Design Justice

Community-Led Practices to Build the Worlds We Need

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Introduction: #TravelingWhileTrans, Design Justice, and Escape from the Matrix of Domination

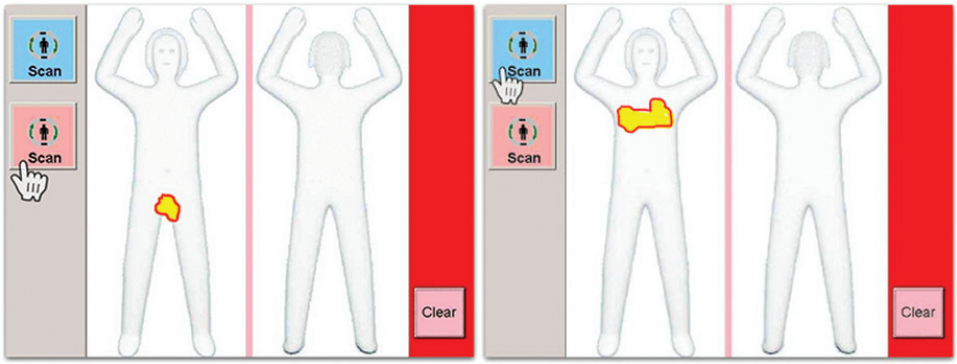

Figure 0.1
"Anomalies" highlighted in millimeter wave scanner interface. *Source:* Costello 2016.

It's June 2017, and I'm standing in the security line at the Detroit Metro Airport. I'm on my way back to Boston from the Allied Media Conference (AMC), a "collaborative laboratory of media-based organizing" that's been held every year in Detroit for the past two decades.[1] At the AMC, over two thousand people—media makers, designers, activists and organizers, software developers, artists, filmmakers, researchers, and all kinds of cultural workers—gather each June to share ideas and strategies for how to create a more just, creative, and collaborative world. As a nonbinary, trans*,[2] femme-presenting person, my time at the AMC was deeply liberating. It's a conference that strives harder than any that I know of to be inclusive of all kinds of people, including queer, trans*, intersex, and gender-non-conforming (QTI/GNC) folks. Although it's far from perfect, and every year inevitably brings new

challenges and difficult conversations about what it means to construct a truly inclusive space, it's a powerful experience. Emerging from nearly a week immersed in this parallel world, I'm tired, but on a deep level, refreshed; my reservoir of belief in the possibility of creating better futures has been replenished.

Yet as I stand in the security line and draw closer to the millimeter wave scanning machine, my stress levels begin to rise. On one hand, I know that my white skin, US citizenship, and institutional affiliation with the Massachusetts Institute of Technology (MIT) place me in a position of relative privilege. I will certainly be spared the most disruptive and harmful possible outcomes of security screening. For example, I don't have to worry that this process will lead to my being placed in a detention center or in deportation proceedings; I won't be hooded and whisked away to Guantanamo Bay or to one of the many other secret prisons that form part of the global infrastructure of the so-called war on terror;[3] most likely, I won't even miss my flight while detained for what security expert Bruce Schneier describes as "security theater."[4] Only once in all of my travels have I been taken aside, placed into a waiting room, and subjected to additional questioning by the Department of Homeland Security (DHS).[5]

On the other hand, my heartbeat speeds up slightly as I near the end of the line, because I know that I'm almost certainly about to experience an embarrassing, uncomfortable, and perhaps humiliating search by a Transportation Security Administration (TSA) officer, after my body is flagged as anomalous by the millimeter wave scanner. I know that this is almost certainly about to happen because of the particular sociotechnical configuration of gender normativity (*cis-normativity*, or the assumption that all people have a gender identity that is consistent with the sex they were assigned at birth) that has been built into the scanner, through the combination of user interface (UI) design, scanning technology, binary-gendered body-shape data constructs, and risk detection algorithms, as well as the socialization, training, and experience of the TSA agents.[6]

A female-presenting TSA agent motions me to step into the millimeter wave scanner. I raise my arms and place my hands in a triangle shape, palms facing forward, above my head. The scanner spins around my body, and then the agent signals for me to step forward out

of the machine and wait with my feet on the pad just past the scanner exit. I glance to the left, where a screen displays an abstracted outline of a human body. As I expected, bright fluorescent yellow pixels on the flat-panel display highlight my groin area (see figure 0.1). You see, when I entered the scanner, the TSA operator on the other side was prompted by the UI to select Male or Female; the button for Male is blue, the button for Female is pink. Since my gender presentation is nonbinary femme, usually the operator selects Female. However, the three-dimensional contours of my body, at millimeter resolution, differ from the statistical norm of female bodies as understood by the data set and risk algorithm designed by the manufacturer of the millimeter wave scanner (and its subcontractors), and as trained by a small army of clickworkers tasked with labeling and classification (as scholars Lilly Irani, Nick Dyer-Witheford, Mary Gray, and Siddharth Suri, among others, remind us).[7] If the agent selects Male, my breasts are large enough, statistically speaking, in comparison to the normative male body-shape construct in the database, to trigger an anomaly warning and a highlight around my chest area. If they select Female, my groin area deviates enough from the statistical female norm to trigger the risk alert. In other words, I can't win. This sociotechnical system is sure to mark me as "risky," and that will trigger an escalation to the next level in the TSA security protocol.

