market for racialized experiences offered by metaverse companies like Mursion constitute a new employment niche,[60] one built upon the assumption that racism *is* an emotion, rather than a social system, one so stubborn that only body-based methods can address it. The company stresses its scalability as a "solution" to DEI training that routes around traditional diversity education. In a Mursion promotional video entitled "Overview of Software," a white female narrator claims, "In the immersive environment, you as a learner really engage and immerse yourself in a way that you wouldn't in traditional content. It allows you to activate the emotional side of your brain as well as the cognitive side of your brain, and those two things together fuse together for a great learning experience." This video displays an animated image of a brain to support its claim that interacting with real-time avatars appeals directly to its "emotional side," that metaverse content triggers "cognitive" sensations of movement, space, and proximity to activate new forms of learning. It is precisely because the digital industries are so unwilling to listen to women of color's experiences or to enter their creative worlds that these technologies have come into their own. Just as in the 1990s, when the internet was advertised as a way to be more diverse by inhabiting a racialized other's body, post-Covid virtual reality creates touristic experiences of occupying or interacting with women of color's bodies, only this time the market for DEI experiences was exponentially larger. Racially virtuous VR produced by some of the studios I discussed in this chapter rewrite our racial history's present as bodily experience in order to reserve the right to create and profit from diverse digital bodies.

In contrast, women of color produced VR-based pieces after 2020 like Stephanie Dinkins's *Secret Garden: Our Stories Are Algorithms* avoid representations of gratuitous racial violence, of artificial empathy and intimacy, of the oft-criticized claims from VR companies to "put yourself in someone else's shoes."[61] They challenge the inattention

economy's racial capitalism because they live outside the boundary of the technology industry's official diversity work. Unlike the VR titles and advertisements about VR by Google, Oculus, and Mursion that claim to turn you into or insert you next to a woman of color, their VR work explodes the diversity industrial complex that technology firms have invested so much to build. This unpaid work, informed instead by women of color's agendas and lived experiences, achieves the diversity work that official diversity work can't.

"Who Are Your People?": The Diversity Work of Women of Color in the Metaverse

Long before Siri, Alexa, and the other female AI agents moved into our homes, the earliest digital agents were often women of color. For example, in 2006 Microsoft chose South Asian American actress Janina Gavankar to play Ms. Dewey, an interactive search engine assistant, as part of its new search feature. Gavankar recorded over six hundred video clips that were contextually served to the user in response to specific prompts and queries. As Miriam Sweeney writes, Ms. Dewey's work as a digital servant is inseparable from the long history of women of color as unpaid or underpaid servants that underwrite the labor of white people.[62] Khan Academy's controversial 2023 AI chatbot "Harriet Tubman" is the ancestor of this artificial woman of color autonomous worker.[63] Students are also invited to interact with Genghis Khan, Montezuma, and other historical figures. Just as in the case of the VR title *One Dark Night,* as reporter Daniel Johnson put it, "many Black users on Twitter were horrified at the thought of digitally exhuming a venerated icon and ancestor in Harriet Tubman."[64]

In contrast, in this section I analyze women of color's metaverses as spaces purposely created for survival and creativity, as refuges from inattention and the worlds it makes, and as respites from ubiquitous "diversity content." Women of color creating nonwhite metaverses do the "work" of diversity without relying on the immiseration of contract workers forced to act out disabled, Black, female, or other marginalized identities. Their work is not solution based: It disidentifies with the diversity industrial complex and thus isn't seen as worth this kind of investment. Like much of women of color's diversity labor online it's a labor of love,

motivated by traits like care and craft that have become essentialized as both female and foreign. Unfortunately, this perspective lumps women of color metaverse creators into the category of much earlier tech workers like the Indigenous women who created electronic circuits, workers who created immense wealth and were thought to weave diversity, equity, and inclusion into the fabric of their work. While Indigenous women were seen as permanently outside of capitalism and thus not deserving of fair wages, contemporary women of color metaverse workers are similarly viewed in labor categories that justify their exclusion from the wealth that flows into the diversity industrial complex.

Hanson Robotics' Bina48, a Black female "custom character robot" created in 2010 through "compiling all of [Bina Aspen's] memories, feelings, and beliefs" is part of this genealogy of artificial women of color. VR's mission to scaffold interaction with women of color as servants and as agents for white empathy across racial divides has its roots in these earlier artificially intelligent objects. I first came to know artist Stephanie Dinkins through her video performance pieces with Bina48 and was struck by the ways that her interactions with the robot subverted the master-servant divide. Her intimate and ongoing relationship with this robot is documented in "Bina48: Fragments 7,6,5,2," which dates from 2014. When Dinkins asks Bina, "Who are your people?" she listens closely and respectfully, moving her head and body to match the robot head's motions, which were themselves originally designed to mimic a Black woman's. Ten years before Siri and Alexa accustomed everyone to interacting with female AI and centuries of racial capitalism had defined women of color as those who do our service work for us, Dinkins's digital interactive performance *with* AI agents points a way toward digital agency and abundance for everyone. Thus, her immersive video piece *Secret Garden: Our Stories Are Algorithms* uses the histories, voices, and images of Black women whose bodies and voices remind us of our country's past and future histories of abiding inventiveness, negotiation, and grace.

Dinkins's work both refers to and creates new ways of seeing how Black women have always done the relational work that builds new worlds before, during, and after the shift to algorithmic culture. This work models different modalities for entering into a relationship with data that is intentional, nonoppositional, and gen-

erative because neither instrumental, that is, "let's program our way out of this," nor dystopian approaches give us room to move. Similarly, this work meets theorist Donna Haraway's challenge to expand our circles of kinship so that we might adapt as a species to confront head on, with compassion and optimism, the pain and loss of planetary degradation and systemic oppression through imagining a technological future with women of color at its center.[65] In the participatory digital web-based piece #SayItAloud, Dinkins's alter ego, Professor Commander Justice, addresses us as "brothers and sisters" and encourages us to liberate our minds from the "infinite loop of oppression" to focus on building, to acknowledge past and future repurposing of technology, to "imagine an unburdened Black mind . . . today." Like Black digital theorist André Brock, whose analysis of Black Twitter posits the digital as a platform for uniquely Black joy and imagination,[66] Dinkins's work invites the viewer to give up dystopian thinking as a bad habit in order to release the psychic energy needed to collaborate meaningfully with the digital things around us. Her solo show *On Love and Data* represents kinship, gardens, conversation with machines, and care with algorithms, memory, and data to overcome the oppositional thinking that both lie at the heart of algorithmic and data-driven culture and, when viewed through the lens of Afro-Nowism, are also the raw materials for its subversion.

Secret Garden: Our Stories Are Algorithms drops the viewer into a navigable microbiome—a thick garden of waving violas, cotton, and other useful plants that tower over the viewer's head—where we wander and listen to Black women of all ages telling stories about growing the things—communities, families after 9/11, gardens, themselves—that enabled survival and thriving on unpromising ground. The viewer is literally guided by Black women's voices that grow louder and softer as you move through this jungle-like maze of vigorously growing plants to encounter avatars of a Black women at different ages who speak directly to you about their stories; if you don't listen carefully, you will be lost. The consequences of getting lost, however, are not painful; walking around in a simulated flower garden is a pleasant and meditative experience, modeling ways to exclude triggering or traumatic content in a show that puts race and racism at its center.

This choice helped me understand the benefit of Afro-Nowism

during a time of Covid-related grief, though the pandemic is not mentioned in the show's supporting text. Some of these women are dark-skinned, some are white-haired; in a gesture of resistance and playful performative critique of ubiquitous "touch up my appearance" digital filters on everyday platforms like Zoom and Instagram, Dinkins chooses to appear at different points in her work as an aged version of herself and includes older bodies throughout. The voices in this piece urge us to "imagine the world as you need it to be . . . define yourself beyond systemic oppression . . . act from a critically engaged space."

Dinkins's *On Love and Data* uses the digital as an opportunity to put flesh on the bones of Black feminist scholar Catherine Knight Steele's arguments for "an analytical tool that *centers* Black women in digital studies rather than advocating for our inclusion." This work "reposition[s] Black women online as purveyors of digital skill and expertise" and embodies the specific ways that "Black feminist thinkers' online writing [is] central to the ongoing work of liberation."[67] I see in this work, homed in Dinkins's Future History Studio, an embodiment of historian Saidiya Hartman's critical fabulation methodology, that is, to channel the imagination in order to write the histories of those who were systematically denied access to the means to record their own experiences.[68] Though access to algorithm creation, our century's form of history-making, is denied to many still, many pieces in Dinkins's show gather data from people of color in order to remedy that systemic exclusion.

This is an act of critique through building, very much in line with Afro-Nowism's encouragement to reimagine the digital now as a way to build kinship and an invitation to imagine alternative technological futures founded upon the principle of "although." Although Silicon Valley continues to exclude people of color, women, and older folks, these objects point the way toward an antialarmist, safe, and abundant technological future. In 2018 I interviewed Ece Tankal, Ashley Baccus, and Carmen Aguilar y Wedge, members of the Hyphen-Labs team that created Brooks' Brain Lab and the NSAF suite, to learn about their motivation for creating the piece and their reactions to the press coverage that it produced. Carmen noted that the BBC title was an oversimplification of their project and that their goal was never to turn users into Black women, but rather to empower Black female audiences. Baccus said, "We're

simply trying to change the perspective of people that engage with Black narratives and Black women. Negative portrayals dominate media discussion, especially around violence committed on Black male bodies. And we thought, what about Black women? We wanted to place Black women in positions of power." While the BBC story assumes that virtual reality has such a strong effect upon users' sense of racialized embodiment that they "become" or automatically apprehend some essence of Black femininity by using it, Ece, Carmen, and Ashley do not describe their work creating Black women's virtual environments as creating powerful new forms of racial empathy and cross-racial embodiment. Instead, they told me that they produced it because they had *"no choice. This is our job, this is our work. Our work is self-empowering and that is important"* (emphasis mine).

