IN THE LAND
OF THE
UNREAL

VIRTUAL & OTHER
REALITIES IN LOS ANGELES

LISA MESSERI

BUY

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For my father, the sociologist,
my mother, the storyteller,
and my brother, the filmmaker

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PROLOGUE

In fall 2015, I became captivated by an episode of NPR's TED *Radio Hour*.[1] The program was about our engagement with screens and the hook of the episode cracked open a conversation that registered for me as both strange and familiar. Noting Facebook's 2014 acquisition of a virtual reality (VR) company, the host's conversation with a filmmaker-turned-VR innovator bookended the episode. VR, it seemed, was the future of screens, promising to explode the confines of the rectangle and immerse people fully in a story. The episode was peppered with grand claims, including ideas long attached to VR: that it could make one feel present in another place and that it might even reshape human consciousness. But there were newer promises, too. The VR innovator's premier VR experience did not transport the user into a fictional world, but rather into a Syrian refugee camp. There, the VR-headset wearing participant sat across from a young girl on the floor of her temporary home and listened to her describe her daily life. On the radio show, the filmmaker explained that even more than traditional storytelling, VR's immersive storytelling could instill a feeling of empathy and, he hoped, bring forth a better future for this girl and other refugees.

By early 2016, I was well into constructing a research project about how and why bettering humanity had become so central to the mid-2010s resurgence of VR. How had VR come to be positioned as a solution to social and political failings? This imagination of the technology's present and future seemed at odds with the VR of the 1980s and 1990s, textured as that earlier version was by cyberpunk escapism and desires for bodily transcendence. But in the 2010s, there emerged abundant media stories covering "good" VR projects aimed at drawing attention to problems ranging from refugee crises to environmental injustices to threats to reproductive rights.[2] The unquestioned acceptance of VR's benefit to humanity warranted investigation. After all, technologies like search engines and social

P.1 Obama takes in a VR experience in the outer Oval Office. This image was featured as a White House Photo of the Day on August 24, 2016. Photograph by Pete Souza, courtesy Barack Obama Presidential Library.

P.2 A screenshot from the satire VR game *Trump Simulator*. In the days before the 2016 election, developer Christine Barron released this short game modeled on the popular VR game *Job Simulator*. The virtual became (un)real not long after.

media platforms, which had similarly been introduced as motors for liberal humanism, were generating a growing list of harms and inequities. There was no reason to assume VR would carve out a different path. Unlike these other emerging technologies, the heart of the VR scene, I came to realize, was located in Los Angeles rather than Silicon Valley. My initial research questions formed around both this geographic peculiarity and the humanitarian promises of VR.

As US politics shifted from the Obama-era to Trumpism, the web of associations that animated VR also shifted, and in response my analytic attention expanded. In 2015, on the *TED Radio Hour*, VR's beneficence was located in its ability to transport someone into another person's reality. The host briefly wondered whether, in the wrong hands, that same affordance could be used in a *Matrix*-esque way to "change the truth." This speculative musing attached VR to concerns over the difficulty of distinguishing facts from lies in a highly simulated mediascape. In 2016, as Trump ascended to power leaving a trail of "alternative facts" in his wake, I followed the host's intuition and began to appreciate how VR might be resonant with a loosening of the fabric of reality that seemed to be happening throughout US politics and culture. The reality-hopping experiences VR offered and the reality-bending assertions of the Trump administration both seemed *unreal*; both seemed to be extraordinary ways of experiencing and comprehending reality. The significance of this connection would not become clear to me until well after my anthropological fieldwork had concluded.

That fieldwork was conducted in 2018, a year during which I traced the contours of an unreal technology in LA (itself famous for an industry accomplished in manufacturing unrealities). It was impossible not to juxtapose virtual reality's promise of cultivating a sense of shared humanity with national headlines that documented the Trump administration's manipulation of reality through its post-truth assault on governance, expertise, and whose humanity—whose lives—mattered.[3] This multipronged attack shook the faith, held by some, that there existed a common public reality. The Trump administration was not alone to blame for what felt like reality's fracturing. During my fieldwork, public awareness grew around social media's role in spreading misinformation and crystalizing distinct reality bubbles. The biggest investor in VR's resurgence, Facebook, came under intense public scrutiny in March 2018 when news broke that the company had allowed the firm Cambridge Analytica to harvest user data without consent such that they could serve up targeted political advertising for their clients, which included Trump's 2016 presidential campaign.

The public airing of this scandal inaugurated the "techlash," shattering the myth that technology necessarily serves the public interest.

Despite VR's financial indebtedness to Facebook, in LA the technology was positioned as an antidote to the techlash and a foundation upon which different, better futures were imagined. I came to focus on the *fantasies* that allowed such alternative realities to seem plausible. Being geographically outside Silicon Valley and thus outside of the techlash's focus, VR innovators and enthusiasts spun a fantasy of building a different kind of industry led by people from underrepresented backgrounds (a commitment that, coincident with my fieldwork, was affirmed by the #MeToo movement). This bolstered the enduring fantasy that VR's goodness came from its ability to foster understanding across difference. Such fantasies were envisioned against an awareness by the community I studied that reality, catalyzed by Trumpism, was somehow changing. If Trumpism had accelerated a feeling of unreality, VR's own wielding of the unreal, it was imagined, could blunt the damage. I tracked projects and conversations that wrestled with an awareness that people existed in different realities; that the reality of the philanthropist was not the same as that of the refugee. Though the desire was to mend rifts between realities, in authorizing some people (the philanthropist) as being the ones who get to know the reality of other people (the refugee), VR could not help but affirm the structures that elevated some people's humanity over other's.

In 2020 and 2021, as I was writing this book, reality further contorted. The COVID-19 pandemic made screens even more central to daily living, as many people learned to conduct professional, familial, and social activities virtually. But this period also illustrated the vastly different realities within the United States that people had come to inhabit. While some individuals shifted to working from home, others were called on as frontline workers and asked to put their bodies in danger. While some experienced profound isolation and devastating loss, others went about life as usual. The outright denial of the pandemic by some sectors of the public turned into ugly refusals to wear masks and eventually perverse pronouncements about bodily autonomy when rejecting lifesaving vaccines. A more jarring and acute demonstration of the loss of a shared public reality occurred when Trump lost reelection to Biden. Reality was not simply "impossible to pin down,"[4] as one journalist had described Trump's America; it reached a point of crisis when Trump and his constituents refused to believe the election outcome. On January 6, 2021, a stunned national and global audience watched a series of incongruous images play across their screens: an un-

ruly riot on the steps of the US Capitol building, MAGA-capped men posing for selfies inside, a man in a fur-lined Viking hat with red, white, and blue face paint howling in victory, a noose and bloodthirsty chants, a Confederate flag waving next to one proclaiming "Trump 2020."

As I watched media commentators process the aftermath of the insurrection, it became clear to me that through my years of researching and writing about the VR community in LA, I had unexpectedly also been developing ways of thinking about reality that, at this moment of crisis, became salient. Reporters struggled to name what had happened, reaching for the same language of the unreal and fantasy that I had been using to describe VR. The events at the US Capitol were unreal in that they manifested a spectacular display of multiple (and conflicting) realities. During a live chat covering Trump's second impeachment trial, Sabrina Tavernise told her colleague at the *New York Times* that she was shocked that the rioters did not think they had done anything wrong. She continued, "It adds to the unreality of that day for me. How it was just truly an alternate reality that had crashed into the actual reality." The unwavering belief on the part of Trumpists that the 2020 election was stolen, resulting in an attempted insurrection, "pushed unreality from the fringes into the mainstream," Tavernise concluded.

With the ascendency of unreality, my research had helped me understand, fantasies emerge alongside truths and facts as strategies for shaping social action. Observing the mounting consequences of fantasies in the political landscape, journalist John Dickerson, speaking on *Slate*'s "Political Gabfest," diagnosed: "If the struggle of our day is between reality and fantasy, the fact that a person who engages in fantasy [referring to the congresswoman and QAnon conspiracy spreader Marjorie Taylor Greene] can get elected should be worrying. And it would only be mildly worrying if it were an outlier. But fantasy led to the sixth of January. We are still in the smoldering wreckage of a lie creating actual violence . . . as a result of complete detachment from reality."[5] And from another perspective, an arrested rioter looking back on January 6 described how time moved like frames in a movie on that day, as "fantasy slammed into reality like a car wreck."[6] For these commentators, the unreal and fantasy *felt* like the right language to describe the realities that clashed on January 6, similar to how they had become the right words for writing about VR's promise of transporting people between different lived realities. In the pages that follow, I will explore how the unreal and fantasy made sense of VR while hinting at how they also provide ways for grappling with the crisis of reality that,

as evidenced by Joe Biden's plea for 2022 midterm voters to elect Democratic candidates in order to "sustain a republic where reality's accepted,"[7] remains ongoing.