This is, in fact, what happens: I've been flagged. The screen shows a fluorescent yellow highlight around my groin. Next, the agent asks me to step aside, and (as usual) asks for my consent to a physical body search. Typically, once I'm close enough, the agent becomes confused about my gender. This presents a problem, because the next fork in the security protocol is for either a male or female TSA agent to conduct a body search by running their hands across my arms and armpits, chest, hips and legs, and inner thighs. According to TSA policy, "if a pat-down is performed, it will be conducted by an officer of the same gender as you present yourself."[8] As a nonbinary trans* femme, I present a problem not easily resolved by the algorithm of the security protocol. Sometimes, the agent will assume I prefer to be searched by a female agent; sometimes, a male. Occasionally, they ask for my preference. Unfortunately, "neither" is an honest but unacceptable response. Today, I'm particularly unlucky: a nearby male-presenting agent, observing

the interaction, loudly states "I'll do it!" and strides over to me. I say, "Aren't you going to ask me what I prefer?" He pauses, then begins to move toward me again, but the female-presenting agent who is operating the scanner stops him. She asks me what I prefer. Now I'm standing in public, flanked by two TSA agents, with a line of curious travelers watching the whole interaction. Ultimately, the male-presenting agent backs off and the female-presenting agent searches me, making a face as if she's as uncomfortable as I am, and I'm cleared to continue on to my gate.

The point of this story is to provide a small but concrete example from my own daily lived experience of how larger systems—including norms, values, and assumptions—are encoded in and reproduced through the design of sociotechnical systems, or in political theorist Langdon Winner's famous words, how "artifacts have politics."[9] In this case, cis-normativity is enforced at multiple levels of a traveler's interaction with airport security systems. The database, models, and algorithms that assess deviance and risk are all binary and cis-normative. The male/female gender selector UI is binary and cis-normative.[10] The assignment of a male or female TSA agent to perform the additional, more invasive search is cis-normative and binary-gender normative as well. At each stage of this interaction, airport security technology, databases, algorithms, risk assessment, and practices are all designed based on the assumption that there are only two genders, and that gender presentation will conform with so-called biological sex. Anyone whose body doesn't fall within an acceptable range of "deviance" from a normative binary body type is flagged as risky and subjected to a heightened and disproportionate burden of the harms (both small and, potentially, large) of airport security systems and the violence of empire they instantiate. QTI/GNC people are thus disproportionately burdened by the design of millimeter wave scanning technology and the way that technology is used. The system is biased against us. Most cisgender people are unaware of the fact that the millimeter wave scanners operate according to a binary and cis-normative gender construct; most trans* people know, because it directly affects our lives.[11]

These systems are biased against QTI/GNC people, as I've described; against Black women, who frequently experience invasive searches of their hair, as documented by the team of investigative journalists at

ProPublica;[12] and against Sikh men, Muslim women, and others who wear headwraps, as described by sociologist Simone Browne in her brilliant book *Dark Matters*.[13] As Browne discusses, and as Joy Buolamwini, founder of the Algorithmic Justice League, technically demonstrates, gender itself is racialized: humans have trained our machines to categorize faces and bodies as male and female through lenses tinted by the optics of white supremacy.[14] Airport security is also systematically biased against Disabled people, who are more likely to be flagged as risky if they have non-normative body shapes and/or use prostheses, as well as anyone who uses a wearable or implanted medical device. Those who are simultaneously QTI/GNC, Black, Indigenous, people of color (PoC), Muslim, Sikh, immigrant, and/or Disabled[15] are doubly, triply, or multiply burdened by, and face the highest risk of harms from, this system.

I first publicly shared this experience in an essay for the *Journal of Design and Science* that I wrote in response to the "Resisting Reduction" manifesto, a timely call for thoughtful conversation about the limits and possibilities of artificial intelligence (AI).[16] That call resonated very deeply with me because as a nonbinary trans* feminine person, I walk through a world that has in many ways been designed to deny the possibility of my existence. The same cisnormative, racist, and ableist approach that is used to train the models of the millimeter wave scanners is now being used to develop AI in nearly every domain. From my standpoint, I worry that the current path of AI development will reproduce systems that erase those of us on the margins, whether intentionally or not, through the mundane and relentless repetition of reductive norms structured by the *matrix of domination* (a concept we'll return to later), in a thousand daily interactions with AI systems that, increasingly, weave the very fabric of our lives. My concerns about how the design of AI reproduces structural inequality extend more broadly to all areas of design, and these concerns are shared by a growing community.