Like so many feminist and BIPOC art collectives working today, their paying jobs as consultants, designers, and software engineers underwrite their collaborative work that emerges from and creates a "structure of support for other people coming up." Their work in "speculative design and speculative neuroscience" wasn't built to meet the needs of white viewers for personal racial enlightenment, or for companies to assign as part of diversity training. It is precisely because it was not created for white viewers, or supported by or serving racial digital capital, that this VR title can offer a point of attention and of entry for learning about race and gender. Because Brooks' Brain Lab and NSAF were not created to meet the needs of institutions like schools or businesses looking to use VR as an "empathy machine," they embody an alternative created by the passion, self-expression, and support of the digital's least-rewarded workers.

Hyphen-Lab's Ashley Baccus told me that she stopped reading the comments on the BBC news article because they were so racist and violent.[69] When the group looked at the user comments on Brooks' Brain Lab on the Oculus Store, they found that the presence of the word "Black" triggered readers and their game's feedback box was filled with racist remarks that were allowed to stay on the site. When the Lab gave presentations on the work, audiences would sometimes interrupt, asking "why is it necessary?" or asserting that "racism is only applicable to Black people in the United States." These are some of the reasons that women of color's diversity work in VR and elsewhere is so difficult. Yet the persistence of

these other worlds offers an alternative to the inattention economy that produces joy and pleasure.

One thing is clear: VR is not safe for women, especially for women of color.[70] Hyphen-Labs member Carmen Aguilar y Wedge told me that Neurospeculative Afrofuturism's abbreviation NSAF also stands for "Not Safe As Fuck," a commentary on the dangers they encountered as women of color using the commercially available metaverse and as creators of alternative metaverses. Because its platforms are built upon representations of women of color as signifiers of racial empathy, women of color encounter great hostility when they step out of these roles and assert their agency as creators and critical makers.

If we view Zoom as the metaverse platform that quietly became as successful and mainstream as VR's proponents inaccurately claimed that the VR headset would be, we can see what's at stake in understanding how diversity is both punished and created in VR. Women of color in refugee camps, in favelas, and in racist workplaces were used as symbols of diversity to prove the value of this medium during an especially unsafe historical moment. We know that VR can't "turn you into a Black woman." The titles that I've discussed here offer something different: They create free, ungovernable, and nontraumatizing virtual worlds "exclusively" populated by women and people of color that are spaces for unlearning racism and sexism.

Conclusion

"Fuck You, Pay Me": Digital Reparations for the Inattention Economy

If this book has done anything, I hope that it has shed light on how women of color's work carving out a space where they can exist *as themselves* in specific technologized moments constitutes an extra obligation and burden, sometimes performed with grace and forbearance, sometimes with an invigorating and overt resentment or ratchetry. Women of color's digital time is temporally distinct from other modalities of being online. It exists in contrast to the ideal user or worker-entrepreneur, aspirational figures who may perceive themselves as active, empowered, inventive, and agentive, a position that has been by default white and male for these reasons. This was especially apparent after the pandemic, when as media scholar Tung-Hui Hu put it, those bodies that are "always more 'entangled with' infrastructure than others," bodies that are "the affective or even human infrastructure for digital networks," became at times even more digitally "lethargic," "caught in between being impelled to move and the exhaustion that results from doing so."[1]

Women of color are part of the human infrastructure or engine whose cheap and free labor powers the internet; thus, women of color are tired *by design.* In this book, I focus on what digital media theorists Kris Cohen and Scott Richmond term "the less glamorous business of improvising forms of survival, endurance, and thriving inside computational personhood" rather than more conventionally successful examples of women of color's political protest, such as #stopasianhate. Though this and other hashtag-based movements bring visibility to violence against Asians and Asian Americans, their willingness to surrender surveillance data to the carceral state

gives pause, and they are, like other such diversity projects, unfortunately susceptible to appropriation as "counterexamples in order to game the politics of diversity and inclusion."[2] What might it look like to reduce the use of women of color's time and energy in *either* public projects to eliminate racial hate through increased policing, *or* those that cultivate racial love and empathy? What kinds of energies might be freed up by investing *less* care in who loves or hates us, and more in acquiring both emotional and material forms of redress and reparation?[3]

The idea of reparations for digital harms is in the air. In 2021, platform scholars Davis, Williams, and Yang coined the term "algorithmic reparation" to describe an activist agenda that espouses wholesale cultural and technological reform designed to mitigate the harms caused by digital racism, misrepresentation, and capture. This study is very clear that women and people of color are disproportionately harmed, which is not a controversial claim at this point. However, their position is different from other research on the topic because they focus on *doing* something different as well as than *thinking* something different. Their idea of reparation centers around some very specific concrete actions like hiring professional archivists and indexers to ensure that the data that are fed into machine learning systems are nondefamatory and preserve the privacy and dignity of vulnerable people. This reparation movement is critical of what it terms "algorithmically idealistic" projects like FML (Fair Machine Learning) that seek to optimize or "re-tune" machine learning results since their structure is designed to amplify the social conditions from which they emerge.[4] And as artist and theorist Beth Coleman writes, digital solutionist efforts to repair or redress these harms by making artificial intelligence and algorithms more "transparent," offering more diverse avatars, and educating users about how to use "safety" features more effectively do not get at the root of the problem.[5] In their "next steps" for algorithmic reparations, Davis, Williams, and Yang argue that technical solutions such as machine learning audits to detect bias and inequality reduction tools are not enough; social, legal, and institutional *evolutions* are necessary to address the new inequalities brought about by artificial intelligence.[6] We need a new way to think about repair.

We do know what many women of color content producers want

as partial reparations in exchange for their work, for they have taken to Twitter and other social media spaces to tell us. Hashtags and catchphrases such as "fuck you, pay me" by Black and brown public intellectual feminists acknowledge the vast amounts of content, time, and energy that they have contributed to internet infrastructure development by building follower counts and advertisement views since Twitter's earliest days.[7] Both the *Model View Culture* website and *Logic(s)* magazine have published work by women of color that make the case for monetary reparations from social media companies. For example, in 2014 a group of Black feminist content creators on Twitter staged a social media blackout to protest their conditions of work; they made a point of withholding their content from the platform because they wanted to be paid, and they wanted their work and its cost to be acknowledged. They wanted the most basic kinds of welfare support such as the healthcare and retirement accounts that Twitter's official employees earned and that techno- and neoliberal forms of work have made scarcer across the board.[8]

This is a straightforward demand, yet amid the rash of speaker series, panels, symposia, and other performatively penitential and often sincere events staged since the 2010s and early 2020s by technology companies, universities, and others meant to address racism in digital culture, I have yet to see anyone recommend old-fashioned monetary reparations. Though as Asian Americanist Lisa Yoneyama notes, "redress culture" has been newly invigorated and intensified since the 1990s, the notion of monetary compensation and public apology from institutions that have harmed, in many instances knowingly, young women, children, disabled people, people of color, and myriad others is not, seemingly, on the table. Yet there is ample evidence from U.S. redress culture to demonstrate that though it may be impossible to fully compensate or address the economic and psychic damage caused by institutions like federal and state governments, hospitals, etc., through programs like the forced sterilization of people with disabilities, the violent "resettlement" of Indigenous children in settler boarding schools, and others, it *is* possible to apologize and to set aside funds to pay victims. Even greatly delayed compensation and recognition, such as the state of California's creation of a $4.5 million program to pay forcibly sterilized people many decades after they had been

harmed, means something. Though by 2023 only fifty-one of the six hundred people who were identified as forcibly sterilized without their will or knowledge applied for and were approved for the $15,000 payment set aside for this purpose—the wheels of justice grind exceedingly slowly, and many had already passed away—it matters that the state acknowledged its responsibility for both having done this and for disavowing it.[9] Though it took over sixty years for the Florida Legislature to approve a bill awarding $2.1 million to compensate those who died in the Rosewood Massacre during which a racist mob destroyed the town and the Black people in it, doing so was important because the event was "all but erased from historical memory . . . unremarked and unremembered save by communities of survivors."[10] Reparations efforts, belated as they often are, are both financial programs and acts of memory.

And women of color are especially subject to both economic exploitation and being forgotten or obscured: Harms overlap. For example, as data analyst Marie Kaniecki and historian Alexandra Minna Stern have found, some of the Japanese American women incarcerated during World War II were *also* forcibly sterilized, thereby requiring at least two different and distinct forms of redress.[11]

There is no one-size-fits-all model for digital reparations; however, fighting for it can make us more attentive to what women of color and others exploited by the inattention economy say that they need to feel whole. Though the Black feminists who staged the "fuck you, pay me" social media blackout almost ten years ago focused on material compensation and support for creators, survey research has found that other groups may not want the same thing. According to a survey-based study of minority social media users targeted by hate and harassment, many Black and Asian users prefer apologies to monetary payments or banning offenders, while many Indigenous people prefer that violators commit to learn about the history of racism against their group.[12] If we apply the restorative justice models that members of specific minority groups say would help them feel less harmed by technologies calibrated to expose them to harm, we might pay Navajo women circuit builders back wages for their formerly underpaid work, create well-paid local employment that is not at the bottom of the tech stack, publicly acknowledge their instrumental role in the defense and aerospace national effort, and preserve this history as part of the story

of Silicon Valley innovation.[13] The Navajo women who had lost their jobs permanently wanted them back, for themselves and for their children, who would then might not need to leave the reservation for jobs in other cities. Women of color social media creators on new platforms such as TikTok might be paid and protected from harassment as Tila Tequila was not, and they might also receive public acknowledgment that they have been laboring in unsafe conditions while producing economic value for others.