I borrow the language of "reality crisis" from columnist Charlie Warzel, who named this phenomenon in the days after January 6 when pointing to Trump's years-long "assault on the truth."[8] Warzel, a tech columnist, refocused attention on the role technology plays in the construction of fantasies and unrealities. Specifically, he singled out Trump's army of followers that had been "cocooned in Facebook groups and fed a steady diet of lies."[9] Facebook materially ties together the reality crisis and VR. The 2015 *TED Radio Hour* episode that generated my interest in virtual reality presented Facebook's acquisition of Oculus VR with bemused interest. It seemed a wild (if harmless) bet that Mark Zuckerberg was making on what he anticipated being "the next smartphone, the next internet, the next thing that's going to transform our lives." Facebook has refused to take responsibility for any misdeeds, with Zuckerberg insisting that his company's purpose has only ever been about forging connections and building community.[10] In 2021, Zuckerberg changed his company's name to Meta and increased its investment in VR and immersive technologies to bring about what he claimed would be the successor to the internet: the metaverse. Zuckerberg positioned VR as the technology that would finally realize Facebook's original goal: "The dream was to feel present with the people we care about. Isn't that the ultimate promise of technology? To be together with anyone, to be able to teleport anywhere, and to be able to create and experience anything."[11] That Zuckerberg could so flagrantly ignore the possibility that the assault on reality wrought by his original platform would be replicated and perhaps even magnified on a platform that even more explicitly offers itself as a virtual reality is a stunning example of living in an alternate reality.

In the Land of the Unreal rewinds from this moment to when the reality crisis was brewing but had not yet manifested as a mass, grotesque spectacle. In Los Angeles, the epicenter of the widely exported unreality of Hollywood, the VR community imagined itself as independent from the Big Tech forces up north and worked toward crafting an alternative to business as usual. They wove together VR's humanitarian project of reality repair with more local concerns about workforce representation. While I witnessed small successes, the hoped-for better selves and societies remained elusive; good-intentioned projects often failed to address the structural issues that demanded more radical solutions. What is instructive about this community is the ways in which fantasy and the unreal were wielded to

explore otherwise ways of building community and working with technology. VR permitted conversations on fractured realities, and while some of these conversations foreshadowed the dark divisions that fed into January 6, more often the beneficial possibilities of reality's malleability were probed. In this community, the unreal was not necessarily something to be feared, but something that could also direct intentions toward building better worlds. Precisely because the unreal elicits both peril and pleasure, I remain cautious of VR's utopian claims, warning against the seduction of technological fixes for entrenched, complex social problems. And yet, in striving to resist dominant narratives of what technology is and ought to be—what reality is and ought to be—there might be inspiration to take from fantasies of technologies otherwise created and deployed.

INTRODUCTION
FANTASY AND TECHNOLOGY

In July 2017, the Los Angeles County Museum of Art (LACMA) installed the US premiere of *Carne y Arena (Virtually Present, Physically Invisible)*, which, when shown at Cannes a few months earlier, was the first virtual reality (VR) experience to be selected for screening at the storied film festival. When I arrived in LA in January 2018—an anthropologist curious about VR and the people rallying around this forever reemerging technology—*Carne y Arena* was one of a few experiences that the VR community considered a must-see; this was an example of the potential of the medium. Even in early 2018, tickets were hard (and expensive) to come by. Only one person could be in the exhibit at a time, and as such tickets sold out almost as soon as they went on sale. I was lucky to be checking my email when the announcement came that a new block of tickets was released and bought one immediately.

A few weeks later, on a sunny and crisp Monday morning in February, I began my day at LACMA. In the afternoon, I would meet up with classmates with whom I was taking a VR development class to brainstorm what experience we might want to build for our final project. Though early in my fieldwork, I was busy crisscrossing the city to meet folks involved with VR, establishing a network that would eventually yield invitations allowing me to observe and engage in each stage of the process of creating a VR experience. I was also getting a feel for the larger LA community that

had been activated by VR and the growing tech scene by attending industry and public events. Over the weekend, I had spent Saturday in Marina del Rey at a coding boot camp and on Sunday evening I attended a convening of Ye Olde Futurist Union at a brewery in Downtown LA where attendees debated whether VR could fix a broken reality. After a month and a half of learning the basics of how a VR experience gets made, meeting with VR innovators to learn what Angelenos thought of the medium, and attending events that both hyped and hedged VR's potential, I was excited to visit LACMA and see this much-praised piece.

My scheduled entrance time was one of the first in the morning, and as I waited to pick up the ticket, I chatted with the only other visitor there, who had the slot ahead of me. She worked in the special effects industry, and this would be her first time experiencing VR. *Carne y Arena* is written and directed by Alejandro González Iñárritu (director of movies including *The Revenant* and *Birdman*), which was part of what had made it such a draw for folks in LA, especially those like the guest ahead of me who worked in Hollywood. Iñárritu was awarded a Special Achievement Oscar for this piece in 2018, a rare accolade previously awarded in 1995 for Pixar's *Toy Story. Carne y Arena* is not a heartwarming animation, but is rather about crossing the Mexico/US border, drawing attention to the violent conditions in Latin and South America that prompt adults and children to risk their lives. Iñárritu hoped VR could be a force for good in the world by cutting through the fog of ideology and portraying the "real reality" of these migrants. In his Oscar acceptance speech, Iñárritu spoke of decisionmakers who would be voting on the future of Deferred Action for Childhood Arrivals (DACA), wondering if they ever looked one of these kids in the eyes. VR, the filmmaker believed, could allow for each of them to have this experience, offering "a slice of our complex reality so that we can understand each other and therefore love each other." He went on to explain that he does not see VR as a way to escape reality. Instead, "I am interested in technology as a tool to embrace reality and, like the immense ocean, submerge myself."[1] In *Carne y Arena*, the experiencer is immersed in a VR world where they are virtually present but physically invisible (as the subtitle of the piece reads). The experiencer thus takes on the social positioning of the migrant who is, for many of the intended viewers of this piece, present yet invisible.

A visitor individually makes their way through the four rooms of the exhibit (only the third of which contains a VR experience). The first room is dark, containing a backlit artist's statement. Iñárritu explains how VR allows him to tap into the very personal, horrific accounts of border crossing.

He calls his approach, based on interviews with dozens of undocumented people (many of whom live in LA), "semi-fictionalized ethnography." Every person encountered in the experience, though digitally rendered, is based on an actual person and an actual border crossing event. Iñárritu instructs the visitor, instructs me, to explore the virtual scene in whatever manner we choose—unlike in film, in VR the frame is gone. We, not Iñárritu, are the director. Rather than passive viewers, we are instructed to think of ourselves as active, embodied participants in the story's action.

The second room of the exhibit is cold, sterile, and bright; a short-term holding cell for crossers picked up by the Border Patrol. Stark red text painted on the wall instructs me to take off my shoes and socks and place them along with my bag in a locker, sit on the metal bench, and only enter the next room when a siren and light go off. I obey, hugging myself to keep warm. The room is littered with worn-out shoes covered in dust and grime; another text on the wall explains that these shoes were collected along the border. I wonder if the former owners of these shoes survived their crossing.

When the alarm goes off, I enter the third room. With bare feet, I can feel the coarse sand that covers the floor. Flesh and sand, *carne y arena*. There are two staff members in the middle of the dimly lit room, holding a backpack and a VR head-mounted display (HMD). A long, thick wire runs from the HMD up to the ceiling and down again, snaking on the ground out of sight. As one assistant keeps me from tripping on the wire, the other helps me into the backpack, HMD, and a pair of headphones. I am told that I can move anywhere in the room, and they will keep me from getting tangled in the wires or colliding with a wall. The VR experience starts, and I am in a scrubby desert. I don't have a body, but I can look and move all around. The sand under my feet could be the sand of this desert scene; I am virtually present but physically invisible. I remain in this desert for the seven minutes of the experience, though the activity around me ebbs and flows. For much of the experience, I am with a group of immigrants led by a coyote. Iñárritu used motion capture, filming the scenes and then overlaying the human movement with digitally rendered avatars. It's dusk in the desert, so you can't make out anyone's face too clearly. The way the bodies move feels authentic, allowing me to easily imagine that I am with this group of people in the desert. The coyote talks on a cell phone and encourages our group to keep walking. I move amongst the migrants, listening in on individual conversations conducted mostly in Spanish (which I do not speak). I find myself eavesdropping from a polite distance, though, when I talk

about this experience with a friend a few days later, they say that when they "bumped" into an avatar, they were brought inside the digital body and could see organs pulsing and hear the heart pounding.

The quiet of the scene is interrupted by the sound of an approaching helicopter; there is a powerful gust of wind that I feel on my skin and the coyote yells at all of us to duck and get on the ground. Border Patrol agents arrive on the scene and begin shouting in English and Spanish. They are rounding us up. In the chaos, someone tries to run, and another is injured and can't get up even as the agent yanks their arm. There is screaming and flashlights and guns. I move around the chaotic scene, present yet invisible, trying to make sense of the different stories. People are being loaded into cars. One person says that he is an American lawyer and yet is still being arrested. I follow a woman being dragged by her arms. In the cacophony, I am slow to realize that a patrolman is pointing a gun directly at *me*. At first, I think I'm in the middle of a scene and look behind me to see who the gun is being pointed at. But there is no one there. I shuffle a few steps sideways and he traces the gun on me, shouting at me to kneel. As I realize I am no longer invisible, that I am there, the experience ends.

Not sure of the etiquette, I somberly thank the museum helpers as they remove the headset and backpack. I make my way to the final room of the exhibit, where there is a series of ten or so screens at eye level, each enlivened by a person staring out of the screen and, in text superimposed over their image, telling their story.[2] I feel the urgency of their personal narratives as they talk about why they left home, their crossing experience, their current status, and their hope for the future. Many are young and, as the interviews were recorded during the Obama administration, place much of their hope in DACA. A few weeks after my LACMA visit, a Republican-majority Congress failed to pass the Dream Act. A few months later, the US Department of Justice implemented a draconian "zero tolerance" policy, imprisoning border crossers (including asylum seekers) and separating parents from children without any protocol for reuniting these families. Reality at the border had indeed shifted since the debut of *Carne y Arena*, but not as Iñárritu might have hoped.

