

OUR REALITY

A Novella

Tadayoshi Kohno

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Preface

I wrote *Our Reality*—a science fiction story set in 2034—with the goal of creating a fictional world that could inspire thought and conversations about society, technology, and the relationship between society and technology, with a particular focus on racism, racism in technology, and the future role of technology in our lives.

To provide context for my writing: I am a computer science professor in the Paul G. Allen School of Computer Science & Engineering at the University of Washington (UW). I co-direct the UW Security & Privacy Research Lab and the UW Tech Policy Lab. I serve as an adjunct faculty member in the UW Department of Electrical & Computer Engineering, the UW School of Information, and the UW School of Law. I am additionally honored to represent my school as the associate director for diversity, equity, and inclusion. Through my scholarly work, I have become deeply aware that, in addition to offering significant benefits to the world, technologies can also lead to significant harms. I believe that education plays a vital role in proactively mitigating these harms and creating a foundation for more just technologies.

I hope that *Our Reality* will raise your awareness about how the design and use of technology can both maximize *and* undermine our society's potential. I chose

to write fiction, rather than academic prose, because fiction can be personal, intimate, and emotional—and hence thought-provoking and memorable—in ways that textbooks simply cannot. My hope is that aspects of *Our Reality* will linger with you long after you have finished reading.

In writing *Our Reality*, I intentionally created a world with plausible faults—faults that have roots in today’s society and technology. It is in these faults that I have embedded edifying content and discussion points. As you read, consider which aspects of the *Our Reality* world you find credible or unlikely, appealing or concerning.

Once you finish reading, I encourage you to consider the following question: What will you do today to make tomorrow a more just world? Our future need not resemble the world that this story envisions. It will be what we make it, and we must proceed mindfully and justly.

To foster further individual thought and collective conversations about society, technology, and the future, I include a set of guiding questions at the story’s end. I encourage you to dwell on each question to unpack its multiple layers of subtlety.

Reading *Our Reality* may spur your interest in learning more about the roots and realities of racism, about how society interacts with technology, and about how you can actively combat injustice. Therefore, I also present a list of further readings at the story’s end. If you are interested in additional information about the educational material incorporated into the *Our Reality* narrative, or if you are an educator interested in materials and content to share with your students, then

please see the companion resources at <https://yoshikohno.net/OurReality.html>.

We must not let our drive to innovate new technologies outpace our understanding of society and the relationship between society and technology. To the extent that *Our Reality* helps you to become aware of and take action to proactively address unanticipated technological consequences and long-standing social inequities, it will help us all move forward as a wiser and more just global community.

CHAPTER ONE

Alone

Emma, Saturday, May 6, 2034

A rare miniature purple dragon—the kind with scales that look like tiny snowcapped mountains—appears, half-hidden, behind a streetlamp in front of me. On any other day, I would try to convince River and Wind to chase it with me, even though they can't see it. If I caught it, I would get 10,000 points. But there's no way I'm doing that today. I wouldn't even chase a 20,000-point crystal dragon.

I'm too distracted. The fresh Saturday morning air and the walk with my dogs are *supposed* to be helping me clear my mind. But, ugh. I can't stop thinking about my argument with Mom. It is the same argument that we always have, over and over, once a month at least.

If you were to tell me that by tomorrow I will have forgotten about this argument, just like I have every time

before, I would not believe you. Not this time. This time will be different.

If you were to tell me that in six months I will have other things to think about—like meeting a boy or being targeted by the police—I would also not believe you.

“Replay last argument with Mom,” I say. Images of Mom’s and my avatars come into view, transparent enough for me to still see the sidewalk and made visible to me by my Goggles—the sleek silver-blue head-mounted mixed-reality display that always frames my face. How many times have I replayed this scene already this morning? At least ten.

In the moment it takes for the scene to restart, I notice how the aquamarine color of my avatar’s skin contrasts beautifully with the freshly cut green grass to my left, and how Mom’s cobalt blue skin and indigo hair always look so elegant when paired with one of her many black suits. Why does Mom always look so perfect? That’s irritating, too. I’m wearing what I always wear, designer sweats, perfectly tailored to my avatar’s body.