Meta and Google have lost many class action lawsuits and have been forced to pay users for data privacy violations and other abuses. They are perfectly capable of compensating poor global women of color whose bodies and lives are used to create content for the digital diversity complex. Similarly, Mursion might limit (or ideally, do away with) AI-generated digital blackface, yellowface, or autistic avatars. The main challenge is accountability, not logistics. These are, after all, companies that own vast amounts of our personal data.

Inattention economy reparations must both focus on addressing and repairing larger systems like settler colonialism, misogynoir (harm targeted specifically at Black women online), and racial capitalism as well as addressing individual examples of individual harms.[14] At the same time, identifying and analyzing specific examples of women of color's work building (and building against) the inattention economy as I have done in this book can give us some of the thick details and empirical data we need to imagine both symbolic and financial reparations. The act of memory, of rich documentation and analysis of women of color's work across a multitude of technological forms, some voluntary and some involuntary, is indispensable to apology. And it is work that researchers, archivists, and librarians have been engaged in for some time.[15] It matters that we remember women of color as digital infrastructure builders, even when, like Tila Tequila, they are hard to remember. And it also matters that we pay them, for the amount of money that they earn for platforms is in many cases eminently countable.

To take one example: Though I have focused on women of color in this book, kids contribute inestimable value to content platforms and their contributions date to the beginnings of the internet as a place where money could be made.[16] They are also part of the

inattention economy. In 2020, two of the highest-paid YouTube stars were children under the age of ten: Asian American Ryan Kaji, the highest-paid creator from 2017 to 2020, earned $29.5 million from his YouTube channel in 2020, and an estimated $200 million from branded toys and clothing.[17] Women of color, children, and many, many other unattended-to workers I have not discussed in detail here create the vast majority of value, creativity, and capital that animates the industry. Children are in many ways the most ignored labor force on the internet. Unlike child movie stars—who are protected by Coogan laws that regulate how much they can work, require that work permits be acquired, and force parents to set aside money in savings accounts for their later use—child influencers' labor is almost completely unregulated, for against all reason and empirical evidence what they do is not yet understood as work.

This is by design. The matter of who gets to be seen as an innovator or entrepreneur and who is merely a worker or a user extends much further back than the rollout of digital technologies, the period I focus on here. The inattention economy and the digital capitalism that rests upon it defines these roles based on the pattern that science and technology historian Ravyon Fouché documents in his work on Black inventors: Technological "skill" is determined above all by the race and gender of the person creating the device, object, or idea rather than the market value or technical inventiveness of its creation. In the United States, acts of invention can often only be understood as confirming the racial logics of nonwhite technological inferiority. As Fouché writes, because slaves were themselves owned, they could not own their inventions and therefore could not be regarded or given credit as inventors. Even when the end of chattel slavery made it legally possible for them to do so, they could not claim recognition as innovators. Instead, as he recounts in his story about a Black farm worker who designed a more efficient hay rake, this technological labor was viewed as the product of essentialized racial qualities: Black "laziness" rather than inventiveness.[18]

Thus, both monetary compensation and credit for digital work has everything to do with who is doing it rather than the value that they produce. Though children generated a significant portion of the $16.4 billion that the influencer marketing industry earned in 2022, like Indigenous women electronics workers and Asian influencers, their work is viewed in essentialized terms; because kids

"naturally" play, just as Navajo women "naturally" craft and Asian women are "naturally" sexual they do not receive profits or pay from content that depicts them unboxing toys, saying funny things, and acting silly. Their parents and the platforms do.

And children of color are even more likely to have their intellectual property such as viral dances, memes, or embarrassing and personal instances of private behavior appropriated by white creators who collect the credit and the profit.[19] Exploitation of women of color and children has been central to the building of the internet since the earliest days of ISPs: In 1999 AOL abruptly fired all of the over 450 children who worked for the company as (often extremely effective) AOL Community Leaders because they wanted to avoid being held accountable for violating child labor laws.[20] AOL would have been less likely to be inattentive and dismissive of their labor if they had not been majority women, children, and elderly people. As I describe in chapter 3, this denial of protection and revenue sharing for influencers had its origins in queer, stigmatized creators like Tila Tequila, whose sexualized and racialized identity made it easy for platforms to ignore her rights under their terms of service.

What can previous successful and still-unsuccessful U.S. race reparations projects and digital technology labor lawsuits tell us about what a digital reparations movement might look like? We know that it can be done: Both formerly incarcerated Japanese Americans and victims of exploitation and mistreatment by technology firms like AOL volunteers have won redress in the courts. Both the AOL Community Leader lawsuit and the Civil Liberties Act of 1988 wrote checks to former volunteer Community Leaders and Japanese American targets of state-based racism that occurred over several years. *Hallissey et al. v. America Online, Inc.,* the class action lawsuit brought by former volunteer Community Leaders, won its plaintiffs $15 million for back wages several years after they had been fired, demonstrating that labor laws that protect workers can be used to hold platform companies accountable for exploitation.

Thus, it is definitely not too late to pursue digital reparations. The Civil Liberties Act of 1988 that provided a presidential apology and a one-time payment of $20,000 to survivors of the Japanese Relocation Camps four decades after the camps is often cited as the most successful example of reparation for race-based violence. And it has continued to animate the pursuit of reparations for slavery,

an economic and social institution that has caused far more harm. The links between reparations for Japanese American internment and the pursuit of reparations for slavery are numerous and deep. The Congressional Black Caucus was a vocal supporter of the Act, and Congressman Conyers introduced a bill to slavery reparations a year later. Unfortunately, the bill went nowhere.[21] In a bitter paradox, some of the same public figures who supported racial reparations for Japanese American internment refused to support racial reparations for slavery because the practice was too diffuse, too long standing, too systemic, and too violent to allow for an appropriate settlement. While Japanese Americans were "compensated for quantifiable, provable suffering at the hands of an identifiable perpetrator, the United States government,"[22] African American efforts to seek reparations have continually been unsuccessful; a 2003 class action lawsuit seeking damages from industries that benefited from slave labor was dismissed by a 2004 district court judge who ruled that the claims were barred by the statute of limitations.

This legal decision is an example of gaslighting, as is the implicit claim that harms to people and women of color, to disabled people, to children, and to all willing and unwilling creators and users of the digital economy and technology sector are not severe and ongoing.

The word "gaslight" has both gendered and mediatic origins; first used in George Cukor's 1944 film *Gaslight,* the term derives from the male villain's practice of adjusting "their home's gaslights to flicker and dim at unexpected times," such that he "psychologically manipulates his wife into believing that she is going insane."[23] If gaslighting is a technological means of misdirection and lying with signals, computational and algorithmic outputs are like that flickering light, an unpredictable signal that users are told tells them something about the world and about themselves, but is instead, as digital media theorist Louise Amoore puts it, "fragile and contingent, so that a tiny adjustment of the weights in the algorithm's layers will radically change the output signal, and with it the basis for decision and action."[24] Rather than unsuccessfully trying to anticipate these signals and being blamed for their errors, we need both symbolic and material redress.

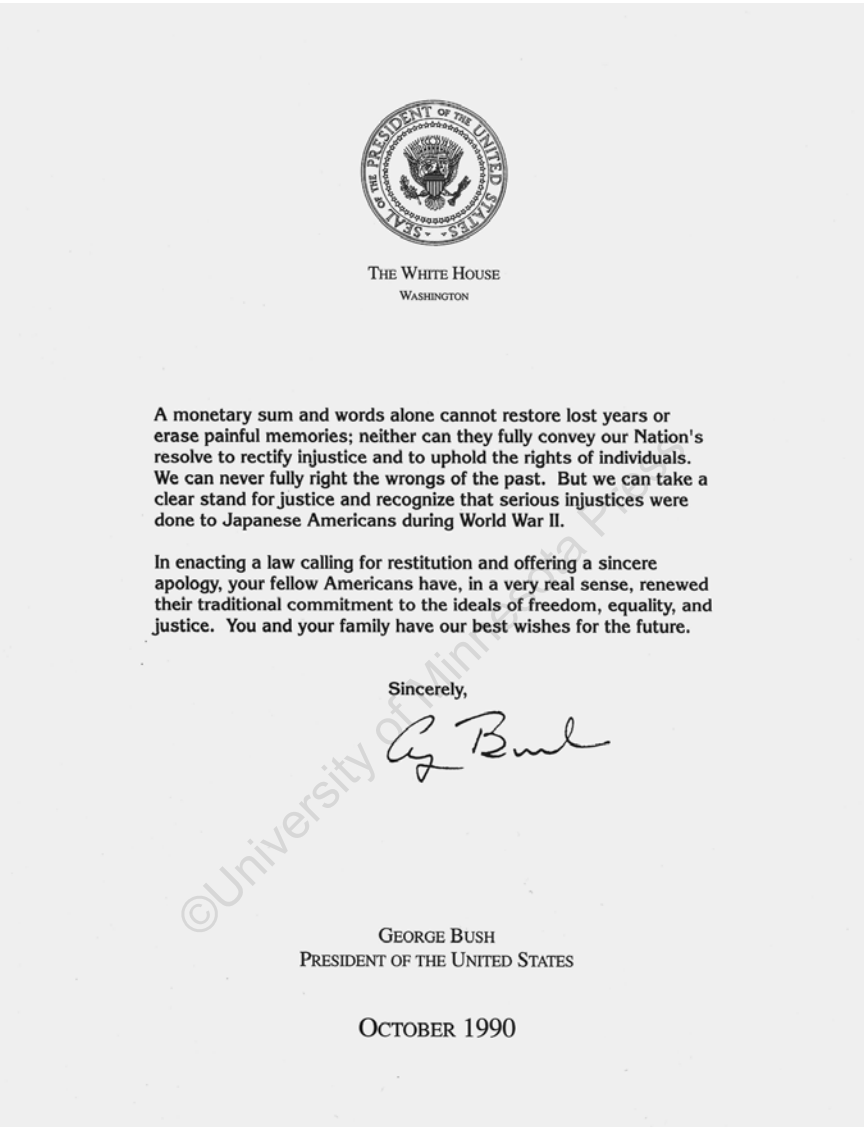
The repayment for that debt owed to all of us must be both psychic and material, both an apologetic public acknowledgment of gaslighting *and* financial compensation. This is different from the

universal basic income or fees paid to users in exchange for their data proposed by libertarian politicians like Andrew Yang, for it must extend into the deeper past.[25]

Digital reparations might also mean abolishing particularly traumatic types of work, or regulating it much more rigorously than we do now. For example, we know that image and text labeling to clean datasets for machine learning at scale might just be a type of work that *nobody* ever ought to do given the extensive data gathered on how traumatic and damaging it can be. Professional basketball players who are healing from injury are restricted from playing for more than a certain number of minutes per game to preserve their ability to perform later: It would not be difficult to research how that might work for content moderation and image tagging. This is all a way to say that we do not know what those who are doing it now most want as reparations. This is both a research question that is ripe for further exploration and a central piece of the ongoing struggle for dignified work.