It is clear, then, that the success of this piece was measured not by its political efficacy but rather the affective response of the participant to this mode of aesthetic engagement that seemed to disrupt the boundaries between viewer and experiencer, physical body and virtual body, seeing and feeling. Though justice-oriented VR pieces have not spurred structural changes, they are nonetheless celebrated by those who believe that

they can, for the individual, offer an impactful experience of being in another reality. During *Carne y Arena*'s premier at Cannes, the festival director praised Iñárritu for offering the film community a "Lumière moment," which, like the famous clip of a train pulling into a station that reportedly terrified the assembled audience,[3] similarly blurred the relationship between representation and reality. In an interview in the trade magazine for the Director's Guild of America, Iñárritu described what many in the industry herald as the distinguishing quality of VR as compared to theater, cinema, or the written word: one must engage not only their mind but also their body in a VR experience. He startlingly concluded, "The body does not lie. So once your body's telling you something, you know that it's true. And the wires in your brain are tricked, and then you lose a little bit of the sense of reality." In other words, Iñárritu understands VR as offering an embodied way of knowing that overrides the mind. You might rationally know you are in a museum, but your body allows you access to a truth of being with this group of immigrants; you let go of your immediate reality in order to engage with another. In his artist statement, Iñárritu describes this as a "realistically unreal experience." As a technology of the unreal, VR allows a participant to momentarily occupy multiple, even conflicting, realities. In the case of *Carne y Arena*, a white participant (such as myself) experiences a shift from the familiar position of the removed observer able to move safely through a space of violence into, when the guard points the gun, a less protected reality. Speaking of this scene, Iñárritu explained that he wanted everyone, even the most unwilling participant, to have an experience of bodily presence. He wanted them to stop thinking and start being: "So you surrender your intellectualization and become part of the experience."[4] When I took off the headset, the unrealities of the experience—both my positioning and the experiences of the migrants—became a memory. However, for those who are the narrative subjects of pieces like Iñárritu's, this unreality is not so easily shed.

Carne y Arena exemplifies the aspirations of a community of storytellers and innovators who, throughout the 2010s, positioned VR as a solution to social and political failings. For this community, such failures were borne from certain lived experiences not being *real* for lawmakers and some members of their constituencies. If rational arguments for addressing injustices have fallen on deaf ears, those building VR experiences like Iñárritu's wondered if the visceral, emotional, embodied, and unreal experience of being in another reality might surpass what words alone could do and soften rigidly held beliefs. Being somewhere or someone else—an experience

often presumed to emanate from a desire to escape reality—became for Iñárritu and many other VR creators the very thing that they felt might repair reality. Could experiencing other realities generate compassion and empathy, building bridges between disconnected realities? Though the situation at the border had worsened, this didn't stop people from wondering under what circumstances VR could be leveraged to resolve the political and societal impasses that seemed to have become ever more entrenched in a world in which the belief in a singular reality had lost its sovereignty.

This book takes as its premise that virtual reality can help make sense of what reality has become and is becoming. With each new social, political, or global emergency—be it immigration, racial injustice, climate change, or a pandemic—it is increasingly apparent that there is no common consensus as to the nature of an emergency (indeed whether an emergency even exists), its consequences, or a solution. The weakening of expertise and the fragmentation of the media landscape has intensified an inability to agree on fundamental facts about the world, creating a reality crisis and paralyzing efforts to confront large-scale problems. While VR did not create this reality crisis, the projects and conversations discussed throughout this book are symptomatic of anxieties emergent from living in a fractured reality.

This fracturing cleaves along multiple axes, including the disparate aspects of identity that shape one's "lived reality" and how epistemic commitments shape one's perception of an "external reality." I am not suggesting that reality is newly torn asunder—that there had previously been a singular reality—but rather I am motivated to understand how those who might have assumed a unified reality, and perhaps even remain committed to this worldview, came, in the late 2010s, to see multiple realities as a situation in need of address. This includes the VR innovators discussed throughout this book, but parallels can be drawn outside of these pages with political commentators making sense of the Trump administration's post-truth politics and liberal progressives accounting for the privileges that shape their particular—and not universally shared—experience of the world. From these perspectives, reality was becoming undone, becoming multiple, becoming something else; it is not dissimilar to the moment I describe as unreal in *Carne y Arena* during which my reality shifted from being an observer to being implicated in the action. But from other perspectives—particularly those from people in marginalized communities—reality's multiplicity has always been a truth. Writer Sylvia Wynter argues that there is no singular human, and thus no singular reality of being a human.

However, she cautions, these very claims that posit a shared human condition structure (and are structured by) the currents of power and knowledge that maintain global inequalities.[5] As reality's fracturing comes to be felt by more people, radical futures that break from the hegemony Wynter has articulated feel possible. However, as the case of virtual reality will instruct, such admirable and bold attempts easily become recaptured by the very structures targeted for dismantling.

To be in the land of the unreal is to feel reality's fracturing. For some, the unreal is ordinary. For those whose perspectives are documented in this book, it is extraordinary. The unreal contains both possibility and threat, prompting people to wonder what collective action and change might look like when the "collective" can no longer be taken for granted. In this fractured reality, it has become frustratingly apparent that traditional strategies for civic action have become ineffective, premised as they are on norms and assumptions that no longer hold. Other methods and practices are needed, with scholars, artists, technologists, and activists embracing alternative, experimental, and speculative ways of understanding and practices of being. While not all—or even most—of the virtual reality industry is aligned with what might be considered progressive politics, VR nonetheless is an unexpected crucible in which techniques for navigating a fractured reality are being tested both explicitly (as in the case of a piece like *Carne y Arena*) and implicitly. VR raises questions—and its enthusiasts attempt answers—about the porosity of reality and the consequences of infusing it with fantasy in order to imagine other worlds that might be possible. Iñárritu experimented with how effectively VR could transport someone into another's world, hoping this could foster an empathetic understanding that would transcend the differences between lived realities. Might this reforge a common reality and allow for the emergence of a different, more humane and equitable future?

Engaging with speculation and fantasy, imagining alternative realities, and worldbuilding toward various futures feel exciting in that these methods seem to push past the standstill confronting more realist or rationalist approaches. However, as this book is situated in LA, one is necessarily reminded of the noir elements that shade sunny outlooks. The fractured reality that has facilitated these ways of thinking about and with VR is the same terrain upon which insurrectionists and authoritarians are also able to blend fantasy and reality to incite the action needed for bringing about the world as they think it ought to be. The same strategies that are imagined by VR innovators to do good in the world can, in other hands,

do its opposite. This ambiguity is what makes the reality crisis challenging to navigate, demanding care and attention be paid to how worlds are imagined and created.

The Fantasies That Create Realities

Virtual reality, I am not the first to note, is at first glance a contradiction, juxtaposing two concepts not often imagined as coextensive. It is nonetheless a productive phrase, illustrating how unexpected pairings can generate modes of thinking and practice. In this book, pairing fantasy and technology is similarly generative, particularly for making sense of what reality has become.

Though technology is often associated with pragmatic pursuits (solving "real world" problems), social media technologies are central to the long-brewing reality crisis. These platforms provide infrastructure for communities that, through the spread of misinformation and conspiracy theories, create, maintain, and amplify alternative realities. VR is both conceptually and materially tied to this phenomenon, as Meta, the parent company of Facebook, is also one of the biggest investors and promoters of virtual reality. However, this book's concern with the role of technology in the reality crisis comes not from the alternative, proliferating realities of virtual worlds, but rather from an interest in those who believed that VR could act as a salve *against* multiplying and fracturing realities. At the time of my research, it was believed that this could be accomplished through narrative-driven VR pieces, like *Carne y Arena*. In contrast to social VR and games, these VR experiences were temporally discrete, experienced individually, and often accessed at museums or film festivals. These pieces were *cinematic*, dependent on expertise in storytelling as much as hardware and software know-how. A vibrant VR community thus formed in Los Angeles, shaped by those who had previously worked in Hollywood and some who had moved down from Silicon Valley. Because VR was not only cinematic but also understood as an emerging technology, LA's VR community took up familiar conversations about tech, but infused them with particular, local meanings shaped by the histories and industries of Los Angeles. This provided distinct frameworks—including fantasy—for thinking about technology and reality.