Why couldn’t she have at least come to my room to finish our argument in person? Also so *frustrating*. If Mom had come to my room, it would have meant that she understood how important seeing people *in person* is to me. But she didn’t.

“Mom! Come on! *Please! Just trust me,*” I plead. “I am almost an adult now. I am a high school junior. I turn seventeen in July! I should be able to leave Madrona Lake.” My avatar’s clenched fists move up and down like wings in the replaying scene. Madrona Lake is our neighborhood, christened to honor the lake that our houses border and the madrona trees that were here long

ago. Every house is creatively architected by its owner, yet also perfectly coordinated in style and appearance. All are tall and expansive, with immaculate grass lawns and large windows for enjoying the sunrise over the lake and the view of Mount Rainier to the south. It is important to have large windows in the Pacific Northwest. We need as much light as possible during the long, gray winters.

“Emma, honey, I *do* trust you. Dad and I both trust you. We just want to keep you safe. You know that,” Mom’s avatar says. I hate how she says that so calmly, almost condescendingly.

“Seriously, Mom,” I say. I’m exasperated. “I’m wearing *your* Goggles. You track my location and status *All. The. Time.*” Any other kid would say “my Goggles.” And I am in fact talking about *my* Goggles—my windows to the world. But when talking to Mom, I say “your Goggles” because she designed them with her team when she co-founded and became Chief Reality Engineer at Our Reality.

I continue, “If anything happens, you will know immediately. You’ve told me that *a thousand times*. You always tell me that I’m safe *because* of the features you built into your Goggles! Isn’t it hypocritical that you tell me that I’m safe *because* of your Goggles and *also* don’t let me leave Madrona Lake?” Each time I relisten to that line, I am proud of my choice of words. If this were an actual discussion, I would have won right then and there. But Mom isn’t truly listening to me and isn’t even trying to understand the feelings behind my words.

I then made another excellent point. “And, what’s more, nothing will happen! The world is not as unsafe as you think.” My friends who live in other communities

around here tell me so. Well, they tell me that their neighborhoods are safe. Of course, they aren't allowed to leave their communities, either. Nothing prevents us from actually seeing each other in the real, physical world. Certainly, nothing that I am aware of. No laws. No walls separating our communities. No fences. Nothing. Nothing except the pressures of society. And the pressures of our parents. If I ever do see anyone else walking in this neighborhood, I'm supposed to turn around or stay far, far away. Social distancing is key, as Mom and Dad always say.

Ha! I have no idea what my parents would do if I broke the rules. There are rebellious kids at my school who *might* break the rules. I've heard rumors of them, about their sneaking out late at night while their parents sleep. But I'm not one of them. Nor are any of my friends. With their parents tracking their Goggles' locations, these kids would need to leave their Goggles at home. I shiver at that thought. I would never do anything without my Goggles. What would I do in an emergency? But that's only one reason I don't break the rules. I want my parents to trust me and *let* me leave Madrona Lake. I don't know where I'd go. I just want to see more of the world.

There are wealthy parents who have made different decisions. Some are dangerously cavalier, as Mom and Dad say, and ignore the risk of more pandemics. Others have hired private teachers and formed isolated education pods for their children. In both cases, *their kids* get to *physically see other kids*. I wish my parents had different views.

A squirrel darts across the road, visible behind the

replaying images of Mom and me arguing. I brace for the inevitable tugs on their leashes as River and Wind leap to chase it.

I readjust my face mask and Goggles after that tug.

I would give anything to live like River and Wind, just in the moment, and without any care in the world. Should I drop their leashes and let them enjoy a good run? I don't need to worry about cars. The only vehicles that ever drive these streets are the garbage, recycling, and compost trucks on Friday, and sometimes some gardeners. They have big trucks full of autonomous robomowers, with hand tools for the more detailed work. But today's the weekend, which means that no gardeners are here. And no, I'm not dropping their leashes today. They enjoy their game of keep-away too much. I have more important things to do than run after them.

Mom's avatar in the replay doesn't see the squirrel and doesn't hear my thoughts trail off in random directions. She stays on task, committed to her agenda. "The world is *not* safe. And why would you ever need to leave Madrona Lake? You have everything that you could ever need. We either have it, we'll have a drone deliver it or send our drone to pick it up, or it is in Our Reality."

