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*Content Everywhere*

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# Technically Wrong

Sexist Apps, Biased  
Algorithms, and Other  
Threats of Toxic Tech

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you'll feel comfortable asking hard questions of the digital products you use, and the people who make them. Because tech has spent too long making too many people feel like they're not important enough to design for. But, as we'll see, there's nothing wrong with you. There's something wrong with tech.

## Chapter 2

# Culture Misfit

**D**esigners and technologists don't head into the office planning to launch a racist photo filter or build a sexist assumption into a database. So how do these alienating, unethical, and downright offensive decisions unfold—over and over again? We can see a common example in the story of Fatima, a Middle-Eastern American design strategist based in the Bay Area.

A couple years ago, Fatima was working at the Silicon Valley innovation center for a large corporation—the sort of startup-like “lab” you'll see associated with all kinds of big companies these days (Walmart, Volkswagen, and Capital One all have them). These centers are meant to generate new product ideas, experiment with emerging technologies, and ultimately build prototypes and products.

It was 2015. The first Apple Watch had just arrived. Smartwatch sales were climbing. And Fatima's company wanted to get in on the action. It partnered with a major fashion brand, with the goal of designing a women's smartwatch—something

fashion-forward, to serve as an alternative to all the “ugly” wearables that tech companies were launching.

As the project kicked off, Fatima sat down with the teams from both companies—and was literally the only woman at the table. Pretty soon, someone started a video meant to show the product’s positioning. It was all flash: yacht parties, private jets, \$2,000 shoes. Fatima cringed. The smartwatch they were designing was meant to target the midrange market—think Macy’s, not Neiman Marcus.

“Let’s wait until we get some research to make decisions,” she said, trying to pull the kickoff session back on track. No one paid attention. Instead, she spent the next hour listening to older men tell her about the “female market,” using tales of their wives’ shopping habits as proof.

But Fatima didn’t give up. She worked with a colleague from another office to develop an aggressive research program, gleaning insights from more than a thousand people across the United States and in a couple other prominent markets. Fatima then brought their findings back to the group.

The team wanted to target women who are fashionable, tech-savvy, or both. About two-thirds of respondents were identified as the former, and half as the latter. Except, the men refused to believe Fatima. As soon as she started presenting her data, they wrote her off: “Oh, 51 percent of the women can’t be tech-savvy,” they said.

“They were basically like, ‘We are just going to categorically ignore the thirtysomething techie, because that probably doesn’t really exist,’” she said later. “Even though, based on our research, those were the people (a) the most likely to buy the smartwatch,

and (b) . . . most likely to spend the largest amount of money on the smartwatch.”<sup>1</sup>

The more she shared from the research findings, the more she was scoffed at. She described how the women in the research pool said that being able to discreetly stay on top of things during work meetings was critical. The men in the room insisted that most women *really* care about leisure-time activities. She shared that women reported rarely using shopping apps on their phones. The men insisted their wives were *always* shopping, and the smartwatch absolutely needed an app for that. She reported that the women said functionality mattered most to them—that if it didn’t work well, and fulfill a need, a fashionable design wouldn’t be enough. The men insisted, “Oh, it doesn’t really matter what tech we put in there.”

“I felt like I was in an episode of *Mad Men*,” she told me. Over and over, her ideas were discounted, and her expertise ignored. And as a result, the audience’s actual needs—the ones identified and confirmed through her painstaking research—were discarded.

“That’s a specific project, a physical piece of technology, that would exist in the world or not based on whether these men in the room accepted what I had to say or not,” she said. “They just weren’t willing to accept the research and use it as a foundation.”

The project got shelved, and the brand partnered with a celebrity to design a smartwatch instead. It flopped.

“It wasn’t based on needs; it was based on stereotypes,” Fatima said. “This was a lost opportunity for the people who could have used the smartwatch, but also for this brand.” It was

also a lost opportunity for the innovation center: Pretty soon, Fatima was tired of having her ideas ignored. She quit.

Fatima's story is over the top: her company ignored her input, made sexist assumptions, and launched a product that failed. But this mind-set—where someone assumes they have all the answers about a product, and leaves out anyone with a different perspective—isn't rare. Scratch the surface at all kinds of companies—from Silicon Valley's "unicorns" (startups with valuations of more than a billion dollars) to tech firms in cities around the world—and you'll find a culture that routinely excludes anyone who's not young, white, and male.

One designer working on digital products in the Midwest told me she sat down with her company's owners to talk about maternity leave and found out they didn't even know whether they *had* a maternity policy. Even though the company had forty-odd employees and had been in business more than a decade, no staff member had ever been pregnant. In fact, only a handful of women had ever worked there at all. When she asked about establishing flex schedules and making work travel more predictable, she was shot down. "We have three other women of childbearing age on our team, and we don't want to set a precedent," the owner told her, as if pregnancy were some sort of new trend. She had to quit—and so did other women who got pregnant there after she left. So the company, which had said it wanted to hire more women, stayed just as male-dominated as ever.