One conversation about technology that has long circulated in Silicon Valley but took on additional meanings in LA concerned projects that

sought to implement technologies for "good" civic ends. Unlike "AI for Good" or, more generally, "Tech for Good" project banners that corporate entities deploy to promote implementations of their technologies in addressing underserved community needs,[6] "VR for Good" more often describes projects that are focused on improving the elite individual (who would then, it is imagined, make decisions that trickle down to the underserved others).[7] Such claims have been bolstered by laboratory research, as psychologists have offered evidence that the experience VR provides of "walk[ing] a mile in [another's] digital shoes" can, in certain contexts, foster prosocial behavior.[8] VR filmmaker Chris Milk popularized the idea that VR is the "ultimate empathy machine" in a 2015 TED talk (featured in the *TED Radio Hour* episode I describe in the prologue).[9] All these "tech for good" projects, VR included, need to be approached with caution.[10] Because "the good" is not a universally agreed upon concept but rather articulated through "regimes of knowledge," "tech for good" projects that emerge from Big Tech companies shape definitions of what it means to do "good" work in ways that align with their mission, namely capital accumulation.[11] Both Facebook and Google were promoting their "VR for Good" initiatives during my period of research and while I met some folks in LA who received funding through these programs for their particular VR projects, LA's "VR for Good" conversation was adjacent to but also outside of the vision coming from Big Tech. Even if some of the academic critiques of "Tech for Good" initiatives are not entirely applicable to "VR for Good" as I encountered it (these projects were not directly in service of humanitarian efforts, were not exclusively corporatized, and did not have the same privacy concerns as did the projects dependent on data collection), this phrasing nonetheless naturalizes a host of assumptions, including an uncritical acceptance of technosolutionism (that technology is *the* fix for social problems) and a narrative that conflates technological progress with social progress.[12] The complex relations that animate social and technical networks are masked behind the simplicity of "the good," necessitating a critical and skeptical stance when encountering such assertions.

To understand the social work accomplished by a belief that VR is "good," I contextualize it in a time and place when it was being valued by a particular community. In 2018, "techlash" was the runner-up for the *Oxford English Dictionary*'s "word of the year," inaugurating a cultural moment when the myth of technological progress was shattering and the tech industry's harms were publicly discussed. VR's "goodness" was thus seen not as automatic but as something that needed to be underwritten by

a community that was itself constituted around "good" values. In Iñárritu's Oscar speech, he briefly mentioned the less idealistic players in the VR industry, alluding to those developing the technology exclusively out of "vulgar, profit driven interests." Iñárritu might be referring to the gaming and pornography industries based in Southern California or the Big Tech companies headquartered up north in Silicon Valley. But the point was the same: he and others sought to create a different kind of community and thus, they imagined, a different kind of VR.

Put another way, the community in LA that strove to leverage VR for positive social and political outcomes was itself constructing an alternative reality that positioned itself as outside of Big Tech's harmful circuits of power, an unattainable position given the reach of these companies, their products, and their funding networks. As I worked to understand how the community maintained a belief in this positioning—how any alternative reality flourishes—the language of *fantasy*, seemingly endemic to Los Angeles thanks to Hollywood's looming presence, kept presenting itself as a way to make sense of everyday encounters and the cultural work that was being done by this community.[13] I observed how employing a technology to imagine and pursue other, better worlds took place within a meshwork of interwoven fantasies that rendered reality pliable and thus something that could be multiplied or reshaped. Fantasies, in this context, are not distinct from reality but texture the social practices through which realities are brought into being. In that sense, it is similar to how film theorists, drawing on a psychoanalytic tradition, invoke fantasy. As summarized by Todd McGowan, fantasy "serves as a way for the individual subject to imagine a path out of the dissatisfaction produced by the demands of social existence."[14] Fantasy distorts social reality and can facilitate "experiences otherwise unthinkable."[15] Which is not to say it is apart from reality, but rather that fantasy plays a significant role in structuring an individual's lived experience. Fantasy, as André Nusselder has more explicitly argued, operates as an interface between the virtual and the real.[16]

There are three fantasies that created the reality of the community that I studied: a fantasy of place, a fantasy of being, and a fantasy of representation. The *fantasy of place* centers on Los Angeles and the question of whether a city known for movie magic could also be a place of technological innovation. Los Angeles, where I lived for a year in 2018 to conduct this research, is textured by storytelling and spectacle. How might these local dynamics shape virtual reality as it left the laboratory and entered the consumer market? While VR has long been fodder for speculative fictions,[17] in 2018

filmmakers and innovators collaborated to figure out how to tell stories not *about* VR but *with* VR. Such work conjured many fantasies regarding the possibility of VR, but one that recurred with frequency (well-illustrated by Iñárritu's piece) was what I will call a *fantasy of being*. Could VR transport someone from their reality to a different reality, from their self to a different self? While such an experience could be in service of amusement, the fantasy of being directs attention toward the hope that this feature of VR could be leveraged to bring about a better human and thus a better world.

This fantasy of a better world was reflexively taken up by the VR community itself in claiming that the VR industry could be better than either tech or entertainment; it could be an industry led by those who had been underrepresented and disenfranchised in other industries. Such a *fantasy of representation* was not, however, about content, but production. In particular, this is a fantasy of women leading the VR industry. Starting in 2015 and 2016, young women in LA began building infrastructure to support the vision of a more diverse and inclusive virtual reality industry. Culminating in the founding of an influential Facebook group, initially called "Women in VR," these organizers put forth a compelling vision that VR could be an industry led by women and marginalized voices. Conversations about VR in LA were shaped by the unexpected and influential contributions of women, a dynamic that only heightened following reporting in October 2017 on the many victims of producer Harvey Weinstein's sexual predation. Women in Hollywood and beyond posted on social media their own experiences with sexual harassment and predation using the tag #MeToo.[18] This launched the celebrity-driven arm of the #MeToo movement which, when I arrived in LA in January 2018, was still gaining momentum and energizing calls to action.

These fantasies of place, being, and representation intersect and reinforce each other, underpinning the "VR for Good" ethos that many in the community I write about in this book championed. Doing a VR experience could make an individual better and, in pursuing these projects, VR could itself be a "good" industry. To be clear, fantasies of "the good" don't inevitably yield the intended better worlds. This point is made by Lauren Berlant in *Cruel Optimism*. They write about the fantasy of "the good life," explaining why people stay attached to such fantasies even as they become less attainable. Berlant is able to write about "the attrition of a fantasy" with cultural and historical hindsight.[19] The full story of the fantasies in this book are not yet known. Indeed, when I began my fieldwork in 2018, these fantasies—and the better world—felt far away. The watershed moment

that the community was hoping for had not yet come, and so 2018 was a year when several companies folded, when those who entered the field hoping to make a quick buck exited without a payday, and when the most committed VR boosters were showing both weariness and hopefulness. In the United States more broadly, 2018 was a year that began with the Parkland school shootings and ended with California fires up and down the coast. It was the year of #MeToo and of Brett Kavanaugh's ascension to the Supreme Court, despite a sworn testimony of sexual assault by Christine Blasey Ford. It was a year of revelations over Facebook's Cambridge Analytica scandal and the growing techlash. It was a year when the chaos of the Trump presidency began to feel normal and when Democrats regained their majority in the House of Representatives. It was a year of outrage and persistence, of exhaustion and anticipation.

Iñárritu described his process for creating *Carne y Arena* as semifictionalized ethnography and, indeed, we all craft fictions in our ethnographies as we strive to capture a truth. To write this fiction, I suspend this place and community in time. I do not tell an all-encompassing story of VR, nor do I offer predictions for its future. Though I wrote much of this book during the COVID-19 pandemic, which made the crises and experiences of 2018 feel small, my ambition in these pages is nonetheless to capture how the fantasies I encountered during my fieldwork were of a piece with, perhaps even an antidote to, an affective understanding that the world, the place, the moment, and even the technology of VR all seemed . . . unreal.

The Land of the Unreal

Los Angeles is a fitting place from which to study both virtual reality and shifts in reality. Geographer Edward Soja emphasized that the region has long been at the vanguard of producing "artful suspension[s] of factual reality," challenging the ability "to distinguish what is real from what is imaginatively simulated."[20] He borrows the language of simulation from Jean Baudrillard who, along with Umberto Eco, wrote influentially of Southern California's hyperreality. In an essay originally written in 1992 that Soja edited and republished in 2014, he draws out the implications of LA's hyperreality for American politics. "It can be argued," he wrote, "that a reactionary form of postmodern politics consolidated rapidly in the United States after the election of a Hollywood actor and ex-California

governor as president in 1980."[21] The Reagan and Bush Sr. years saw hyper-realities being successfully wielded for political gain. Shifting from Nixon-era political *dissimulation* (covering up something that is there), political *simulation* in contrast "means pretending to have something that really isn't there and working hard to make others believe that it is, really."[22] This all led to what must have felt like, for Soja who was revisiting his 1990s analysis during Obama's presidency, a culmination: George W. Bush's Iraq War, motivated as it was by the simulacrum of the unknown unknowns. Soja excerpts a quote from a Republican aide defending the war (and associated lies), who described accusatory journalists and academics as being members of "the reality-based community" who have not yet realized that the "way the world works" has changed. The aide continued, "When we act, we create our own reality."[23]

Trump's presidency—the immediate historical context for my research—transformed hyperreal politics into unreal politics. Pretenses of rational and accepted modes of reasoning that persisted (even as farce) in political dissimulation were done away with; to justify actions, members of the Trump administration instead fabricated historical events or used markers to redraw hurricane paths. It became more obvious to the attentive public that alternative realities were being constructed whole cloth, severing what had been imagined as a common reality into multiple, diverging realities. Fittingly, not only was Trump a Hollywood president like Reagan, but he was more specifically a reality-television president and thus versed in producing fictions that passed for reality. Trumpism's political simulacra spun out alternative facts and post-truths, culminating in the unreality of the insurrection at the US Capitol on January 6, 2021.