The Densho Project describes the Japanese American redress movement as an effort "to obtain the restitution of civil rights, an apology, and/or monetary compensation from the U.S. government during the six decades that followed the World War II mass removal and confinement of Japanese Americans."[26] It's the "and/or" in this sentence that gets at the crux of redress culture's paradox. U.S. legal systems often articulate apology and payment as two options that exclude each other: Accepting damages in the form of financial compensation may mean that an apology is not forthcoming and that the recipient agrees to hold the offender harmless. In other cases, receiving an apology may take the place of payment. In effect, the payment *is* the apology, as the history of lawsuits against technology companies to recoup stolen labor shows: AOL never apologized to its CLs or acknowledged their hurt after having been lured into working for free only to be "let go."

I started this book with a personal narrative about my family's experience with internment to explain why I am invested in studying women of color's stolen labor, time, and property in the United States. I did not finish that story. My uncle Koji Shinsako was a child when he was interned in the Amache Camp. When decades later he received his typewritten letter of apology for internment from President George H. W. Bush, he paper-clipped it to a different letter. I found the two documents bound together in the drawer of



THE WHITE HOUSE
WASHINGTON

A monetary sum and words alone cannot restore lost years or erase painful memories; neither can they fully convey our Nation's resolve to rectify injustice and to uphold the rights of individuals. We can never fully right the wrongs of the past. But we can take a clear stand for justice and recognize that serious injustices were done to Japanese Americans during World War II.

In enacting a law calling for restitution and offering a sincere apology, your fellow Americans have, in a very real sense, renewed their traditional commitment to the ideals of freedom, equality, and justice. You and your family have our best wishes for the future.

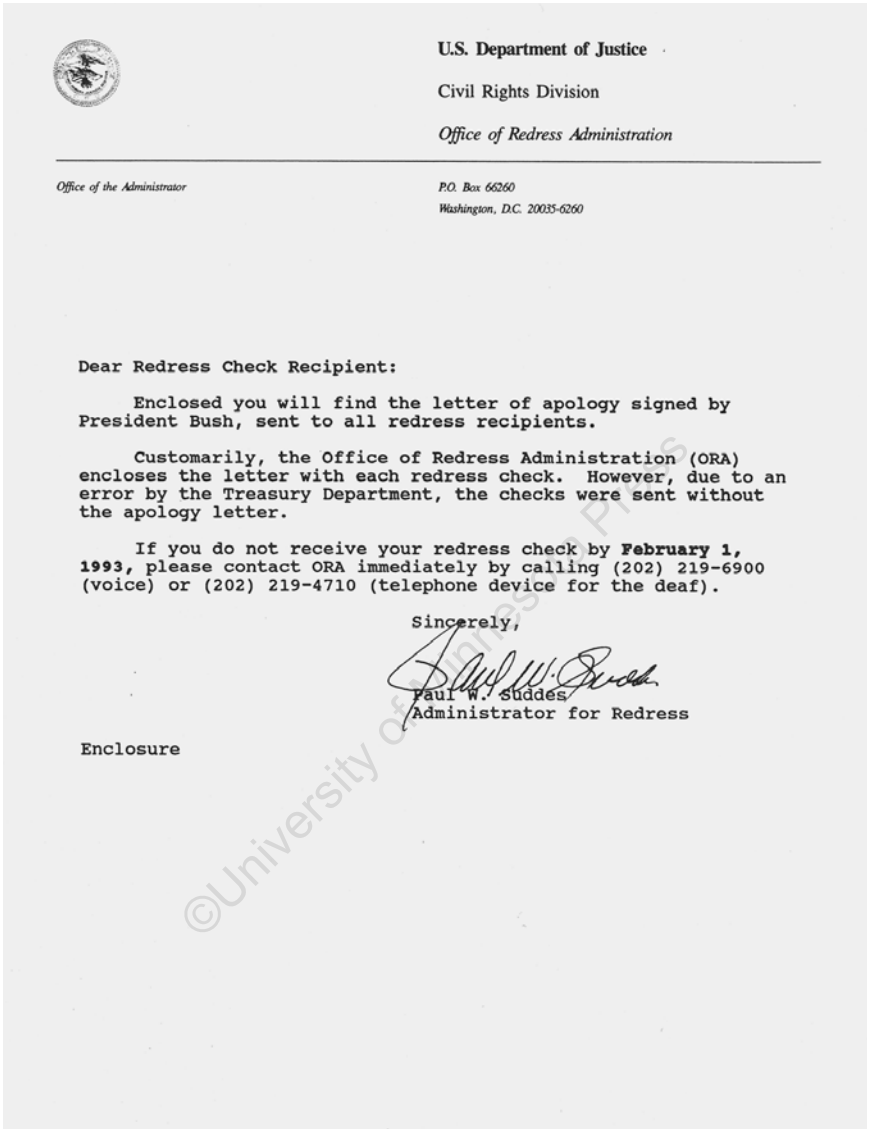
Sincerely,

GEORGE BUSH
PRESIDENT OF THE UNITED STATES

OCTOBER 1990

Figure 12. Letter from President Bush.

the family *butsudan,* a wooden box containing the family's Buddhist altar and his mother's ashes, after his death in 2020, at the height of the Covid pandemic. While the first letter dated October 1990 and signed by George H. W. Bush bears the ornate, colorful crest of the



U.S. Department of Justice

Civil Rights Division

Office of Redress Administration

Office of the Administrator

P.O. Box 66260
Washington, D.C. 20035-6260

Dear Redress Check Recipient:

Enclosed you will find the letter of apology signed by President Bush, sent to all redress recipients.

Customarily, the Office of Redress Administration (ORA) encloses the letter with each redress check. However, due to an error by the Treasury Department, the checks were sent without the apology letter.

If you do not receive your redress check by **February 1, 1993**, please contact ORA immediately by calling (202) 219-6900 (voice) or (202) 219-4710 (telephone device for the deaf).

Sincerely,

Paul W. Suddes
Administrator for Redress

Enclosure

Figure 13. Letter from DOJ.

Office of the President of the United States, the second is printed on plain, cheap paper in Courier with a very small black-and-white U.S. Department of Justice medallion depicting an eagle. While the apology letter is addressed to no one, the DOJ letter from the Civil

Rights Division, Office of Redress Administration bears the salutation "Dear Redress Check Recipient." This letter says that "customarily, the Office of Redress Administration (ORA) encloses the letter with each redress check. However, due to an error by the Treasury Department, the checks were sent without the apology letter. If you do not receive your redress check by February 1, 1993, please contact ORA immediately."

Redress was a bureaucratically glitchy process that decoupled its wishes for "the best for your family" from the resources that might have helped them feel it.

The letter and the check need to arrive *together,* for one has less meaning without the other. As the Densho archive writes, "We have to admit that something happened before rights can be restored. We have to restore rights before an apology has any meaning."[27] Sociological researchers who analyzed internment records based on camp placement found that race-based incarceration had lasting effects on families: Those whose camps were located in poor regions, such as Rohwer, Arkansas, ended up poorer after camp than those located in richer areas, such as the Gila River camp near Tucson, Arizona. Camp Granada, where my uncle and my mother's family were imprisoned for three years, was among the poorest, and these effects followed the Shinsakos for the rest of their lives.[28] The project of AI that many historians trace back to the 1956 Summer Research Project on Artificial Intelligence held at Dartmouth, developed in the context of what Pasquinelli calls "reductionism," or the mathematical reduction of human bodies, culture, and thought to numbers.[29] Certain aspects of humanity must be left out or go unrepresented in both the creation and the performance of platform work, an act that both models the inattention economy and perpetuates it. As Atanasoski and Vora write, techno-liberalism can only exist if it is able to keep workers "behind the curtain of *enchanted* technologies," under the waterline of what is called "labor."[30] Acknowledging and caring for the bodies that this curtain obscures and pushing back against the inattention economy is not just a demand for visibility; it is also a demand for the material redistribution that has always been a woman of color feminist project. Disenchantment is a hard feeling, but it is necessary for us all to hold the space for another kind of technological world that might yet be born.

Acknowledgments

This book is about the inattention paid to the women of color who built and sustained the digital infrastructure for which others are given credit. I argue that it can be most difficult to see the webs of energy and care that create the structures we take advantage of every day because they are taken for granted and are provided by people who we expect to do this work. In acknowledging the many people who supported this work and me, I hope to make my scholarly infrastructure visible.