Um, what about the freedom to explore the real world?

Or what about an actual human, in-person friend?

I have vague memories of playing with other kids—hugging them, laughing with them—from before The Pandemic of 2020. But those memories are so faint, from so long ago, and I was so young. I can't tell if the memories are actually real or if they are dreams that I've concocted for myself. I knew from experience that if I

mentioned wanting to meet a person—any person—up close and for real, instead of in Our Reality, she'd freak out even more. So, I didn't mention it. None of my friends would be allowed to see me in person either—their parents would freak out, too—so it doesn't matter anyway. It sometimes hurts, though. I know my life is missing something. The Pandemic of 2020—fourteen years ago now—really scarred Mom. It scarred all of society. The Pandemic of 2024 reopened and further deepened those wounds.

“Even if the world looks safe, it isn't,” Mom continues. I know what Mom is going to say next—and not just because I've replayed this scene ten times already. She is going to explain to me why she created Our Reality, yet again, using almost the exact same words that she always uses.

“First, we never know when another pandemic will occur,” Mom says. “Being cautious is the best way to protect against unexpected events.” The loss of Mom's kid sister—who Mom basically raised and who became her best friend—to The Pandemic of 2020 really drove her to protect me. She said that she couldn't stand any more loss. In-person contact means risk, however slight. With Our Reality, there is never a need to interact with anyone in person, ever, which is her win but my loss.

“And second,” Mom continues, “there is so much inequity, so many examples of injustice in the world. Even if you can't overtly see them, they are there, like the glowing embers of a fire waiting to be rekindled with the slightest agitation.” Mom always likes how poetically she says those last words. “At least we have some control in Our Reality. In Our Reality, everyone can be safe.” Our

Reality uses similar words in its advertising, unsurprisingly.

I know that Mom created Our Reality for me, or at least that was her driving motivation. She didn't want to lose me like she lost her sister. So, she created a virtual world in which I could live my entire life. On top of that, when Mom lived in the real world, she had to fight so many battles that other people didn't have to. Some of her classmates back in college told her that she was accepted as a computer science major only because she was a Black woman. The venture capitalists might not have even invested in Our Reality if her co-founders weren't white men. She *still* has to struggle, daily, in a tech world without enough Black people, or women, let alone Black women. She is brilliant, and she has struggled through so much injustice.

So, yeah, I understand that she wants to protect me, and save me from the world. Maybe I shouldn't be so hard on her. But just because she thinks she's saving me from the world doesn't mean that I want to be saved. Or that I agree with how she's doing it. I don't agree. The emptiness in me is too great. I want a real, in-person friend. But what can I do? Sometimes I think that Dad might see my side of the story more than Mom, but he is also concerned about my safety and respects Mom's views too much. So, any discussion with him leads to the same outcome.

"Replay last argument with Mom," I say again. The image is reset, and I once again see our avatars talking, from the beginning of our argument.

I reach down and rub River, and then Wind, behind their ears. These two Akitas are so strong, handsome, and

soft. They are always here for me when I need them, and they are truly my best, best friends. Their upturned heads and the sparkles in their brown eyes tell me that they love being petted, just like I love petting them. I stay like this for a few minutes, finally taking my mind off of Mom, though the replay is still running. I feel their fur beneath my fingers, and their warmth, and it comforts me. Physical connection like this is blissful, even if it is just with my dogs.

What would it feel like to touch another human being? To hold someone else's hand? To hear their breath beside me and to really look into their eyes? Sigh. Sure, I sometimes bump into Mom and Dad in the kitchen, and on a rare occasion they may give me a hug. But that doesn't count—they're my parents, not my friends. At least I have River and Wind.

A delivery drone whizzes by, tracing the path of the street as it races to its next stop. I look up from River and Wind toward the sky. There are always drones overhead. Directly above me, but far away and barely noticeable, is the distinctive shape of a police quadcopter drone. I've seen one above me before. Why is it there?

I should look up more often.

A floating blob of text pops into my Goggles' display and brings me back to the present. My Goggles pause the replaying scene. "*Notice from Iridesce High School.*"

On a Saturday!?