If previous writers found the hyperreal in LA, I found the unreal and found it to be a helpful descriptor of the city, VR, and the politics of the moment. The unreal holds in tension an extraordinary rendering of reality with what might be thought of as an everyday reality. The social world has always been comprised of multiple realities, but the unreal marks circumstances when such multiplicity demands attention; when the fractured commons demands repair, particularly by those who have previously put their faith in a singular reality. Unreal politics position alternative facts alongside scientific or historical facts; the unreality of virtual reality allows for the simultaneous experience of one's reality and another's reality; the unreality of Los Angeles captures how Hollywood fantasies exist alongside a diverse and sprawling metropolis.

This depiction of Los Angeles is itself only one of multiple ways to describe the reality of the city. Historian Robert Fogelson described Los Angeles as a "fragmented metropolis." The fragment of this city that constituted the site of my research were institutions and spaces primarily occupied by the elite intellectual and creative classes of LA. Where I lived and worked, how I socialized and moved through the city, brought me into contact with people similar to those working in VR and separated me from the majority of Los Angeles's residents to whom the LA I write about matters little to their daily lives. When I describe how "LA" helped me understand VR or when I talk about the ways in which Hollywood shapes the city, I am referring to this fragment of LA that I came to know. The "LA" of this book is its own virtual reality, a world apart from how many others experience and know the city.

Exemplary, then, of this LA is the Hollywood studio. On a Paramount Pictures studio tour during the first weeks of my LA residency, I first encountered "the unreal" as an emic self-understanding of the worlds conjured by the intermixtures of fantasy and reality that begin in the studio and spill into the surroundings.

Alongside a family of four on holiday from Australia, I learned about Hollywood's first studio and the movies and television shows shot on this lot. Kim was our guide and drove us around the lot in a golf cart, taking us in and out of sound stages and pointing out where classic scenes were filmed. Throughout the tour, Kim provided various examples of how film crews transform sets into other locations. On the "New York Backlot," a street whose exterior is recognizable as belonging to Brooklyn intersects with another made to feel more like Greenwich Village, and around another corner one can feel instead like they are standing in Chicago's South Side. Kim explained that sometimes reality looks fake. Los Angeles, for example, usually has crystal clear blue skies, and so there is a gigantic canvas painted a less vibrant blue, textured with clouds, sometimes used in exterior shots when LA's pristine sky strikes a false note.

As the tour proceeded, I began thinking about the similarities between virtual reality and Hollywood backlots. Both promise to transport you elsewhere and yet both, in the end, are façades—they promise a rich, full world similar to the one with which we are familiar but are surfaces that can't fully be entered; they are some other kind of world that remains out of reach. On the backlot, the different worlds collide with one another, creating a pleasurable implausibility of moving swiftly between these worlds.

I.1 It was cloudy on the day I took the Paramount tour, so the canvas matched the sky above. Photograph taken in January 2018 by the author.

Later on, while stopping to admire Paramount's iconic Bronson Gate, I was provided with a fitting description for the layering of worlds produced by both backlots and virtual reality. Kim explained that this gate is often used as a setting for films that are about Hollywood itself. On an iPad, she played for us a supercut of scenes from different movies featuring this location as an establishing shot. In one scene from the 1961 satire *The Errand Boy*, Jerry Lewis stands in front of the gate and a narrator intones, "This is Hollywood. Land of the real and the unreal." The supercut continued and other scenes played on Kim's iPad, but it is this description of Hollywood that stayed with me long after the tour.

The clip Kim showed was itself a bit of movie magic. The voiceover is not from the scene in front of the gate, but rather from the opening shot of the

movie when the viewer is treated to an aerial view of Los Angeles. "This is a town," the narrator explains, "where dedicated people spend every waking hour applying their varied talents to the making of a product, the only purpose of which is to take you away from the harsh realities of life into the wondrous land of Make-Believe."[24] In the same year that this film was released, the LA-based writer Bill Davidson published a book detailing visits and interviews with the likes of Frank Sinatra and Elizabeth Taylor titled *The Real and the Unreal*. Davidson's book paints Hollywood as populated not by stars who are just like us, but rather people occupying a different, privileged reality: "There are two Hollywoods—the Real and the Unreal—and often it is impossible to tell which is which." Davidson describes the intermixing and play between the real and the unreal as what enlivens "this bizarre company town."[25]

The unreal does not remain confined to the studio lot but follows Hollywood workers back out into the city. As Leo Rosten wryly mused in his 1941 sociological study of the movie industry, "When a movie producer or actor, director or writer, goes to sleep he leaves the world of fantasy and enters the world of reality. . . . And this preoccupation with the fanciful must tend to blur perceptions of the real. . . . If Hollywood is a community of people who work and live in fantasy, then it is to be expected that their life should take on the attributes of the fantastic."[26] For the fragment of LA most influenced by Hollywood trades, fantasy and reality flow into one another such that the land of the unreal spreads beyond the studios. It is upon this land, enriched by the worldbuilding possibilities of the unreal, that virtual reality found fertile ground.

Throughout this book, I use fantasy and the unreal for similar purpose, shorthand for the shifting and multiplying of realities that, in turn, facilitate imagining and creating otherwise worlds. I use fantasy to index aspiration and, often, the future. The unreal, on the other hand, more generally describes the current state in which reality's fracturing cannot be ignored. In this land of the unreal, precisely because reality's instability is part of the everyday, there is always the possibility of reshaping reality and building new worlds. The unreal describes the backlot, the VR experience, the city itself; it describes any world built with the intention of providing access to another reality. Extending beyond VR and LA, the unreal captures the experience of living in and navigating between multiple realities. Unreality is a structure of feeling, intuiting that reality seems to have become something else; that it multiplied, has fractured, has become virtual or fantastical.

Disciplining the Unreal

The unreal, as an analytic, telescopes across scales, allowing me to link the arguments I am making about VR in LA with not only US cultural and political shifts, but also changes in academic strategies and foci. At each of these scales, the unreal draws attention to the symptoms, consequences, and opportunities of a fractured reality. In academic thought, the loosening of constraints imposed by the enlightenment assumption of a singular reality have, in different ways, impacted the two fields from which I draw much of my theoretical and methodological commitments: anthropology and science and technology studies (STS).

In anthropology, operating in the speculative register of the unreal has opened up new avenues for rethinking the discipline's past and future. While anthropology has long attended to unreal and fantastical phenomena like magic and myth-making, these were of interest to the white colonial anthropologist's gaze precisely because such phenomena were imagined as outside of the researcher's reality. Anthropologists today recognize the colonial histories that created the separation between the "real reality" of the researcher and the "primitive reality" of the ethnological subject, and are pursuing a variety of methodological approaches to unsettle and critique both this history and attending assumptions. A speculative turn[27] has directed anthropologists to consider, as Matthew Wolf-Myer has outlined, "what sources might there be for rethinking the future? for dislodging the futures that we have been given and to think something anew? for rethinking the past that has gotten us to this point?"[28] This rethinking is required both for the liberal project but also for anthropology itself, and Ryan Jobson has suggested the need to "imagine a future for the discipline unmoored from its classical objects and referents"; from its commitments to the singular human and, I would add following Wynter, a singular reality.[29] Akhil Gupta's 2021 presidential address at the meetings of the American Anthropological Association engaged in a speculative project of asking what American anthropology might be today if it had been founded as a decolonial discipline. Gupta suggested that such counterfactual histories and attempts at "imagining otherwise" are "powerful tools for thinking about the present,"[30] perhaps opening toward what Anand Pandian has called "a possible anthropology." Pandian reframes the discipline's method of ethnography as a "practice of critical observation and imagination, an endeavor to trace the outlines of a possible world within the seams of this one."[31] Anthropologists, like VR innovators, are engaged in projects of worldbuilding

that maintain the possibility that other futures are possible and perhaps most realizable through attuning to the multiple realities of the present.

In STS, the unreal is a category of concern as scholars wonder how to maintain a critique of technoscience against the backdrop of a post-truth politics that dangerously undermines scientific expertise. The discipline developed in an American and European context in which technology was accepted as a driver of progress and science had unimpeachable authority, associated as it was with accessing a singular and objective "real." Science and technology, however, are deeply human endeavors, and STS scholars traced out the social and political networks in which technoscience operates. In so doing, they positioned reality, like science, as a product of social work. Bruno Latour notes that reality's Latin root, *res*, means "to resist." The reality of an object becomes stable in so far as it is able to resist the critique of others.[32] Such a conception of reality has ramifications far beyond the object or fact being studied. As Annemarie Mol has written, this perspective "has robbed the elements that make up reality—reality in its ontological dimension—of its stable, given, universal character. [Instead,] reality is historically, culturally, and materially located."[33] Leaning into this instability, Karen Barad further challenges, "Reality is not composed of things-in-themselves or things-behind-phenomena but 'things'-in-phenomena."[34] Barad's agential realism posits reality as emergent from the intra-action between phenomena and materiality. "The real" does not lie in an object nor even does it become fixed through social consensus; reality is always in the process of becoming.

With the proliferation of post-truths and alternative facts, however, scholars in STS find a perverse version of our analytic work mirrored back. In the political arena it has become apparent that there are gains to be made by instilling distrust in mutually agreed upon facts or reality.[35] Moreover, technological platforms have proven themselves effective at forging and fostering alternative realities. Whereas unsettling reality had been a productive critical strategy in STS when science and technology had (mostly) unquestioned authority, the field must now also account for how other actors wield similar strategies for darker purposes. As Latour reflected in a 2018 interview, "Now we have people who no longer share the idea that there is a common world. And that of course changes everything."[36]

This does not lead, in my estimation, to a suggestion for doubling down on realist accounts in order to shore up scientific expertise or accepting technological "progress." The radical rethinking afforded by unreal approaches is demonstrated by the conversations in anthropology discussed

above. Rather we must maintain an awareness that though elements of the unreal can be found in VR and LA and Trumpism and academic discourse, these all differ in kind. Projects of the unreal need to be contextualized, as they can contain the promise of creating new realities or the danger of nihilistic abstraction by which we come to exist in realities without any overlap.