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I have been blessed to have so many mentors at the University of Michigan and elsewhere. Alexandra Stern, Sidonie Smith, Anne Curzan, and Greg Dowd always made me feel like I had something to contribute. Greg, the chair of American Culture when I was hired, went on to guide me through the fire of program develop-

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I never thought that I would belong to a lab since the humanities didn't seem to offer that option, but due to the efforts of Sara Blair, Vice Provost for Research at the University of Michigan, Maria Cecire at the Mellon Foundation, and Jennifer Eshelman, former chief administrator of the Digital Studies Institute, I have received the most generous support to convene them. The Humanities Collaboratory at the University of Michigan awarded the Precarity Lab three years of funding that built a critical intellectual foundation to think together about the relationship between digital infrastructure, region, the thick humanities (a baller move devised by Silvia Lindtner), and affect. The whole team, but particularly Silvia and Anna Watkins Fisher, pushed our proposal over the finish

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The first lab I ever had anything to do with was purely because Miriam Sweeney, Safiya Noble, and Sarah Roberts wanted to create a space where we could talk about race, gender, power, and the digital at the University of Illinois Champaign Urbana in the mid-2000s: a particularly difficult time to be a person critical of the internet. So much of what is here started there. I am grateful for every conversation that we had.

My colleagues in the American Culture Department, the Asian American and Pacific Islander Studies program, and the Digital Studies Institute are my everyday life, and I am grateful for every one of them, in particular John Cheney-Lippold, Ellie Abrons, Victor Mendoza, Ian Shin, Manan Desai, Anthony Mora, Charlotte Karem-Albrecht, William Calvo-Quiros, Amy Stillman, Susan Najita, Melissa Borja, Retika Adhikari, Umayyah Cable, Kristin Hass, and others. My Hygge colleagues Oliver Haimson, Nicole Ellison, Patricia Garcia, Silvia Lindtner, Nazanin Andalibi, Sarita Yardi, Cara Wallis, and Megan Ankerson are cutting-edge digital

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If you are lucky, you might meet a person like Grace Hong in your time on this earth. I honestly don't know what I did to deserve a friend like her. She always finds a way to see the best in me even when it truly isn't there. As an oldest child I don't have a biological older sister. Instead I have Grace.

Thank you to my brother David Nakamura, who always sent the best presents and the best music.

To the memories of my grandmothers, Misao Shinsako and Nellie Nakamura, and my uncles Koji Shinsako, Joe Shinsako, and George Nakamura.

My sister Judy Nakamura and her partner Scott Van Woudenberg have always been there for me in ways that nobody should ever have to. So many of my best and worst moments have been with Judy. Even though we may go weeks at a time communicating solely by sharing TikTok videos, I know from experience that if I need her she will somehow manage to arrive within five hours no matter where she or I are.

And to Christian Sandvig, who always believed that I could write this and supported me during the many years it took to do it.

All proceeds from this book will be donated to the Shiprock Chapter House.

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Notes

Introduction

1. Miceli et al., "Between Subjectivity and Imposition."
2. Sweeney and Villa-Nicholas, "Digitizing the 'Ideal' Latina Information Worker."
3. Phan, "The Materiality of the Digital and the Gendered Voice of Siri."
4. Crawford, *Atlas of AI.*
5. Miceli et al., "Between Subjectivity and Imposition."
6. Margonelli, "Inside AOL's 'Cyber-Sweatshop.'"
7. Terranova, "Free Labor."
8. Postigo, "Emerging Sources of Labor on the Internet."
9. Davenport and Beck, *The Attention Economy;* Wu, *The Attention Merchants.*
10. Taylor, "The Automation Charade."
11. Lewis, "Headed for Technofascism."
12. Taylor, "The Automation Charade."
13. Law, "Bell Labs and the 'Neural' Network, 1986–1996."
14. Srnicek, *Platform Capitalism.*
15. Robinson, *Black Marxism.*
16. Cottom, "Where Platform Capitalism and Racial Capitalism Meet."
17. Hu, *A Prehistory of the Cloud.*
18. Franklin, *The Digitally Disposed;* Beller, *The World Computer.*
19. Atanasoski and Vora, *Surrogate Humanity,* 9.
20. Atanasoski and Vora, 4.
21. Mbembe, "Futures of Life and Futures of Reason."
22. See Jones-Imhotep, "The Ghost Factories"; Roberts, "Your AI Is a Human."
23. He, "Gaming Blockchain and the Asiatic Forms of Web3."
24. He.
25. Mbembe, "Futures of Life and Futures of Reason."
26. Goldberg, *Are We All Postracial Yet?;* Joseph, *Postracial Resistance.*
27. Wakefield, "People Devote Third of Waking Time to Mobile Apps."
28. Schwab, "We Asked 42 Tech Giants About Their DEI Initiatives."
29. Catalyst, "Women of Color in the United States (Quick Take)."
30. Since 2004, Google has been measuring the frequency of search terms and making the data available in its "Trends" app, which invites you to "explore what the world is searching." Google Trends measures users' interest based on how often terms are searched.
31. Srnicek, *Platform Capitalism;* Zuboff, *The Age of Surveillance Capitalism;* Heang, "Digital Nationalism."
32. Adair and Nakamura, "The Digital Afterlives of *This Bridge Called My Back*."

33. *This Bridge Called My Back,* which went out of print in 2008, was republished twice, in 2015 and as a fortieth-anniversary edition just six years later; efforts to reprint it started around 2011 but were stalled by difficulties obtaining permissions from the authors, many of whom were unreachable.

34. Hayat et al., "Young Women of Color."

35. Taylor, *From #BlackLivesMatter to Black Liberation;* Gray, *Intersectional Tech;* Maragh-Lloyd, *Black Networked Resistance.*

36. Wade, "Loretta Ross on the Phrase 'Women of Color.'"

37. Lorde, *Sister Outsider,* 139.

38. See Shields et al., "Navajo Birth Outcomes in the Shiprock Uranium Mining Area"; Voyles, *Wastelanding.*

39. Noble, *Algorithms of Oppression;* Benjamin, *Race After Technology;* Buolamwini, *Unmasking AI.*

40. Thakur and Madrigal, "An Unrepresentative Democracy," 182.

41. O'Neil, "These Women Tried to Warn Us About AI."

42. Rafael, *White Love and Other Events in Filipino History;* see also Bow, *Racist Love.*

43. Federici, *Revolution at Point Zero,* 92.

44. Nelson, "The Right Way to Regulate AI."

45. Sutherland, *Resurrecting the Black Body;* Bailey, *Misogynoir Transformed;* Sakr, *Arabic Glitch;* Russell, *Glitch Feminism;* Boffone, *Renegades;* Abbate, *Recoding Gender;* Hui Kyong Chun, *Programmed Visions;* Sapigao, *Microchips for Millions.*

46. Green, *Race on the Line;* Ong, *Neoliberalism as Exception;* Hossfeld, "'Their Logic Against Them'"; Partner, *Assembled in Japan.*

47. Cifor et al., "Feminist Data Manifest-No."

48. Fatima et al., "Contested Terrains."

49. See Russell, *Glitch Feminism.*

50. This is by no means unique to the digital: As Nicholas Mirzoeff, Naomi Paik, Simone Browne, Ruth Wilson Gilmore, and others have detailed, racial capitalism works by pressing its subjects into service to build and maintain the barracks, shanties, plantations, and other structures that imprison them.

51. See, for instance, Donna Haraway's "A Manifesto for Cyborgs," in *Simians, Cyborgs, and Women;* and ethnographer Rachael Grossman's "Women's Place in the Integrated Circuit."

52. Day, *Alien Capital.*

53. Kim, "Settler Modernity."

54. Grossman, "Miss Micro."

55. Keller, "Restoring Crow Presence in Northwest Wyoming."

56. Seigel and Nakamura, *My First Hundred Years.*

57. Duveneck, *Life on Two Levels.*

58. Such ads appeared in the Japanese American newspapers *The Pacific Citizen* and *Rafu Shimpo.*

59. Moraga and Anzaldúa, *This Bridge Called My Back,* 22.

60. Chaar López, "Latina/o/e Technoscience."

61. Eschner, "The 'Nobel Prize Sperm Bank' Was Racist"; Thorp, "Shockley Was a Racist and Eugenicist"; see also Glaudell, "The Legacy of William

Shockley." Glaudell argues that Shockley's name ought to be removed from scientific terms formerly associated with him, such as the "Shockley-Queisser Limit" and the "Shockley-Read-Hall Recombination."

62. Paik, *Rightlessness,* 81.

63. Desai, "Opinion: I Study Financial Markets."

64. Singh, *Race and America's Long War,* 109.

65. Pearson, "Work Without Labor"; see also Harrison, *Growing a Global Village.*

66. Native-born Japanese, or Isseis' bank accounts were frozen before the war, therefore most of them were unable to relocate from the West Coast to states where internment was not enforced. Avoiding internment also required that a family have a white patron. Similarly, as survey researchers at Amache found, many older internees were reluctant to leave the camp after the war was over because of fears of the racism awaiting them at home on the West Coast and the conviction that they did not have the energy to start over. A surprisingly large minority of respondents said that they wanted to stay in the camp "indefinitely" rather than face moving again, possibly to a worse camp.

67. Nakamura, "Indigenous Circuits."

68. Eng and Han, *Racial Melancholia, Racial Dissociation.*

69. Goldhaber, "The Attention Economy and the Net."

70. DISCO Network, *Technoskepticism.*

71. Taylor, "The Automation Charade."

1. Indigenous Circuits

1. See Partner, *Assembled in Japan,* 208, for an account of young Japanese women's essential contributions to the growth of the electronics industry in the 1950s and '60s. He writes that "at the heart of Japanese mass production of transistors—and, in large companies, transistor radios—stood a cadre of young girls, many of them teenagers, who were paid extremely modest wages to sit for long hours in front of microscopes assembling components with pairs of tweezers. They, more than any other factor, spurred Japanese companies' sudden rise to global dominance in the transistor radio industry."