Fine. I'll open it. I'll think more about that police drone, later, if I remember.

Principal Femi's avatar materializes in front of me, their face and hands a rich moss green and the rest of their body covered in the purple and gold regalia from

their PhD alma mater. “Attention Iridesce High School students,” Principal Femi begins. “Details of a new initiative were finalized last night, and we wanted to share them with you. Iridesce High School and Centennial High School are the recipients of a large government grant. In case you aren’t aware, Centennial is a physical high school in our city. This grant covers Goggles for Centennial High School juniors and seniors, as well as significant funds to expand our own academic offerings. Centennial High School juniors and seniors will be joining us at Iridesce for classes soon.”

Did I hear that correctly!? Is this finally my chance to meet someone who’s not from Iridesce? Someone who doesn’t live their entire life in Our Reality? I replay the message to be sure.

“River and Wind!” I exclaim. “I have some exciting news for you!” I rub my dogs vigorously behind their ears. They look up at me with enthusiastic eyes. They know I’m excited, so they are excited, too.

Liam, Friday, May 12, 2034

“That was *trash*,” my buddy Henry says to me. He likes to egg me on. Henry is playing in goal and just blocked my shot during team practice. He is a junior, like me, and is Centennial High School’s backup goalie. He hopes to be starting keeper next year, after this year’s keeper graduates. My shot was on target, but his block was solid.

I prepare to take another shot. Off the bottom of the crossbar and into the net! “Bam!” I say to Henry, a smile on my face. I can dish it out just as well as he can.

Coach blows his whistle. Practice is over. We run to collect our balls.

“Liam! Henry! Put on your masks!” Coach yells from across the field. A school requirement for whenever we are not actually training. Clearly, we forgot. Again.

“Sorry, Coach!” I shout as Henry and I don our masks. Wearing masks is a rule, but Henry and I don’t always wear them when we are off on our own. We should, but we don’t. And we have a habit of forgetting when at school.

The sky is overcast, but visibility is clear. It won’t get dark for many hours this far north. We spot all our balls easily in the bushes that surround the field. Beyond the fence that surrounds our school are houses, many with weathered paint and random junk left on their lawns. I park along those streets, as do other students who are old enough to drive and can afford cars. I’m proud of my car—a 2014 sedan that my parents bought from a neighbor. Two hundred thousand miles and it still drives well. I’m also proud that I know how to drive automatic. Lots of kids, if they have a car, only drive autonomous.

“Nice shots today. Want to kick some balls tomorrow morning?” Henry asks, though he doesn’t need to. Me practicing my shots, him practicing his saves, that’s how we’ve spent all our Saturday mornings ever since we were in eighth grade.

“Of course, man. Gotta prepare for the College Showcase,” I say as I push my short, curly blond hair away from my eyes. That thought is constantly on my mind. I’ve had a soccer ball at my feet ever since I learned how to walk. I probably crawled with a soccer ball. Sure, Mom and Dad have been saving for my college

education since I was born, and I am eligible for some need-based financial aid. It won't be enough for a top college, though. I'm confident that I can get a soccer scholarship. I just hope it is for a strong physical-world school with a great soccer team, which is why I need all the training that I can get.

"What if we don't get recruited?" Henry asks. This is Henry's repeated worry. I understand why. He's excellent, but not at the same level as our starting keeper.

"Dude, don't talk like that. You *are* going to make it. Let's train extra hard tomorrow," I say. I am always there to reassure Henry. He's a glass-half-empty kind of guy. Not only can he do it, but he *must* do it. They don't have savings like my parents, and his grades aren't quite as good. His backup option is to take over his father's pizza business. His father wants that, actually, but I know Henry doesn't.

"Fine. Whatever," Henry says. I don't expect much more of a response from him.

I decide to mess with him a little. Our relationship is based on soccer, and jeering. "Heh, maybe just spend a little more time at soccer and a little less time with Alexander." Alexander is his partner.

"Dude, you're a jerk," Henry replies. He knows I'm just giving him a hard time and that I think they're a great couple. It's just too easy to get him riled up. He knows that, too.

"Ha! I know," I say.

"Good. Because you are. See you tonight?" Henry asks.