Another woman, from a large British tech company, told me about her firm's annual event in Las Vegas—part company retreat, part recruitment tool for new hires. Before the big trip, marketing and finance, the two teams with lots of women on staff, were sent an email by a board member asking them to "put

together some kind of dance routine to perform at the company presentation." The woman ignored it—until she got to the presentation. The heads of each department, all men, stood up and talked about their successes over the course of the year. The only women who graced the stage were a group of her peers in crop tops and hot pants. The men in the audience wolf-whistled while the women danced. When she complained, she was told it was fine—no one had coerced them.

Racism is rampant too. Take the story of product designer Amélie Lamont, whose manager once claimed she hadn't seen her in a meeting. "You're so black, you blend into the chair," she told her.<sup>2</sup> Or Erica Joy, a black software engineer who wrote that past coworkers had constantly assumed she was a single mom.<sup>3</sup>

Tech is also known for its obsession with youth—an obsession so absurd that I now regularly hear rumors about early-thirties male startup founders getting cosmetic surgery so that investors will think they're still in their twenties. Within these companies, this obsession often takes the form of group exercise: team runs, pushup contests, yoga retreats. One man told me he found it so hard to keep up with the younger men on his team during his company's forced workouts that he had to quit. Other companies start their workdays with all-staff meetings held while everyone does planks—the fitness activity where you get on the ground, prop yourself up by your feet and elbows, and hold the position until your abs can't handle it anymore. If you're physically able to plank, that is. And you're not wearing a dress. Or feeling modest. Or embarrassed. Or uncomfortable getting on your hands and knees at work.

Then, there's the alcohol. One woman told me she was pressured to drink so much at her welcome party—the Friday before

her start date—that she spent the weekend before her new job even began recovering from mild alcohol poisoning. Another told me she had a colleague who started holding all the important meetings for a major project at the bar down the street. She doesn't drink, so she was never invited.

You might think I had to work to get these stories, but no. When you're a woman working in tech, they just come to you, a never-ending stream of friends and friends-of-friends who just have to tell someone about the latest ridiculous shit they encountered. And what all these stories indicate to me is that, despite tech companies talking more and more about diversity, far too much of the industry doesn't ultimately care that its practices are making smart people feel uncomfortable, embarrassed, unsafe, or excluded.

With these examples in mind, the racism, sexism, and insensitivity of so many tech products suddenly make a lot more sense. This is an industry that can look around at a bunch of young white men who plank together in the mornings and get drunk together in the evenings and think, *This is great. This is what a healthy workplace looks like.* If tech culture doesn't notice how its culture excludes others—if it can't even bother to listen to a woman in a meeting—why would it notice when its products do the same? Until the tech industry becomes more representative of the people it's trying to serve, these problems will persist—and our products will be worse off because of it.

### CRAWLING TOWARD REPRESENTATION

To be fair, I'm not saying tech isn't doing anything to improve diversity. You can find annual diversity reports from most of the

big companies now, highlighting shifts in employee demographics and glossy profiles of staff from underrepresented groups. Whenever a new one comes out, though, it tends to read something like this one, from Apple CEO Tim Cook, in 2015:

We are proud of the progress we've made, and our commitment to diversity is unwavering. But we know there is a lot more work to be done.<sup>4</sup>

Or this one, from Facebook's global director of diversity, Maxine Williams, in 2016:

Over the past few years, we have been working hard to increase diversity at Facebook through a variety of internal and external programs and partnerships. We still have a long way to go.<sup>5</sup>

Or this one, from Nancy Lee, Google's vice president of people operations, in 2016:

We saw encouraging signs of progress in 2015, but we're still far from where we need to be.<sup>6</sup>

They all strike the same tone: hopeful, confident, maybe even—as I'm sure some PR rep somewhere intended—inspiring. But meanwhile, their actual numbers? They barely shift.

In 2014, Apple released its first diversity report—and made its first commitment to doing all the work that it knows still needs to be done. At the time, it was 70 percent male globally, and 80 percent male in technical roles. Two years later, in 2016,

it was still 68 percent male globally, and 77 percent male in technical roles.<sup>7</sup> Similarly, in the United States, 9 percent of Apple's staff was black in 2016—though in leadership positions, that number dropped to 3 percent—just the same as it was in 2014. Plus, the highest concentration of diverse employees won't be found at Apple's shiny One Infinite Loop campus in California. They work at your local mall, ringing up iPads, explaining the new MacBooks, and checking you in for your Genius Bar appointment—not providing insight into the design process, or even being visible to those who are building products.