2. Cottom, "Where Platform Capitalism and Racial Capitalism Meet," 444.

3. Kyle Whyte defines settler-industrial campaigns as implemented by "global waves of settlers, such as those forming the U.S. or Canadian nations, who continue to deploy strategic tools and weapons to establish permanent roots in Indigenous territories with the hopes of inscribing homelands for themselves in those territories." He writes that "as a means of carving out settler homelands from Indigenous homelands, waves of settlers harnessed industrial means, from military technologies to large-scale mineral and fossil fuel extraction operations to sweeping landscape-transforming regimes of commodity agriculture." See Whyte, "Indigenous Food Systems."

4. "Fairchild Camera & Industry Corporation (FC&I) and Navajo Tribe."

Computer History Museum, 1968–70. https://www.computerhistory.org/collections/catalog/102722325/.

5. Quoted in Partner, *Assembled in Japan,* 208.

6. Chaar López, "Latina/o/e Technoscience"; see also Simpson, *An Absent Presence.*

7. Quoted in Grossman, "Women's Place in the Integrated Circuit."

8. Cowie, *Capital Moves.*

9. Hossfeld, "'Their Logic Against Them.'"

10. Byrd, *The Transit of Empire,* xx; see also Duarte, *Network Sovereignty.*

11. Charlie Sporck, Interview with Charlie Sporck, February 21, 2000, Department of Special Collections and University Archives, Stanford University, https://exhibits.stanford.edu/silicongenesis/catalog/fj299ww8737.

12. As Byrd writes, "The U.S. has used executive, legislative, and juridical means to make 'Indian' those peoples and nations who stand in the way of U.S. military and economic desires." Byrd, *The Transit of Empire,* xx. For a more personal account of how this women of color's work was enabled by the exploitation of former overseas colonies that stood in the way of U.S. expansion, see Janice Lobo Sapigao's 2016 *Microchips for Millions.* This creative work represents the author's mother's experience as an Asian immigrant woman laboring to make chips under dangerous and unhealthy conditions in Silicon Valley.

13. "Fairchild Camera & Industry Corporation (FC&I) and Navajo Tribe."

14. 12th Annual Navajo Education Conference, December 1969, UNM Center for Southwest Research & Special Collections, https://nmarchives.unm.edu/repositories/22/archival_objects/169996. Failure rates for these components was typically much higher: in the twentieth percentile or more.

15. Byrd, *The Transit of Empire,* 229.

16. Duarte, *Network Sovereignty,* 18; see also Searle and Kafai, "Culturally Responsive Making with American Indian Girls."

17. Terranova, *Network Culture.*

18. The production of computer components such as rope memory by white women or "ladies" was also gendered as "craft" by male engineers during this period. As Rosner and colleagues write, "During the early 1960s, female line workers (the 'Little Old Ladies,' as engineers called them) assembled the AGC code by hand in Waltham, Massachusetts." See Rosner et al., "Making Core Memory"; see also Rankin, "Core Memory Weavers and Navajo Women."

19. Some workers heard advertisements stating that Fairchild was hiring Navajo workers while listening to local radio. Though the jobs were advertised only to Navajo, word of these jobs spread through local networks, and members of other tribes such as the Zuni moved to Shiprock to work at the Fairchild plant.

20. Cowie, *Capital Moves,* 17.

21. Jarrett, "The Relevance of 'Women's Work.'"

22. Cassidy, "What Went Wrong at Shiprock."

23. Sporck, Interview with Charlie Sporck.

24. Fairchild manufactured the first cartridge-based video game system, the Channel F, which was released in 1976.

25. "Fairchild Camera & Industry Corporation (FC&I) and Navajo Tribe."
26. Sporck, Interview with Charlie Sporck.
27. 12th Annual Navajo Education Conference.
28. "Fairchild Camera & Industry Corporation (FC&I) and Navajo Tribe."
29. Cassidy, "What Went Wrong at Shiprock."
30. The Fairchild factory is still one of the largest buildings in Shiprock, and when I visited it in 2016 it was still there, abandoned and empty.
31. Inbound Logistics, "What Is Insourcing?"
32. O'Neill, *Working the Navajo Way,* 235.
33. Raymond Nakai, "Fairchild Dedication."
34. Deloria, *Indians in Unexpected Places.*
35. The BIA supported the relocation of Natives to urban areas to learn manufacturing trade skills as early as the 1950s. Though some remained in the large cities and raised their families there, those who returned home often could not find jobs in the technical trades they had learned. See Al Henderson, "Email Interview with Al Henderson," October 8, 2011. In 1965 IBM opened a school at Fort Rodman to train primarily Black high school dropouts for work in the technology sector. This effort to diversify the industry by training young Black men for technical work forced them to move away from their communities as Indigenous people were and likewise assumed that their cultural inferiority was the obstacle to employment. As McIlwain notes, assumptions that Black people were "broken and needed fixing" tainted corporate-led affirmative action efforts. See McIlwain, "The Fort Rodman Experiment"; see also Senese, *Self-Determination and the Social Education of Native Americans.*
36. Iverson, *The Navajo Nation,* 273.
37. As Greg Harrison, a Fairchild Semiconductor employee, recalls, "sizable labor subsidies were available from the Bureau of Indian Affairs" and "the Native Americans on the reservations were badly in need of jobs and skills." See *Chip Scale Review,* "National Semiconductors."
38. Jim Tutt, personal communication with author, November 2011.
39. In a draft of a speech to be given at the 1970 Fairchild board of directors meeting, Nakai praised the board for taking a chance on the "Navajo workman" and wrote that he was "extremely pleased that your organization has decided to locate your machine tool division here at Shiprock employing additional Navajos, chiefly male. That you have made this decision enforces our belief that it is highly desirable to utilize the talents of the Navajo workman." Nakai, "Remarks to Be Made."
40. *Businessweek,* "Industry Invades the Reservation."
41. Senese, *Self-Determination and the Social Education of Native Americans,* 218.
42. For an excellent account of the relation between the space program and the nascent software industry, see Mindell, *Digital Apollo,* 359. As Mindell writes, "At Fairchild, one manager reported, 'Apollo really taught us a lot about reliability,' because workers had to account for every single circuit failure. The company eventually developed separate production lines for Apollo, with workers selected for high motivation and attention to detail."
43. "Shiprock Dedication Commemorative Brochure."

44. "Shiprock Dedication Commemorative Brochure."
45. "Shiprock Dedication Commemorative Brochure."
46. For an extensive discussion of how the "dominant settler ideology of romantic anticapitalism . . . triangulates indigenous, alien, and settler positions," see Day, *Alien Capital.*
47. "Shiprock Dedication Commemorative Brochure."
48. Krech, *The Ecological Indian,* 318.
49. Turner, *From Counterculture to Cyberculture,* 327; Smith, *Hippies, Indians, and the Fight for Red Power,* 265.
50. Florida, *The Rise of the Creative Class.*
51. Smith et al., *Challenging the Chip,* 357.
52. A 1970 study of the correlation between birth defects and radiation, specifically from uranium mining among Shiprock Navajo workers, found that the "association between adverse pregnancy outcome and exposure to radiation were weak," but that "birth defects increased significantly when either parent worked in the Shiprock electronics assembly plant." Similar correlations were found at other assembly plants in California and elsewhere. Shields et al., "Navajo Birth Outcomes in the Shiprock Uranium Mining Area."
53. *Businessweek,* "Industry Invades the Reservation."
54. "Shiprock Dedication Commemorative Brochure."
55. "Shiprock Dedication Commemorative Brochure."
56. Rana, "Fulfilling Technology's Promise," 272.
57. Chaar López, "Latina/o/e Technoscience."
58. *Weaving Worlds* (Trickster Films, 2008). The women who worked at Fairchild still weave rugs today; none of the women I spoke to compared the practice to their work soldering and bonding on the assembly line.
59. Haas, "Wampum as Hypertext"; Denetdale, *Reclaiming Diné History.*
60. Donna Haraway's foundational cyberfeminist essay "A Cyborg Manifesto" is followed by an evocative subtitle: "An Ironic Dream of a Common Language for Women in the Integrated Circuit." She writes, "The nimble fingers of 'Oriental' women, the old fascination of little Anglo-Saxon Victorian girls with doll's houses, women's enforced attention to the small take on quite new dimensions in this world. There might be a cyborg Alice taking account of these new dimensions. Ironically, it might be the un- natural cyborg women making chips in Asia and spiral dancing in Santa Rita jail whose constructed unities will guide effective oppositional strategies." In this passage Haraway draws our attention to the irony that some must labor invisibly for others of us to feel, if not actually be, free and empowered through technology use.
61. Plant, *Zeros + Ones,* 61.
62. Bureau of Indian Affairs, "Industries Turn to Indians for Precision Workers."
63. "Shiprock Dedication Commemorative Brochure."
64. Sporck attributes the rise of Silicon Valley industry and by extension computing culture to a successful resistance to unions—this attitude informed the Californian ideology, which depended on "sweat equity" or

a radically entrepreneurial stance toward both labor and capital. For a description of how this logic informed the technology industries in the late twentieth century, see Neff, *Venture Labor.*

65. Jim Tutt, personal communication with author.
66. Duarte, *Network Sovereignty,* 88.
67. Deloria, *Indians in Unexpected Places,* 4.
68. Montfort and Bogost, *Racing the Beam,* 2–3; italics mine.
69. Parks, "Things You Can Kick."
70. Rosner et al., "Making Core Memory," 2.
71. Friedman, *Electric Dreams,* x, 275.
72. See Qiu, *Working-Class Network Society.*
73. Mirzoeff, *The Right to Look.*
74. Shiriff, "The Pentium as a Navajo Weaving"; Mothes, "Marilou Schultz Weaves Computer Processor Patterns in Traditional Navajo Tapestries."
75. Muro and Maxim, "The Chip Shortage Won't Be Fixed Without Major Federal Investment."
76. Cohen and Richmond, "New Histories of Computational Personhood."