"Yup!" I reply. I'll see him at 7:30 p.m. That's when our work shifts start. I stay after practice every other day of the week, for some additional training on my own. But

today is Friday, which means we have work. We both deliver pizzas for Henry's father. Henry's dad did the math. It's better for him to pay real drivers, like us, than to buy a drone and offer drone delivery, at least in this neighborhood. Like all restaurants, customers can send their own drone for pickup and avoid the delivery fee and tip. Me, I'm glad that Henry's dad needs drivers. I like seeing the neighborhood, and I need the money.

My biggest complaint: on the rare occasion when I drop off a pizza at one of those wealthy houses in a different neighborhood, they make me leave it outside their door, never even opening it to say "Hi" or "Thank you." And I see their kids gawking at me from their windows. From their fortress. I don't know why they even order pizza delivery from us if they're going to treat me like the coming of The Next Virus. Maybe their pickup drone is broken, and they really like our pizzas? Or maybe they just want to see me, a specimen of life from the other side of town? I know these kids are judging me and my old-fashioned automatic car. Or maybe they're feeling sorry for me. But they don't even know me.

I will meet some of them in a few weeks, once our school gets those Goggles. I am excited to try Goggles for the first time! But what will it be like to actually meet those Iridesce kids? What will they think of us? I bet they are *not* excited to have us join their classes. Our presence will disrupt the perfect lives that their parents bought for them.

CHAPTER TWO

Iridesce

Emma, Monday, June 5, 2034

My bed is shaking gently. Uh-oh, school starts in two minutes. Wake up, wake up. I pay more attention to school when I'm sitting up. Okay, sit up, I can do it. I wish tardies didn't count against my participation grade. What was I just dreaming about? I want to remember. Never mind, not important. Why does it matter if I'm late to homeroom?

"Room, alarm off," I mutter. My bed stops shaking. "Set light to morning. Open curtains."

I need to get up.

I finally prop my back against my pillows and my bed's sandalwood backboard and put on my Goggles. Sigh, time for school. "Connect to class," I tell my Goggles. My down comforter puffs around me. Can't I just fall back asleep?

I'm immediately seated at my desk. I see Mx. Hill at the front of the classroom, their body just transparent enough to allow me to also see my large white two-column dresser and my bathroom door. The avatars of other students are sitting around me like friendly ghosts. How many of them are still in bed, too, I wonder. Maybe even Mx. Hill is still in bed? Hard to know!

"Good to see you all here," Mx. Hill's avatar says into my ears. Why did Mx. Hill chose to make their avatar red with white polka dots today? And why they are wearing a black suit with what appears to be either blue or green pinstripes? They look like a seedless watermelon. Do they know that? Mx. Hill was never really known for their sense of style.

"And on time," Mx. Hill continues. I think they're looking straight at me. I'm a strong student in every way . . . except timeliness.

"Just a reminder that today we are operating on a different schedule. At 10 a.m., we will be joined by Centennial High School."

I hear a long and low moan in my ears, coming from behind me and to my right. Aiden was always very expressive. But from his grumble and the cloud of laughing emojis that I see appearing over Aiden's avatar's head, it seems like others are not too excited about this activity, either.

Mx. Hill continues, "They are becoming a sibling school, with their juniors and seniors taking classes with us, in our classrooms."

All the schools in Our Reality are based in real cities. That is because of how the Our Reality School System was formed. At the start of The Pandemic of 2020, there were

online schools that were also based in real cities. These were schools that kids connected to with PCs and video cameras, instead of Goggles. Those schools supposedly didn't work well for a whole bunch of reasons. Many—but not all—students returned to at least some in-person education after The Pandemic of 2020. But then The Pandemic of 2024 hit, and almost all kids moved back into online schools.

When Mom launched Our Reality in 2025, her company bootstrapped its school system by harvesting families from those online schools. That's why most students at Iridesce High live in the same city as me—the same city as Centennial High. Of course, many families couldn't afford Our Reality Goggles, let alone the cost of an exclusive Our Reality private education. But almost everyone who *could* afford Our Reality joined unless they had already formed small education pods with other families or had other options. Those who could afford the Our Reality School System have, by and large, chosen to stay, even as students in traditional PC-based online schools returned, again, to physical classrooms.