The Design Justice Network

Design justice is not a term I created; rather, it emerged from a community of practice whose work I hope this book will lift up, extend, and support. This community is made up of design practitioners who

participate in and work with social movements and community-based organizations (CBOs) across the United States and around the world. It includes designers, developers, technologists, journalists, community organizers, activists, researchers, and others, many of them loosely affiliated with the Design Justice Network (http://designjusticenetwork.org). The Design Justice Network was born at the AMC in the summer of 2015, when a group of thirty designers, artists, technologists, and community organizers took part in the workshop "Generating Shared Principles for Design Justice."[17] This workshop was planned by Una Lee, Jenny Lee, and Melissa Moore, and presented by Una Lee and Wesley Taylor. It was inspired by the Allied Media Projects (AMP) network principles, the Detroit Digital Justice Coalition (DDJC) digital justice principles, and the pedagogy of Detroit Future Youth. The goal of the workshop was to move beyond the frames of *social impact design* or *design for good*, to challenge designers to think about how good intentions are not necessarily enough to ensure that design processes and practices become tools for liberation, and to develop principles that might help design practitioners avoid the (often unwitting) reproduction of existing inequalities.[18] The draft principles developed at that workshop were refined by the Design Justice Network coordinators over the next year, revised at the AMC in 2017, and then, in 2018, released in the following form:

Design Justice Network Principles

This is a living document.

Design mediates so much of our realities and has tremendous impact on our lives, yet very few of us participate in design processes. In particular, the people who are most adversely affected by design decisions—about visual culture, new technologies, the planning of our communities, or the structure of our political and economic systems—tend to have the least influence on those decisions and how they are made.

Design justice rethinks design processes, centers people who are normally marginalized by design, and uses collaborative, creative practices to address the deepest challenges our communities face.

1. We use design to **sustain**, **heal**, **and empower** our communities, as well as to seek liberation from exploitative and oppressive systems.
2. We **center the voices of those who are directly impacted** by the outcomes of the design process.
3. We **prioritize design's impact on the community** over the intentions of the designer.

4. We view **change as emergent from an accountable, accessible, and collaborative process**, rather than as a point at the end of a process.
5. We see the role of the **designer as a facilitator rather than an expert.**
6. We believe that **everyone is an expert based on their own lived experience**, and that we all have unique and brilliant contributions to bring to a design process.
7. We **share design knowledge and tools** with our communities.
8. We work towards **sustainable, community-led and controlled** outcomes.
9. We work towards **non-exploitative solutions** that reconnect us to the earth and to each other.
10. Before seeking new design solutions, **we look for what is already working** at the community level. We honor and uplift traditional, indigenous, and local knowledge and practices.[19]

These principles have now been adopted by over three hundred people and organizations. The Design Justice Network has grown, nurtured by many; besides dozens of track coordinators (many named in this book's acknowledgments) and workshop facilitators, ongoing steering committee members include designers Una Lee, Victoria Barnett, Wesley Taylor, and myself.[20] The network produces a series of zines that provide an evolving record of our ideas and activities (http://designjusticenetwork.org/zine); coordinates a track at the AMC; and organizes workshops on a regular basis. Information about the dozens of organizations and hundreds of individuals that have been part of the design justice track at AMC is available in the archived conference programs.[21]

In particular, the design studio And Also Too has been a key actor in the development of design justice ideas and practices. Founded by designer Una Lee, And Also Too is "a collaborative design studio for social justice visionaries," and is home to designers and artists Lupe Pérez, Sylver Sterling, Lara Stefanovich-Thomson, and Zahra Agjee. As they describe on their site: "And Also Too uses co-design to create tools for liberation and visionary images of the world we want to live in. … Our work is guided by two core beliefs: first, that those who are directly affected by the issues a project aims to address must be at the center of the design process, and second, that absolutely anyone can participate meaningfully in design."[22] And Also Too facilitated the development

of the Design Justice Network Principles, and is guided by those principles in its own day-to-day work.[23] Others that practice design justice include the worker-owned cooperative Research Action Design (RAD),[24] the Detroit-based artist collective Complex Movements, and a growing list of more than three hundred Design Justice Network Principles signatories (the full list is available at http://designjusticenetwork.org/network-principles).