2. The Queen of Myspace

1. Garrahan, "The Rise and Fall of MySpace." In 2010, MySpace changed its logo to eliminate the capital "S" in its name; therefore, references to the site prior to this date use the older format. The current name of the company is Myspace.
2. Naughton, "Doing Business."
3. Grossman, "Power to the People."
4. Trebay, "She's Famous (and So Can You)."
5. Lê Espiritu, *Body Counts,* 124.
6. Ejanda, "Myspace Designer."
7. This industry is still largely free from governmental oversight, and the category of "creator" does not appear in its federal labor statistics. See Harwell and Lorenz, "Millions Work as Content Creators."
8. Langdon, "Gen Z."
9. Tequila and Tomlinson, *Hooking up with Tila Tequila.*
10. Duffy et al., "The Nested Precarities."
11. Lorenz, *Extremely Online,* 37.
12. See Marwick, "To Catch a Predator?," for discussion of the site's undeserved reputation as a site that encouraged underage users to connect with predators. Though, as she described, "it is usual to see scantily clad self–portraits of teenagers displayed on profile pages; both genders engage in explicit, candid discussions on MySpace that often include drug or sexual references," she argues that it did not pose the dangers to children that the media claimed.
13. Lê Espiritu, *Body Counts,* 11.
14. Lee, *The Exquisite Corpse of Asian America,* 20.
15. See Boffone, *Renegades;* and Pruitt-Young, "Black TikTok Creators Are on Strike."
16. Roberts, *Behind the Screen.*

17. Tadiar, *Remaindered Life,* 58–59.
18. Lorenz, *Extremely Online,* 35.
19. See Adair, "The Transgender Internet (Forthcoming)"; and Dame-Griff, *The Two Revolutions.*
20. Nguyen, *The Gift of Freedom,* 57.
21. Nguyen, 143.
22. Lê Espiritu, *Body Counts,* 164.
23. Cheng, *Ornamentalism,* 99.
24. Lupton, *The Quantified Self.*
25. The term "friend" and the technology that enabled users to connect to other users on social networks was first created by Ben Sun, the entrepreneur who created AsianAvenue.com. This was later picked up by other racial identity networks like BlackPlanet and MiGente and has since become one of the basic features of the social media profile.
26. Huang, *Surface Relations;* Ninh, *Passing for Perfect.*
27. Cheng, *Ornamentalism,* 98.
28. Srnicek, *Platform Capitalism;* Zuboff, *The Age of Surveillance Capitalism;* Atanasoski and Vora, *Surrogate Humanity.*
29. Tequila and Tomlinson, *Hooking up with Tila Tequila.*
30. Eventually Tila hired workers to maintain the site and design graphics for it: Uncredited collaborator designer Clare Ejanda writes about her work creating templates that other users could download to decorate their pages, as well as her work manually readding deleted friends.
31. Ejanda, "Myspace Designer."
32. See Partner, *Assembled in Japan.*
33. Sandoval, "Foxconned Labour."
34. Quoted in Huang, "Whither Asian American Lesbian Feminist Thought?"
35. Stone, "MySpace Restrictions Upset Some Users."
36. Swash and MacInnes, "Hey You, Get out of My Space." In February 2005, Facebook founder and CEO Mark Zuckerberg attempted to sell Facebook to Myspace: CEO Chris DeWolfe rejected his offer. Google agreed to pay Myspace $900 million over three years for the rights to provide its search results and sponsored links because their internal metrics pointed to Myspace as the site with the most growth.
37. Lorenz, *Extremely Online.*
38. This is a very different and much more profitable arrangement for creators than contemporary music distribution platforms such as Spotify, which pay rights holders rather than artists for the use of music. Artists' profit shares continue to decline steeply and the platform consolidates its monopoly: "In 2018, Spotify paid an average of $0.00540 per stream (just over half a cent), which went down to $0.00370 in 2019, then to $0.00307 (under a third of a cent) in 2020, a decline of 43% over two years." See UMAW, "Summary of UN Report on Streaming."
39. Lindemann, *True Story.*
40. See Brock, *Distributed Blackness;* and Knight Steele, *Digital Black Feminism,* for more detailed historical analyses describing the transition to social media monetization for Black creators.

41. Tequila claimed credit for the legalization of gay marriage and was ridiculed for it by many media outlets. See Pentler, "Tila Tequila."
42. Poell et al., *Platforms and Cultural Production,* 5.
43. Grossman, "Tila Tequila."
44. Paul, "'It Let White Supremacists Organize.'"
45. "AOL Sued over Hate Speech in Chat Rooms."
46. Kim, "Settler Modernity."
47. Belew, *Bring the War Home,* 41.
48. Belew, 52.
49. Harkinson, "Meet the White Nationalist."
50. Tequila and Tomlinson, *Hooking up with Tila Tequila.*
51. Disgrasian, "Tila Tequila's Alter Ego 'Jane.'"
52. Lopez, "Asian America Gone Viral," 157–69.
53. Tequila and Tomlinson, *Hooking up with Tila Tequila.*
54. McNeil, *Lurking.*
55. Mbembe, "The Society of Enmity."
56. Lipman, *In Camps.*
57. While Malaysia received the most refugees from Vietnam, Singapore received 32,457, the least of the six Southeast Asian countries that accepted them. See Lê Espiritu, *Body Counts.*
58. Descalsota, "'Heaven on Earth'"; Yong, "Refugee Camp in Singapore"; Remember Singapore, "A Forgotten Past."
59. Mathews, "A Silicon Island of the East."
60. Tang, *Unsettled,* 13.
61. Tang, 14.
62. boyd, "White Flight in Networked Publics?," 220.
63. Lingel, *An Internet for the People.*
64. Brock, *Distributed Blackness,* 128.
65. Brock, 129.
66. Brock, 130.
67. "Memory Is the Amnesia You Like," the heading for this section, is a quotation from Berlant and Warner, "Sex in Public."
68. Eng and Han, *Racial Melancholia, Racial Dissociation,* 102.
69. Suhr, "Raising Popularity Through Social Media"; Richter, "Ambiguous Bisexuality."
70. Eng and Han, *Racial Melancholia, Racial Dissociation,* 4.
71. Steiger et al., "The Psychological Well-Being of Content Moderators."
72. Marte-Wood and Santos, "Circuits of Care."
73. Bartkowski, "Caring for the Internet."
74. McNeil, *Lurking.*
75. Tequila is absent from Tim Wu's chapter on MySpace, for instance. See Wu, *The Attention Merchants.*
76. Angwin, *Stealing MySpace.*
77. Yang et al., *Rise.*
78. Digital media scholar Lori Lopez and Asian Americanist Ju Yon Kim do the reparative historical work of documenting key early Asian American content creators like Vietnamese refugee Michelle Pham—the "queen" of

the makeup tutorial, which would become a dominant genre on TikTok and other short video platforms—and early vloggers and comic web series creators like Ryan Higa (NigaHiga) and Kevin Wu (KevJumba).

79. Berlant and Warner, "Sex in Public," 549.

80. Interestingly, Tila's fan club was militarized, at least rhetorically, and was called "Tila's ARMY," predating the Korean supergroup BTS's ARMY fanclub by several years.

81. Tila was a rare and precious point of identification for queer and trans viewers in the 2000s: I was surprised at how many of my queer and trans friends and colleagues were, like Todd, faithful viewers of *A Shot at Love* because it represented queer people as sexual beings in public. Anecdotes abound by millennial viewers who say that they learned from watching this show that they were gay.

82. Rabin, "When Juggalos Attack."

83. Tom Green continued to defend her in the press, saying, "In all seriousness, it was too bad that that happened to Tila Tequila, because up until the moment that happened, I had been having a great time." See Dodero, "Interview."

84. Watercutter, "Here's What Happened."

85. Hern, "Myspace Loses All Content Uploaded Before 2016."

86. Setoodeh, "TV."

87. Lê Espiritu, *Body Counts,* 3.

88. Johnson, "Markup Bodies."

89. Hartman, "An Unnamed Girl."

90. Hartman, *Wayward Lives, Beautiful Experiments,* xv.

91. Lê Espiritu, *Body Counts,* 142.

92. Brock, *Distributed Blackness.*

93. Berlant and Warner, "Sex in Public," 557.

94. Norris, "Everyone Loves Tila."

95. Huang, "Whither Asian American Lesbian Feminist Thought?"

96. Marte-Wood and Santos, "Circuits of Care."

3. The Toxic Embodiments of Artificial Diversity

1. Federal Trade Commission, "FTC Seeks to Block Virtual Reality Giant."
2. Khorram, "Meta's Reality Check."
3. Khan, "Personalized GPTs Are Here."
4. Stein, "Meta Completes Acquisition."
5. Parisi, *Archaeologies of Touch.*
6. Springer, "The Design of the Everyday Diversity Industrial Complex."
7. Berlant, *Compassion,* 3.
8. See also Baker, *Humane Insight.*
9. Baker-White, "'This Is Blackface.'"
10. See Sutherland, *Resurrecting the Black Body,* on the exploitation of virtual Black bodies, such as Tupac Shakur's, in VR as a form of contemporary slavery and labor extraction.
11. McMahon, "Blending VR with Live Actors."
12. Mursion, "Virtual Reality Diversity and Inclusion Training."