Our city is huge—a population of several million people—so it really doesn't mean anything for all of us to be from the same city. Iridesce High students could live anywhere in the world and I'd probably not know the difference. With real-time language translation, they could even speak any language that they wanted, and I'd still hear them speak in standard, proper English.

Mx. Hill would be easier to pay attention to if their voice weren't so monotonous. My mind's wandering off, but they are still speaking, "For today, our main goal is to get to know them and help them learn how to navigate

Iridesce. You will each be assigned as the mentor to one Centennial High School junior.” Another groan from behind me.

Unlike some of my classmates, *I* have been *looking forward to this day* since I first heard about it four weeks ago. I can’t wait to talk with someone—anyone—who lives in the real world. Of course, there are some people who live mostly in the real world and who find the money to buy Goggles and visit Our Reality whenever they can, but I’ve never met any of them, either. These Tourists, as we call them, are not allowed at Iridesce High. A special exception must have been made for Centennial students. And my parents have blocked my ability to visit any Tourists-allowed realms in Our Reality—the nonexclusive gaming worlds, parks, stores, malls, vacation destinations—everything.

“The mentorship program will continue on Wednesday and Friday, and next week, too, also on Monday, Wednesday, and Friday,” Mx. Hill adds. “Starting on Wednesday, our guests will be participating in actual classes, not just learning how to navigate Iridesce. For today, just help them figure out how we do things. After Summer Break, these students will join us full-time for Fall Semester.” School runs every year from mid-February to the day before Thanksgiving, with two weeks off every year for summer solstice. It’s been this way for nearly ten years. During The Pandemics of the 2020s, it was thought that viruses were more dangerous in the winter. By avoiding classes in December and January, schools are better prepared for the next pandemic.

“Naturally, I’ll also be mentoring one of their teachers,” Mx. Hill says. They seem to be gloating about

that fact. Centennial’s teachers are supposed to learn how to teach in Our Reality and will be co-teaching classes in the fall.

Talking to the transparent blob of text that has just appeared above their outstretched red-with-white-polka-dots right hand, Mx. Hill instructs, “Make sure that you check off each item in your mentor to-do list as you finish it. Walk your students through their class schedule, but don’t spend more than twenty minutes in each classroom. Once you’re finished with all the classes, head to the lunchroom.”

Suddenly, an opaque “*Are you up?*” text bubble from Mom shows up in front of Mx. Hill’s avatar, blocking my view of them, the checklist, and a few classmates. Annoying. (1) Mom requires that I set the priority of her messages to “Highest,” which means her messages always overlap anything I’m doing, and (2) why doesn’t she just trust me? She must know I’m awake. Our shared Family Health Center app—which she helped create!—would have informed her when I put on my Goggles. She could have also checked the status of my window curtains.

I think she’s passive-aggressively asking if I’ve connected to class. With student privacy rules, that is *the single bit* of information about me that she can’t automatically access.

“Reply, ‘Yes,’ ” I say. And then I add, “Reply, ‘I’m in class.’ ”

My Goggles almost always figure out what sounds to share and what not to, but to be safe I next do what my parents taught me long ago. I say “Mute” and “Turn off mobility” and then get up to use the bathroom and brush my teeth. Mx. Hill continues to ramble on, their avatar a

little more transparent now than before, for safety, since I'm standing up and moving. I reach down and grab my toothbrush, my hand a radiant aquamarine, the color of my avatar. I look in the mirror and see my real self. Goggles don't modify reflections. I smile at myself, and my reflection smiles back. I'll change from my real-world plaid flannel PJs, which I see in the mirror, to my cotton sweatpants and sweatshirt at lunch. My avatar is, of course, already dressed for the day.

Liam, 9 a.m., Same Day

I'm trying to pretend like I'm not excited. But I am. I have a pair of Goggles on my head, and I'm going to see what Our Reality looks like for the very first time! All the other kids in homeroom have their Goggles on, too. We're waiting for Mr. Johnson to be ready.