I'm not meaning to pick on Apple here; in fact, they were actually one of the first companies to release diversity data, and their numbers look better than many others. For example, at Google, technical employees were 81 percent male in 2016.<sup>8</sup> Just 1 percent were black, and 3 percent were Hispanic. In leadership roles across all departments, 76 percent were male. Two percent were black, and 1 percent were Hispanic. Over at Airbnb, 10 percent of staff came from “underrepresented groups” in 2016 (which means neither white nor Asian, the two groups that are well represented in tech companies)—but in technical roles, that number was only 5 percent.<sup>9</sup>

I could go on, but I don't think you need more stat soup to understand this story. The numbers are mostly the same wherever you turn: teams tend to be much whiter and more male than the general population, and the skew is strongest in leadership and technical positions.

It might seem obvious why diverse leadership matters: hiring women and people of color for only junior roles, and never promoting them, doesn't bode well for their ideas being valued, or their perspectives having equal weight. But you might won-

der, why do these companies' stats always emphasize technical positions (which typically means people with titles like “engineer,” “developer,” or “programmer”), when a whole host of others are involved in creating a new digital product or service? Here's why: in most tech companies, these roles—much more than designers, copywriters, marketers, and others who work on the creative or “soft skills” end of the spectrum—are seen as the masterminds of new technology. They're paid the best, recruited the hardest, and often have the most power on teams. While you're likely to find that staff is a bit more diverse outside of technical roles—and in particular, that women are better represented in communications-related jobs—those roles are historically undervalued (which is a whole other problem in tech culture, but I'll leave that for another day).

## PIPELINE DREAMS

If the tech industry has acknowledged this problem and says it wants to fix it, why are the stats so slow to change? If you ask tech companies, they'll all point to the same culprit: the *pipeline*. The term “pipeline” refers to the number of people who are entering the job market prepared to join the tech industry: those who are learning to code in high school and graduating from computer science or similar programs. If the pipeline doesn't include enough women and people of color (though, honestly, many companies never get beyond talking about gender here), then tech companies simply can't hire them. Or so the story goes.

That's the argument Facebook used in the summer of 2016, when it released yet another report showing minimal improvements in diversity (for example, only 29 percent of the new senior

hires in the year leading up to the report were women, a number that barely changed the company's overall picture of senior leadership, which is just 27 percent women).<sup>10</sup> "Appropriate representation in technology or any other industry will depend upon more people having the opportunity to gain necessary skills through the public education system," said Williams, the diversity head, who then went on to expound on how few women and black people study computer science in high school or college.

Kaya Thomas sees it differently.

Back in October 2014, when she was a sophomore computer science major at Dartmouth, she headed to Houston for the Grace Hopper Celebration of Women in Computing—a massive conference full of famous speakers, big budgets, and lots of conference swag. She was ready. She had just completed an internship at Time Inc., where she'd worked on a new app for *Entertainment Weekly*. She'd also just launched an iPhone app of her own, We Read Too, which helps kids and teens find books featuring people of color. She had worked in an on-campus lab building games. She had contributed to open-source code projects. And she'd put it all on a résumé she hoped would catch the attention of the "cool" tech companies that attend Grace Hopper to recruit interns and new staffers, and get some good PR for supporting women in technology—companies like Twitter, Pinterest, Apple, and Google.

It seemed perfect for Thomas. But as she walked around the career-fair floor, she didn't get the warm welcome she'd expected. In fact, most of the recruiters didn't even want to see her résumé. They would avoid looking her in the eye. Or tell her to go online and apply. Or turn away to talk to someone else. And so she felt invisible—erased from an event that, she thought, was designed

for people like her: young women aiming to kick-start their technical careers.

Thomas had good reason to think Grace Hopper would lead to internship opportunities, too. These companies talk endlessly about how hard it is to find enough programmers to fill their positions. Other women told her they'd left the event swimming in job offers to choose from. But looking back, Thomas realized that those women all had something in common: they were white. She is black. So she started talking with other women of color and found that their experiences were similar: they felt ignored or overlooked in a sea of white faces.

It's not just Grace Hopper. You can't throw a pebble in Palo Alto without hitting a corporate-funded "diversity" event these days—like the "Lean In" circles that Facebook executive Sheryl Sandberg advocated in her book of the same name, or the ubiquitous code camps for kids from low-income homes put on by companies like Google. But what Thomas experienced convinced her that it's not *really* about the pipeline. The tech industry just isn't looking for people of color—even when those candidates are right in front of them, like she was at Grace Hopper.