13. For a more detailed analysis of racist Zoombombing, see Nakamura et al., *Racist Zoombombing.*

14. Morrison, *Playing in the Dark.*

15. Siapera and Viejo-Otero, "Governing Hate"; Dwoskin et al., "Facebook's Race-Blind Practices Around Hate Speech."

16. In 2014 Facebook acquired Oculus VR for approximately $2 billion in cash and Facebook common stock. This was a bellwether moment not only because it signaled the integration of social networking and virtual reality, the marrying of visually immersive media with socially addictive networked media, but also because it gave virtual reality a new emotional identity as the technology of empathy. Journalists and industry leaders labeled these new immersive stereoscopic virtual reality platforms "VR 2.0," and every major hardware manufacturer, streaming service, and social media platform either launched or announced the launch of a device or an application involving virtual reality during this period. See Terdiman, "Why 2018 Will Be the Year of VR 2.0."

17. Herrmann and Browning, "Are We in the Metaverse Yet?"; Mac and Frenkel, "Internal Alarm, Public Shrugs."

18. Solon, "Mark Zuckerberg 'Tours' Flooded Puerto Rico."

19. Srnicek, *Platform Capitalism.*

20. Precarity Lab, *Technoprecarious.*

21. Nakamura, *Cybertypes.*

22. Virtual reality titles are usually called "experiences" rather than immersive, navigable videos or films. I call them immersive videos or films to push back against the claim that these are experiences.

23. Writing in 2022, venture capitalist Matthew Ball defines the metaverse as "a persistent and interconnected network of 3D virtual worlds that will eventually serve as the gateway to most online experiences, and also underpin much of the physical world." He cites *Roblox, Minecraft,* and *Fortnite* as prime examples of the metaverse's qualities: These are real-time, live, avatar-driven digital spaces used by millions of people every day. See Ball, *The Metaverse.*

24. The *New York Times* sent out thousands of Cardboard viewers along with the paper version of the newspaper to both entice subscribers to try 360 video at home and to promote a new line of video content that they meant to compete with YouTube and other video channels that had not yet exploited immersive video. They launched this campaign with video of Syrian refugees crossing the ocean in order to identify this "new" medium and hardware with virtue and empathy, implying that the Cardboard viewer would help users feel like they were there in the ocean and truly understood refugee suffering.

25. Takahashi, "Porn and Games."

26. Froyd, "Romain Vak."

27. Pedwell, "Affective (Self-) Transformations."

28. Vincent, "New Google VR Short."

29. Courtney Cogburn discovered that Black users engage very differently with VR depicting Black characters relating stories about racial trauma than

white users do: For them, it is more likely to invoke memories of real-life experiences of racism than to produce empathy for another person's imagined experience (personal interview).

30. McPherson, "Reload."

31. Hartman, "Venus in Two Acts"; Baker, *Humane Insight;* Gaines, *Black for a Day.*

32. Ward, "Black Pain Isn't a Video Game."

33. When I was considering using this title as part of an assignment for an undergraduate course on virtual reality, a nonwhite student worker who was hired to load content onto the Oculus headsets discussed his own experience of the film and recommended that I add a trigger warning. We decided that requiring students to view it even for the purposes of critique was inappropriate, and it was removed from the syllabus altogether. That experience was part of the inspiration for this chapter.

34. Souppouris, "VR."

35. Digital chat rooms and games have offered users exotic racialized and gendered avatars since the early 1990s, and the idea that using them can create racial empathy is called "identity tourism." In *Cybertypes,* I found that users of those platforms during this age of multiculturalism spontaneously perceived what they were doing with diverse avatars as diversity work. These users experienced embodiment as Black, a wheelchair user, or as a young Asian woman as two things: a recreational and temporary way to experience otherness, and as a way to calm their own anxieties about oppression and their own possible roles in it. Since they did not experience oppression in those bodies on that platform, they could draw the conclusion that there was no problem, and if they did experience a problem, it was not traumatic for them. See Nakamura, *Cybertypes.*

36. In 2018 the links to the game were dead and it did not appear in the Oculus store.

37. Meta, "How Black Creators Are Building Toward the Metaverse."

38. Bolter and Grusin, *Remediation.*

39. Panetta, "6x9."

40. Rubin, *Future Presence.*

41. Sun Joo Ahn's experiment immersed subjects in a beautiful virtual redwood forest and asked some to cut the trees down. She observed that those who engaged in the virtual reality title used less paper afterward than those who only read an informative essay about the effects of deforestation. See Bailenson, *Experience on Demand;* Banakou et al., "Virtual Embodiment."

42. Hartman, *Scenes of Subjection,* 20.

43. Mbembe, *Brutalism.*

44. Natasha Schüll's wonderful work on gambling machines inspired this section. See Schüll, *Addiction by Design.*

45. Suchman, "Configuring the Other."

46. Nonny de la Peña has posted short videos of celebrities emerging from VR headsets crying; her clip of actress Gina Rodriguez wiping her eyes after watching *Homeless in L.A.* is a product demo unique to VR.

47. Froyd, "Romain Vak."

48. Terdiman, "Why 2018 Will Be the Year of VR 2.0."
49. Parisi, *Archaeologies of Touch,* 271.
50. Kelly, "1 Year, $3.8 Billion Later."
51. Schwab, "We Asked 42 Tech Giants About Their DEI Initiatives."
52. Rosenmann et al., "SEC Approves NASDAQ's Board Diversity Disclosure Requirements."
53. Jacobs, "The Evolution of the Chief Diversity Officer."
54. Cutter and Weber, "Demand."
55. McMahon, "Blending VR."
56. While the percentage of Black employees at the big five tech companies remained stagnant from 2018 to 2020, these same companies made significant financial commitments to racial equity: In 2020 and 2021 they committed a total of $3.8 billion toward DEI. See Schwab, "We Asked 42 Tech Giants About Their DEI Initiatives."
57. Belamire, "My First Virtual Reality Groping"; Wong, "Sexual Harassment in Virtual Reality."
58. Baker-White, "'This Is Blackface.'"
59. Roberts, *Behind the Screen.*
60. Though metaverse technologies are "still immature and somewhat limited," companies like Walmart and Verizon have used it for educational or training purposes, proving the demand for "enterprise applications." As virtual reality scholar Jeremy Baileson claims, "when [virtual reality] sticks in the workplace, it's going to be because of training." See Abril, "Ask Help Desk."
61. Dinkins's *Secret Garden* can be found at https://www.stephaniedinkins.com/secretgarden.html; see also Cogburn's *1,000 Cut Journey* at: https://cogburnresearchgroup.socialwork.columbia.edu/research-projects/1000-cut-journey.
62. Sweeney, "The Ms. Dewey 'Experience.'"
63. See https://deepai.org/chat/harriet-tubman.
64. Johnson, "Khan Academy."
65. Haraway, *Simians, Cyborgs, and Women.*
66. Brock, *Distributed Blackness.*
67. Knight Steele, *Digital Black Feminism.*
68. Hartman, *Wayward Lives, Beautiful Experiments.*
69. These comments have since been deleted from the store.
70. See Belamire, "My First Virtual Reality Groping."

Conclusion

1. Hu, *Digital Lethargy,* 160.
2. Cohen and Richmond, "New Histories of Computational Personhood," 160. See also Kuo and Bui, "Against Carceral Data Collection."
3. Hui Kyong Chun et al., "'Understanding' Asians."
4. Davis et al., "Algorithmic Reparation."
5. Coleman, *Reality Was Whatever Happened.*
6. For a similar claim about making AI less unfair, see Pasquinelli, *The Eye of the Master.*
7. Nakamura, "The Unwanted Labour of Social Media."

8. @tgirlinterruptd et al., "This Tweet Called My Back."
9. Associated Press, "California Tries to Find 600 Victims of Forced Sterilization for Reparations."
10. Schrader, "Rosewood Remembered."
11. Kaniecki and Minna Stern, "Disrupting the Reproductive Lives of Japanese American Families During Wartime."
12. Schoenebeck et al., "Drawing from Justice Theories."
13. This work is already in process: The Computer History Museum in Mountain View, California, offers most of the images I reproduce here as part of their free and public online archive, and they continue to add more previously undigitized materials from the Shiprock Fairchild factory to their collection.
14. Táíwò, *Reconsidering Reparations.*
15. Mullaney et al., *Your Computer Is on Fire;* Sutherland, *Resurrecting the Black Body.*
16. Epps, "The Child Labor Driving AI Development."
17. Neate, "Ryan Kaji"; Lorenz, "There Are Almost No Legal Protections for the Internet's Child Stars."
18. Fouché, *Black Inventors in the Age of Segregation.*
19. Boffone, *Renegades.*
20. Henry, "E You Later."
21. Hair, "Japanese Americans Won Redress, Fight for Black Reparations." Japanese American support for Black reparations continues to this day: Tsuru for Solidarity, an Asian American civil society organization, organizes activities to close concentration camps in all parts of the United States and to agitate for slavery-based redress.
22. De Greiff, *Handbook of Reparations.*
23. "Gaslight," in *Oxford English Dictionary,* accessed November 27, 2022, https://www.oed.com/viewdictionaryentry/Entry/255554.
24. Amoore, *Cloud Ethics,* 75.
25. Kelly, "Andrew Yang."
26. Yang, "Redress Movement."
27. The Japanese American redress movement asked for an official apology, symbolic payments for those interned, and educational efforts so that the event would not be forgotten. Yet only $5 million of the $50 million earmarked for education were actually spent, and to this day many Americans have no idea that Japanese and Japanese Americans were imprisoned because of their race.
28. Social scientists viewed race-based internment as an ideal experiment to understand the effects of place upon class since all Japanese Americans were interned, rather than just those who had committed crimes, were poor, and so on. See Shoag and Carollo, "The Causal Effect of Place"; see also Chun et al., "'Understanding' Asians," for a longer history of the links between Japanese American incarceration and the development of social media's sentiment analysis.
29. Anderson, "What Is AI? Matteo Pasquinelli."
30. Atanasoski and Vora, *Surrogate Humanity,* 6; italics mine.

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