Technology Otherwise

From STS's constructivist project that renders reality multiple stems an appeal to resist singular narratives about technology. An oft used phrase, "it could be otherwise," serves as a slogan of sorts for the discipline[37] and will also provide a refrain throughout this book as I wonder what a technology otherwise—a technology that resists Big Tech logics—could look like. The otherwise reminds the analyst that rarely is there a predetermined path along which a technology inevitably develops; different pasts are thinkable, and different futures are possible. In 2018, VR was still in the making and different communities envisioned different futures. I detail throughout this book the future that was being imagined in Los Angeles, premised on the fantasies that VR would be a good technology and that women would lead the industry. These fantasies assert that VR could be otherwise. But also there is a fantasy at work that the very nature of technology and who gets to be a tech worker could be otherwise. This fantasy was able to blossom in LA precisely because it was geographically outside of Silicon Valley and thus outside of the hegemonic center of the US tech scene. And while I refer to the work being done in LA as a *fantasy* of technology otherwise, there is also a significant lesson here for analysts of the US tech scene that, going forward, some version of this imagined otherwise might well come to be.

Although Southern California has long been host to military, aerospace, and industrial manufacturing (what, in the previous century, would have been classed as high technology enterprises), by the last decades of the twentieth century, Silicon Valley consolidated California's tech expertise and power, particularly in regard to computing and digitally networked ventures. The vision for the World Wide Web and subsequently social media (sometimes glossed as Web 1.0 and Web 2.0) were in large part conceived of and executed by Silicon Valley–based companies; software platforms and consumer hardware stole headlines and generated investment returns.

I.2 A sign for "crypto" blends in seamlessly with the "Venice" sign, a replica of the original from 1905 (rehung in 2007), which has long beckoned visitors to enjoy entertainment and escape. Photograph taken in March 2022 by the author.

Recently, speculations have intensified around "Web 3.0" (or "Web3"). This capacious term attempts to anticipate the next phase of the internet, and often assumes technologies like blockchain and artificial intelligence as drivers. Many imagine that Web3 will also include the seamless integration of virtual and physical worlds (what the phrase "spatial computing" often refers to), drawing augmented reality (AR) and virtual reality into the imaginary. What uses or experiences will make people want to partake in Web3 sociality? This indicates a broader question that was and continues to be asked about VR: What would make users want to spend time immersed in virtual spaces? One of the pathways for succeeding in the Web3 ecosystem depends less on platform development and more on content creation, and thus more suited to the talent and expertise of SoCal. Given this state of affairs, VR's prominence in LA throughout the 2010s starts to feel less like an anomaly and more like a harbinger, foreshadowing this next phase of the internet that investors and large companies are pushing toward.

The power center of the US tech industry might thus be in the process of shifting slightly away from Silicon Valley and toward Hollywood, where expertise in content development is seen as crucial for capitalizing on Web3. For those of us concerned about tech futures, we must similarly expand our geographies of attention. Scholarship in critical technology studies that has been instrumental to articulating the harms of digital technologies has largely done so by critiquing Silicon Valley actors and their ways of thinking and doing.[38] This necessary work must continue while being mindful of the changing contours of the US tech industry, particularly in cases like VR when an industry (entertainment) not often captured in our analyses of technology plays a significant role.

The reviving of a tech industry in LA has been slowly occurring over the past twenty years given the significance of content—generated by both professionals and users—in driving traffic to "Web2" platforms.[39] But even as recently as 2015, it was possible for a Silicon Valley transplant, arriving in LA, to observe that "Compared to Silicon Valley, the Los Angeles tech scene is the Wild West."[40] After all, until very recently tech companies have remained headquartered in Silicon Valley. In the early 2000s, when LinkedIn, Friendster, and Facebook were all founded, only Myspace based itself out of LA. In 2003, Netflix, headquartered in Silicon Valley, opened its first LA office, and other tech companies began quietly following. In 2012, the social media company Snapchat was founded in Venice and soon became LA's most visible success story, allowing other tech ventures to justify a beachfront location.[41] What was being called "Silicon Beach"—more by

marketers than by tech workers[42]—began consolidating and if one were to ride a Bird scooter (the micro mobility company was founded in 2017 in Santa Monica) around LA's coastal neighborhoods in 2018, one would pass signs for Google, YouTube, Facebook, Postmates, Hulu, and Headspace.

Despite these familiar corporate presences, the tech scene in LA isn't a replication of the one in Silicon Valley; it is otherwise. This technology otherwise is influenced by local industries and their attending fantasies, which in turn catalyze the fantasies specific to VR that I encountered throughout my research. LA offers a reminder that technology, as a concept and an artifact, is not universal but particular to places and times. This book explores one technology otherwise among many that exist throughout the tech landscape.

Studying the Virtual

Focusing on place when studying a technology like VR might seem counterintuitive, given the connotation of "the virtual" as that which is dislocated from the physical world. However, as many scholars have discussed, the virtual is a very "real" phenomenon. Media theorist Homay King argues that before virtuality became so thoroughly associated with digital realms, it was "a contranym: it simultaneously invoked existence and nonexistence, reality and unreality, fact and fable."[43] The reality of the virtual traces back to metaphysical treatises by Bergson and Deleuze, both taking inspiration from Proust's description of memory as virtual, in that it is real but not actual.[44] Starting in the 1990s, scholars extended this Deleuzian understanding of the virtual (and its reality) to digital media,[45] though with concern that to overly associate the virtual with cyberspace would limit the meaning of the term.[46] One strategy was to place the virtual in opposition to the physical and the actual, rather than the real. Virtual worlds *are* real worlds, as anthropologist Tom Boellstorff demonstrated in his study of the virtual world, *Second Life*.[47] Boellstorff clarifies that this doesn't mean that everything in the digital realm is real. Indeed, there is already plenty in the physical realm that is itself make-believe.[48]

Studying the virtual can thus be approached through several different ethnographic framings, depending on one's interest in the sociality of persistent virtual worlds,[49] the inseparability of our digital worlds from our actual worlds,[50] or the local and global impacts of digital media.[51] While I tracked discourse about VR in the news and on social media, the focus of

my ethnographic work was on how the VR community in LA constituted itself.

One of the first tasks of an anthropologist is to learn the language and so, upon arriving in LA in January 2018, I enrolled in an introduction to VR production class taught at a start-up in Marina del Rey. I also sat in on a class at the University of Southern California cotaught by Scott Fisher, who had built one of the first VR headsets in the 1980s. Between these two classes, I gained a better sense of how VR experiences are made; I gained basic literacy.

While learning the basics, I reached out to folks through the Women in VR Facebook group, attended meetups specifically for women in the VR and tech community, participated in a VR hackathon, and began running into the same people and building relationships. By late spring, I found two organizations willing to let me into their day-to-day operations. One, the Technicolor Experience Center (TEC), exposed me to the Hollywood side of the VR world and the other, Embodied Labs, brought me into a start-up trying to realize VR's potential to do good. Employees at both companies generously gave me their time and patience, allowing me to chronicle their experiences in the VR industry. In addition to spending most days at one or the other of these companies, I attended several networking events a month and socialized with the friends I'd met at events or in classes who would fill me in on their travels through the VR world. Toward the end of my time in LA, I sat down for formal interviews, both with those I knew well and those I had met only a time or two. By this point, I had some theories and ideas about VR in LA and used the interviews to refine these thoughts and think alongside those who, in the end, know the community best. The people I met throughout my fieldwork were, variously, established in their careers, just getting started, or struggling to find a way in. The naming conventions reflect relative career stability, as I refer to those further along in their careers (with their permission) by their real, full names and pseudonymize the less established.

I left LA in December 2018 but continued to keep tabs on the happenings in LA. Posts on the Facebook group, media coverage, and several industry podcasts kept me apprised of the large movements of the industry. Occasional texts from and visits with LA friends allowed me insight into the smaller movements of individuals as they continued to navigate the scene. This book, however, does not give the up-to-date scoop on VR. Instead, I tried to capture in these pages a specific community at a specific time in a specific place.

The Stories This Book Tells

The settings of ethnographic projects are not incidental or background, but deeply revealing of the communities, artifacts, and ideas anthropologists aspire to make sense of. This book therefore begins by tracing how the fantasies endemic to LA flow into the imaginations of technology and the creation of VR experiences. LA is imagined as a place of possibility, dominated by Hollywood and populated with experiments of creating worlds, futures, and realities otherwise. Like all places, LA has a unique character, and this in turn shapes and is shaped by the kinds of conversations about technology that percolate in the city. In the first three chapters, I explore different facets of LA's "technological terroir." Chapter 1, "Desert of the Unreal," emphasizes how Los Angeles has long been a place of utopian ideation. In addition to late nineteenth-century booster fantasies, midcentury collaborations between the military and entertainment industries strategized about civic betterment. Such partnerships set the institutional stage for contemporary VR and offer histories that can be mined for lessons about whose realities are prioritized and whose are marginalized in such visions of improvement.