Plus, most tech recruiters go back to the same schools, over and over—Stanford, Carnegie Mellon, MIT—rather than reaching out to places with more diverse student bodies (and strong computer science departments). "If you want to recruit more new grads of color, send technical recruiters to Historically Black Colleges and Universities and Hispanic-Serving Institutes [*sic*]," she wrote. "Stop blaming us for not doing YOUR job."<sup>11</sup>

The numbers back her up. In a 2014 analysis, *USA Today* concluded that "top universities turn out black and Hispanic

computer science and computer engineering graduates at twice the rate that leading technology companies hire them.”<sup>12</sup>

Adding to the problem, Thomas says, potential employers spend their time looking for a “culture fit”—someone who neatly matches the employees already in the company—which ends up reinforcing the status quo, rather than changing it:

I’m not interested in ping-pong, beer, or whatever other gimmick used to attract new grads. The fact that I don’t like those things shouldn’t mean I’m not a “culture fit.” I don’t want to work in tech to fool around, I want to create amazing things and learn from other smart people. That is the culture fit you should be looking for.<sup>13</sup>

You might think she’s overselling this concept of “culture fit” here, but the perception is so widely shared, the phrase so constantly used, that it’s even been spoofed in the *Cooper Review*’s “Honest Diversity in Tech Report,” written by former Google employee Sarah Cooper. “Our hiring criteria ensures we have a diverse pool of candidates,” the post deadpans. Then it shows a pie chart where skills, education, and experience make up slivers of the hiring criteria, while “ability to fit into the existing culture” fills the rest.<sup>14</sup>

Even companies that have made diverse recruitment a priority still fail to break this “culture fit” barrier. In January 2017, *Bloomberg* reported that although Facebook had started giving recruiters an incentive to bring in more women, black, and Latino engineering candidates back in 2015, the program was netting few new hires. According to former Facebook recruiters, this was because the people responsible for final hiring



A chart from the *Cooper Review*’s satirical “Honest Diversity in Tech Report.” (Sarah Cooper / The Cooper Review)

approvals—twenty to thirty senior leaders who were almost entirely white and Asian men—still assessed candidates by using the same metrics as always: whether they had gone to the right school, already worked at a top tech company, or had friends at Facebook who gave them a positive referral.<sup>15</sup> What this means is that, even after making it through round after round of interviews designed to prove their skills and merits, many diverse hires would be blocked at the final stage—all because they didn’t match the profile of the people already working at Facebook.

## BREAKING THE PATTERN

It’s a vicious cycle: these companies say they want diversity, then use exactly the same recruiting methods they always have, going

to exactly the same schools they've always gone to, and claim there are not enough highly qualified diverse candidates. When they do land diverse hires, they expect them to remold themselves to fit the company's existing culture—one that was designed for, and is reinforced by, a homogenous group. New hires who can't or won't do everything it takes to become a "culture fit" leave—and the company conveniently reinforces its existing ideas about which kinds of people it ought to recruit, because obviously, hiring people who were different just didn't work out. Over and over again, people like Fatima, who are often the most prepared to make products better—to have different ideas, to call out gaps or problems, to identify where designers and engineers have a blind spot—are pushed to the side.

That's why the pipeline is such a myth. Regardless of how many women and underrepresented minorities study computer science, the industry will never be as diverse as the audience it's seeking to serve—a.k.a., all of us—if tech won't create an environment where a wider range of people feel supported, welcomed, and able to thrive.

The good news is there's actually no magic to tech. As opaque as it might seem from the outside, it's just a skill set—one that all kinds of people can, and do, learn. There's no reason to allow tech companies to obfuscate their work, to call it special and exempt it from our pesky ethics. Except that we've never demanded they do better.

But we can—and if we do, we'll not only make things better for all the Kayas and Fatimas of the world, we'll also make things better for ourselves, every time we pick up our phones or open a browser tab.

## Chapter 3

# Normal People

**A**re you a "Kelly," the thirty-seven-year-old minivan mom from the Minneapolis suburbs? Or do you see yourself as a "Matt," the millennial urban dweller who loves CrossFit and cold-brew coffee? Maybe you're more of a "Maria," the low-income community college student striving to stay in school while supporting her parents.

No? Well, this is how many companies think about you. From massive businesses like Walmart and Apple to fledgling startups launching new apps, organizations of all types use tools called *personas*—fictional representations of people who fit their target audiences—when designing their products, apps, websites, and marketing campaigns.

Personas are often meant to feel like real people—sometimes right down to Kelly's 2014 Toyota Sienna (which she purchased with her husband while she was pregnant with their second child), or Matt's iPhone 7 Plus (which he just replaced because he dropped his last one outside the rock-climbing gym). The speci-