More recently, other groups that are not (yet!) formally connected to the Design Justice Network have also begun to use the hashtag #designjustice on various social media platforms. These include the architects and city planners who organized a series of DesignAsProtest events in 2017, the EquityXDesign campaign to end gender and racial disparity in architecture as a profession, and the architects affiliated with the American Institute of Architects (AIA) who convened a 2018 Design Justice Summit in New Orleans, among others. The Equity Design Collaborative, led by Caroline Hill, Michelle Molitor, and Christine Ortiz, has been working to retrofit design thinking methods with a racial justice analysis.[25]

There are also many, many organizations that don't use the term *design justice* but are engaged in closely allied practices. For example, the Inclusive Design Research Centre (IDRC) is "a research and development centre where an international community of open source developers, designers, researchers, advocates, and volunteers work together to ensure that emerging information technology and practices are designed inclusively."[26] Professor of Civic Design Ceasar McDowell has developed an extensive body of theory and practice of *design for the margins*.[27] Other allied projects, groups, and networks include the Association for Progressive Communications, the Catalan GynePunk collective (who develop and circulate queer feminist design practices of DIY gynecology[28]), the Center for Media Justice, Coding Rights (Brazil), the Critical Making Lab, Data Active, Decolonising Design, the Design Studio for Social Intervention, Design Trust for Public Space, the Digital Justice Lab (Toronto), FemTechNet, Intelligent Mischief (Brooklyn), MIT CoLab, SEED Network, Social Justice Design Studio, and the Tech Equity Collective, just to name a few.[29]

In particular, there is a rapidly growing community of researchers, computer scientists, and advocates who are focused on challenging the

ways that inequality is reproduced through the design of AI and algorithmic decision support systems. This area has seen a wave of recent publications, such as Virginia Eubanks's *Automating Inequality* (2018), Safiya Noble's *Algorithms of Oppression* (2018), Meredith Broussard's *Artificial Unintelligence* (2019), and Ruha Benjamin's *Race After Technology* (2019), among others. In this area, there is also an explosion of new organizations and networks. Data for Black Lives has emerged as a key community of data scientists, scholars, artists, and community organizers who work to rethink data science, machine learning, AI, and other sociotechnical systems through a racial justice lens. Others (among many!) include the AI Now Institute, the Algorithmic Justice League, the Center for Critical Race and Digital Studies, Data & Society, the Data Justice Lab (Cardiff), the Digital Equity Lab (NYC), the JUST DATA Lab, the Our Data Bodies Project, the People's Guide to AI, and the Stop LAPD Spying Coalition.

Throughout this book, I will return to, draw from, and reference the work of these and other scholars, designers, and organizations that are already working to put design justice principles into practice, although there are so many that it won't be possible to mention them all.

Methods

My Own Standpoint

Feminist standpoint theory recognizes that all knowledge is situated in the particular embodied experiences of the knower.[30] Accordingly, I begin here by locating my own position and trajectory for the reader. I'm a nonbinary trans* femme queer person, of Italian-Russian-Polish-Jewish descent, raced white within the current logic of racial capitalism in the United States. I was born into a rural, hippie, cooperative home near Ithaca, in upstate New York, to parents who took part in feminist, antiwar, anti-imperialist, Latin American solidarity, and environmentalist movements of the time. I grew up on land stolen from the Onöñda'gaga' (Onandaga), Susquehannock, Gayogohó:no' (Cayuga), and peoples of the Haudenosaunee (Iroquois) confederacy. My political education came first via my parents and community, then my teachers at the Alternative Community School, a public alternative school. I attended high school in Puebla, México, then moved to Boston and

images to institutions, from products to platforms, from particular practitioners to professional associations), as well as encourage the documentation of innovative forms of community-led design, grounded in the specificity of particular social movements. In this book, I draw from the activities of the Design Justice Network, my own experience working on design projects and teaching design theory and practice, practitioner interviews, and texts by other scholars, designers, and community organizers. I hope that this book can help shift our conversation beyond the need for diversity in tech-sector employment, and that it will help make visible the growing community of design justice practitioners who are already working closely with liberatory social movements to build better futures for us all.

Chapter Overview

In the Design Justice Network, for the last several years we have been asking questions about how design currently works, and about how we want it to work. I have structured the chapters in this book as an extensive reflection on a few of these questions—in particular:

- *Values*. What values do we encode and reproduce in the objects and systems that we design?
- *Practices*. Who gets to do design? How do we move toward community control of design processes and practices?
- *Narratives*. What stories do we tell about how things are designed? How do we scope design challenges and frame design problems?
- *Sites*. Where do we do design? How do we make design sites accessible to those who will be most impacted by design processes? What design sites are privileged and what sites are ignored or marginalized?
- *Pedagogies*. How do we teach and learn about design justice?

The book is organized as follows:

Chapter 1 addresses the question, "What values do we encode and reproduce in the objects and systems that we design?" It argues that, currently, the values of white supremacist heteropatriarchy, capitalism, ableism, and settler colonialism are too often reproduced in the affordances and disaffordances of the objects, processes, and systems that