The exploration of LA's fantasy of place continues in chapter 2, "Realities Otherwise," by suggesting that the experience of being in LA unlocks some of VR's more ineffable qualities. The architectural façades of the movie set and theme park extend throughout the city, offering a glimpse of other places and other times while moving through the urban landscape. Building on theorists who analyze LA as a postmodern city and ground zero for hyperreality, the unrealities that I encountered and that VR exemplify are but the latest shifts in reality that the city makes legible. That one seems to be able to feel reality becoming something else in LA hones an intuition for the kinds of worlds and realities that VR similarly invites into being.

Chapter 3, "Tinseltown and Technology," explores the impact Hollywood has on technological development. The history of the movie industry is also a history of technology, and it is fitting that this chapter builds from the several months I spent observing the day-to-day activities of the Technicolor Experience Center (TEC)—a small branch of the famed company that led the technological transition from black-and-white to color film. In 2018, TEC was trying to lead a transition in the entertainment industry to VR and other immersive technologies. The triumphs and frustrations I witnessed at TEC can be partly attributed to VR being simultaneously a cinematic technology and an emerging technology—a technology for sto-

rytelling as well as a technology about which stories are told. There is different expertise needed for success in these different domains and, because this distinction was not articulated, VR's failure to launch was a puzzle that devolved into a blame game between Silicon Valley and Hollywood.

Part II turns to the fantasy of being that animates VR. The immersive quality of VR is such that one can experience being somewhere else and perhaps even being someone else. Taking on the perspective of another is central to the fantasy of VR as a good technology, a technology that cultivates empathy. In chapter 4, "Being and the Other," I offer a history of VR that explains how it shifted from a technology that, in the 1980s and 1990s, promised freedom from one's body to today's fantasy of embodying another. Central to this reconceptualization of VR is the work of LA-based immersive journalist Nonny de la Peña, who translated research out of the laboratory and offered Hollywood filmmakers, including Iñárritu, a glimpse of VR's narrative potential. Many of the VR experiences with good intentions that were produced in the 2010s were designed for privileged viewers to take on the perspective of marginalized individuals. This chapter unpacks the racial dynamics at the heart of many of these empathy experiences, underscoring that being another can only ever be a façade and must be approached with caution.

In chapter 5, "Special Affect," I consider the mission of Embodied Labs, a company founded in 2016 that creates VR experiences for professional caregivers who work with elderly people. These VR experiences are premised on a similar logic that embodying another will yield insight. However, I explore in this chapter whether an empathy machine otherwise is possible—can the fantasy of being be implemented with care? Drawing on the time I spent with cofounder Carrie Shaw and her coworkers, this chapter suggests that deploying VR such that it does not *replace* the need to be with and care for others but rather *augments* such being and caring is one potential strategy for pursuing VR's fantasy of being a good technology.

Might a good industry bolster and be bolstered by a good technology? This is the question at the heart of the fantasy of representation that focuses part III. In chapter 6, "VR's Feminine Mystique," I describe how Women in VR found its voice and visibility in LA. I do not describe a utopia, but rather moments of triumph—including the successful disenfranchisement, catalyzed by the #MeToo movement, of a VR company when its male founders were charged with harassment—and moments of exclusion felt by some members of this community with regards to the label of "woman." To articulate that women could lead VR is to articulate

a fantasy of a different kind of industry, and this chapter works through what strengthens and weakens this fantasy.

Finally, in chapter 7, "Making Innovation Women's Work," I consider the dynamic of the overlapping fantasies of place, being, and representation to suggest that claims by VR producers that they are "women in tech" indicates that "tech" means something fundamentally different in LA. Women described to me how the rapid growth of VR and the lack of gatekeepers allowed them to claim expertise in a manner they had been denied in other career paths. This was empowering, made more so because while they might have trained in television or film, VR associated them with the prestige of "tech." Unlike earlier moments in the history of both technology and entertainment, where a contraction of expertise limited the involvement of women, here definitions of expertise were allowed to expand with inclusion in mind. Facilitating this expansion of expertise was a recasting of storytelling as technological innovation. Who, then, gets to be an innovator who might otherwise be excluded? And could this project of building a better industry—an industry that promised to build a better world—avoid the pitfalls of the tech world against which it was defining its values?

The world in which I researched this book felt very different from the world in which it was written (and I imagine the one in which it is being read). While the cracks in a fractured reality were quite visible in 2018, the gap between different realities has since widened. In the epilogue, I will bring the conversations of this book into the present by considering the shifting ethical stakes surrounding VR's future. The fantasies of VR's good potentials are fading as the otherwise is being eclipsed by the expected. Meta and Apple have offered their corporate fantasies of VR futures, hoping to maintain their positions of dominance should we (at their insistence) begin spending even more time in virtual worlds. In the land of the unreal, there is much work to be done if technology's future is to be different from its past.

NOTES

Prologue

1. Raz, "Screen Time."
2. Media outlets not only covered these "good" VR projects, but also produced their own. As one example, in November 2015 the *New York Times* created a VR experience following the terrorist attacks in Paris. The experience covered the ensuing vigils in order to "bring our audience to the streets of Paris in the most visceral way we could." Solomon and Davis, "Finding Hope."
3. While Trumpism made more visible the mechanisms for undermining trust in institutions, the weaponization of such strategies began well before Trump's presidency. See, for example, Oreskes and Conway, *Merchants of Doubt*.
4. Lithwick, "Stop Trying to Understand." This statement from October 2018 was in reaction to a week of domestic terrorism catalyzed by Trumpism and, as the journalist argued, hate spewed on social media. These attacks included the thwarting of a plan to send pipe bombs to prominent Trump critics, the murder at the hands of a white nationalist of a Black man and woman who were grocery shopping, and the murder of eleven members of Pittsburgh's Tree of Life synagogue. Prior to this mass murder, the gunman posted on social media that he was taking a stand against those who tolerate "invaders," referring to the congregation's outreach work with South American migrants and refugees. Alerting his followers to the danger of this "caravan" of migrants was Trump's primary campaign strategy in the lead up to the 2018 midterm election.
5. Slate, "The Greatest Deliberative Body."
6. Bernstein and Marritz, "Warnings."
7. Biden, "Remarks."
8. Warzel, "The Pro-Trump Movement." See also Roose, "How the Biden Administration."
9. Whistleblower Frances Haugen released a trove of private papers that documented how the platform "sows division and undermines democracy

in pursuit of breakneck growth and 'astronomical profits.'" Chappell, "The Facebook Papers." See Vaidhyanathan, *Antisocial Media*.

10 Zuckerberg, "I Wanted to Share a Note."

11 Zuckerberg, "Facebook Connect 2021."

Introduction

1 Oscars, "Alejandro González Iñárritu." For an anthropological account of oceanic submersion as a mediated way of knowing, see Helmreich "An Anthropologist Underwater."

2 Anthropologist Jason De León has pursued a variety of multimodal methods to convey the experience of border crossing, including photography. In explaining why he included photographs of people's faces (instead of obscuring their identity as ethnographers working with at-risk communities often do in order to ensure anonymity), he notes the desires of his interlocutors to be seen as people. As one migrant explained to De León, "I want you to put photos that show our reality. That is better. That way people can see what happens. The realness." Words and pictures do for De León what VR does for Iñárritu: "Maybe the photos and stories revealed in the following pages will somehow help those of us who will never know the desperation required to head into the desert or the sorrow that accompanies losing someone to this process get a little closer to 'the realness.'" De León, *The Land of Open Graves*, 19.

3 Gunning, "An Aesthetic of Astonishment," observes that the startled audience did not believe a train was in the theater (as the magic of cinema is sometimes naïvely glossed) but rather they experienced a pleasurable awareness of the illusionistic capacity of the new medium. Murray draws on the Lumière example (and Gunning's analysis) to remind readers that "there is no reason to believe that VR is more likely to deceive us than older media forms, which were once described as equally magical." See Murray "Virtual/Reality," 24.

4 Chagollan, "Iñárritu's 'Lumiére Moment.'"

5 Wynter, "Unsettling the Coloniality of Being."

6 For critiques of tech for good projects deployed in "humanitarian" contexts, see Ames, *The Charisma Machine*; Madianou, "Nonhuman Humanitarianism"; Henriksen and Richey, "Google's Tech Philanthropy."

7 This logic is not unique to VR. See Giridharadas, *Winners Take All*. There are some VR for Good projects that are about getting VR headsets into classrooms or underresourced communities, but the VR for Good that I most frequently encountered in research were experiences, like *Carne y Arena* targeted at making a privileged person aware of social inequities.

8 Yee and Bailenson, "The Proteus Effect." Additional research has nu-
anced these claims. For example, Jeremy Bailenson's lab has also found
that embodying a Black avatar didn't increase empathy, but actually re-
inforced stereotypes. See Groom, Bailenson, and Nass, "The Influence
of Racial Embodiment." A few years later, Mel Slater's lab ran a similar
experiment and reported reduced bias. See Peck et al., "Putting Your-
self in the Skin." Bailenson suggested in his book that the different ex-
perimental findings could be attributed to Slater's VR system having
better tracking. Bailenson, *Experience on Demand*, 90.

9 Milk, "How Virtual Reality Can Create the Ultimate Empathy Machine."
As stated by Milk in a keynote conversation during the 2020 Games for
Change conference, this is a riff on film critic Roger Ebert's claim that
film itself is "the most powerful empathy machine in all the arts." Ebert,
"Ebert's Walk of Fame Remarks."

10 In later chapters, I will more fully explore the critique of the empathy
machine as enumerated by these scholars and others: Nakamura, "Feel-
ing Good about Feeling Bad"; Roquet, "Empathy for the Game Master";
Bollmer and Guinness, "Empathy and Nausea"; Glabau, "Imagination,
Whiteness, and the Future."

11 Magalhães and Couldry, "Giving by Taking Away," 343. See also Madi-
anou, "Nonhuman Humanitarianism." Rider, "Volunteering the Val-
ley," argues that even when tech workers volunteer for civic technology
projects precisely because they are disillusioned by their day jobs, they
nevertheless "export the moral orders structuring their workplaces—
judgments about what makes a good worker, project, technology, and
organization—into civic groups." This can lead to well-meaning efforts
that "actively reinforce the epistemic, cultural, and economic power of
Big Tech firms—even when technologists are openly critical of the in-
dustry," 6.

12 Marx, "Does Improved Technology"; Madianou, "Technological
Futures."

13 Scholars studying Los Angeles's dominant cultural product, cinema,
have also operationalized fantasy as an analytic. Many draw on Freud
and Lacan, for example, McGowan, *The Real Gaze*; Meiri and Kohen-Raz,
Traversing the Fantasy; Metz, *The Imaginary Signifier*. Žižek, *Looking Awry*,
uses film and other media to introduce Lacan's ideas. Fantasy has also
been analyzed as a literary and cinematic genre. See Sobchack, *Screen-
ing Space*; Saler, *As If*; Hassler-Forest, *Science Fiction, Fantasy, and Politics*.

14 McGowan, *The Real Gaze*, 23.

15 McGowan, "Lost on Mulholland Drive," 80. McGowan's article, which is
an analysis of *Mulholland Drive* and thus fittingly reflexive about Holly-
wood as a creator of fantasy, concludes by suggesting that Hollywood's

failure, and this extends to the populace more widely, is failing to commit fully to fantasy in order to achieve its radical potential. "Subjects today have remained too removed from fantasy, resisting the experience toward which it compels them. But *Mulholland Drive* calls us to fully immerse ourselves in fantasy, to abandon ourselves in its logic. Only in this way can we experience fantasy's privileged path to the Real," 86. However, as I discuss toward the beginning of this introduction, fantasy is a double-edged sword that could as easily lead to "the Real" as a complete rejection of that real. Fantasy facilitates "experiences otherwise unthinkable," but it does not determine the morality of these experiences.

16 Nusselder, *Interface Fantasy*. For other applications of Lacan to computing, see Žižek, "Cyberspace," and Dean, "The Real Internet," for a critique.

17 Brandt and Messeri, "Imagining Feminist Futures."

18 As will be discussed further in chapter 6, Alyssa Milano, who first tweeted #MeToo in response to the Weinstein revelations, quickly acknowledged that activist Tarana Burke had been using "Me Too" for a decade to shed light on the harassment experienced by girls and women of color.

19 Berlant, *Cruel Optimism*, 11. Thanks are due to Michelle Venetucci for pointing out this connection.

20 Soja, *My Los Angeles*, 86.

21 Soja, *My Los Angeles*, 107.

22 Soja, *My Los Angeles*, 108.

23 Soja, *My Los Angeles*, 87.

24 Cohan analyzes the opening of *The Errand Boy* as part of a discussion about the genre of "backstudio pictures." Significantly, "Within the studio the engineering, technology, and artifice of acting are openly exposed." The narrator of *The Errand Boy* explains that what follows is not a documentary (as one would hardly expect from a Jerry Lewis picture), and so Cohan concludes that despite a prologue that suggests it is taking the viewer inside Hollywood, "the 'real' Hollywood remains inaccessible . . . insofar as the industry's operation by top management is still closed off to outsiders." See Cohan, *Hollywood by Hollywood*, 67. Andersen's documentary *Los Angeles Plays Itself* further explores the representational folds by which the movie industry in turn masks and reveals the kind of place that it is.

25 Davidson, *The Real and the Unreal*, 4.

26 Rosten, *Hollywood*, 34–35.

27 Two "Theorizing the Contemporary" series, published by the journal *Cultural Anthropology*, summarize this "speculative turn" in anthropology: Anderson et al., "Introduction: Speculative Anthropologies"; Mc-

Tighe and Raschig, "Introduction: An Otherwise Anthropology." There is precedence within the discipline for retreating from "the real" at moments of heightened political conflict, as evidenced by the turn to surrealism that inspired theorists and anthropologists following the crises of WWI and the global depression of the 1930s. See Fischer, "Culture and Cultural Analysis as Experimental Systems," 21–23. A speculative turn is also at work in other disciplines, including STS. See, among others, Haraway, *Simians, Cyborgs, and Women* and *Staying with the Trouble*; Benjamin, "Racial Fictions"; and Radin, "The Speculative Present." In the field of critical design, see Dunne and Raby, *Speculative Everything*; Chin, "Using Fiction"; Forlano and Mathew, "From Design Fiction"; and Galloway and Caudwell, "Speculative Design as Research Method." In the social sciences more generally, see contributors to Wilkie, Savransky, and Rosengarten, eds., *Speculative Research*; as well as Cortiel et al., eds., *Practices of Speculation*. Applying speculation to historical methods, Saidiya Hartman, *Wayward Lives, Beautiful Experiments*, uses speculation as a method for filling in the gaps of an archive that has left out Black women. Bahng, *Migrant Futures*, contrasts speculative finance with speculative fiction in understanding how postcapital worlds are imagined.

28 Wolf-Meyer, *Theory for the World*, 15. See also Appadurai, *The Future as Cultural Fact*; Bryant and Knight, *The Anthropology of the Future*; Salazar et al., *Anthropologies and Futures*; and Valentine and Hassoun, "Uncommon Futures."

29 Jobson, "The Case," 261. For some, any attempt to save anthropology from its history is a futile endeavor given the field's colonial past and the ways in which this history has propagated legacies of racism and elitism that continue to harm scholars in many of the discipline's storied institutions. See Todd, "The Decolonial Turn 2.0."

30 Gupta, "Decolonizing U.S. Anthropology."

31 Pandian, *A Possible Anthropology*, 4.

32 Latour, *Science in Action*, 93.

33 Mol, "Ontological Politics," 95.

34 Barad, "Posthumanist Performativity," 817.

35 Oreskes and Conway, *Merchants of Doubt*; Sismondo, "Post-Truth?"; Latour, *Down to Earth*; Radin, "Alternative Facts."

36 Kofman, "Bruno Latour."

37 This point is made by Woolgar and Lezaun, "The Wrong Bin Bag," during a disciplinary conversation about the "turn" in STS from focusing on epistemology to ontology. Relevant for the preceding discussion, Sismondo revisits this phrase to reject claims that STS is complicit in the post-truth era of the Trump presidency. "It could be otherwise" does not suggest "that 'it could easily be otherwise'; instead [STS arguments] point to other possible infrastructures, efforts, ingenuity and

validation structures. That doesn't look at all like post-truth. A Twitter account alone does not make what we have been calling knowledge." Sismondo, "Post-Truth?," 3. "The otherwise" is also a theoretical resource for Povinelli, "Routes/Worlds" and *Geontologies*.

38 Noble, *Algorithms of Oppression*; Benjamin, *Race after Technology*; Mullaney et al., *Your Computer Is on Fire*.

39 Craig and Cunningham, *Social Media Entertainment*. For the rise of episodic, scripted content delivered over streaming platforms, see Christian, *Open TV*.

40 Elliott, "Silicon Is Just Sand."

41 To be clear, while the tech community hailed the success of Snap, residents of Venice saw their community change drastically as the company expanded and others, seeking to match the unicorn success, moved in. As had happened in the Bay Area, property prices skyrocketed, diversity decreased, and the unhoused population, long a fixture of Venice Beach, was displaced. Snap Inc. eventually relocated to Santa Monica (in part due to protests from Venice Beach residents). Hernandez, "Snapchat's Disappearing Act."

42 Elliott, "Silicon Is Just Sand." See also Bowles, "The Battle over 'Silicon Beach.'"

43 King, *Virtual Memory*, 11–12.

44 Bergson, *Mind-Energy*; Deleuze, *Difference and Repetition*. See also Massumi, *Parables for the Virtual*, and Grosz, *Time Travels*.

45 Levy, *Becoming Virtual*; Grosz, *Architecture from the Outside*; Shields, *The Virtual*.

46 Friedberg, *Window Shopping* and *The Virtual Window*; King, *Virtual Memory*.

47 Boellstorff, *Coming of Age in Second Life*. Chalmers, *Reality+*, also makes this argument from a metaphysical perspective. Nardi, "Virtuality," while not denying that the virtual is real finds utility in maintaining virtual in opposition to the real as it follows the linguistic habits of gamers and other virtual consumers.

48 Boellstorff, "For Whom the Ontology Turns."

49 Boellstorff et al., *Ethnography and Virtual Worlds*.

50 Pink et al., *Digital Ethnography*.

51 Coleman, "Ethnographic Approaches to Digital Media."

Part I. Fantasy of Place

1 A similar intention animates Roquet's book, *The Immersive Enclosure*. VR, he argues, is neither uniquely American nor a placeless technology. In studying VR from Japan, as Roquet does, desires for VR to cultivate private spaces of perception and exploration come into focus.