Cool that we get these Goggles, even if they are last year's model! Up until a few weeks ago, the thought of *actually* trying Goggles never occurred to me. I've always wanted to try them, but I never thought about it as a serious possibility. But now I *am* trying them, for real! So of course, I'm excited. Am I as excited as when I save up enough money to buy new soccer cleats? Well, that's debatable.

Okay. I'll be honest. I'm just as excited.

What will those Iridesce kids be like, though? I expect this to be awkward.

How difficult will it be to use Our Reality? I know how to use a computer. I have my school-issued laptop in my backpack. Our family has a couple of PCs at home, which

my parents use. My kid brother has his school-issued laptop, too. We all also have phones. Mom is an essential worker at a biotech company, working onsite to manage the robots used by remote scientists. Dad hasn't been able to find a steady job in a while. But Mom's job is a good one. She's paid hourly, at a reasonable rate, so it's not like we're super poor. We have everything we need—a townhome, food, I have a car. And I have my job, which pays for my soccer-cleat addiction.

We can't afford these Goggles, though. I did the math once I learned that our school was getting this grant. The amount of money that went into this grant must have been *ginormous*. A pair of Goggles costs three times more than what my parents paid for my 2014 car, ten times as much as my phone, and one-tenth of Mom's yearly income. Yeah, we definitely can't afford Goggles. On top of that is the monthly fee. Even the Basic subscription is insane. I can't imagine being able to afford a Premium membership. And on top of that, if you have the money, you could pay for an exclusive Our Reality education and spend your entire life in Our Reality. There is *no way* we could *ever* do that!

A few years ago, Our Reality released a phone app, but it sucked compared to Goggles. Or at least that's what people said. I never tried it, and they've now removed it from the phone app stores. I guess they couldn't figure out a way to make a phone-based mixed-reality world that wasn't anything but a gimmick. Without even having used them yet, I *know* that Goggles are much more immersive. Plus, the average consumer isn't really the target for Our Reality. Our Reality Goggles are a premium product, targeting businesses and the wealthy.

Our Reality announced plans to produce a “Goggles Lite” a few years ago, but I have no idea when they’ll deliver on that or if they will be affordable for a family like mine. I also don’t know if they will be useful, like real Goggles, or a gimmick, like Our Reality on phones. If they are useful, and if we can afford them, would I want a pair of Goggles Lite? Would I even want to go to school in Our Reality?

Earth to Liam. Stop daydreaming. What am I thinking? Even if we could afford an Our Reality education, I wouldn’t want it. I remember—vaguely—The Pandemic of 2024. I remember being cooped up in my house for a year. I didn’t play soccer, yet. But that year was *totally* catastrophic. If I went to an Our Reality-only school, I’d have to give up soccer, and nothing is worth that.

I trace the grooves carved into my desk with my fingers, lost in thought. Who snuck in a knife capable of doing this carving? How many decades have these grooves been here? A desk is a desk, I guess.

Mr. Johnson, my homeroom teacher, doesn’t understand technology. The slightly transparent “*Welcome to Our Reality*” light-blue orb has been sitting in front of me for ten minutes while Mr. Johnson has been trying to figure out the teacher controls and administrative settings for our class Goggles.

“Sorry, class, for the delay,” Mr. Johnson finally announces. And then, reading off a script, “ ‘You should now see a place to configure your avatar. This is where you enter your preferred name—what others will see under your avatar’s head if they look at you for a few seconds—as well as your preferred pronouns.’ ” The blob

of text in front of me changes, prompting me to provide that information.

I say “Liam the Center Mid” for my name and “he/him” for my pronouns. The noise-canceling feature of the Goggles lets me hear Mr. Johnson but cancels out the sounds of all my classmates as they configure their own Goggles. Following the instructions, I say, “Continue.” A new orb with the text “*Please Wait*” appears.

“Now you get to design your avatars,” Mr. Johnson says after the entire class arrives at this phase in the setup process. The “*Please Wait*” orb disappears and is replaced by a three-dimensional rendering of a generic-looking avatar.

I identify as male, so I keep the default avatar geometry. Manchester United is my favorite soccer team. I’ll set my skin color to yellow and my hair color to red, to match the team colors. But I’ll pick blue eyes, to match the color of my own. I set my avatar’s height to six feet. I keep the default hairstyle that Our Reality assigns to people who select cisgender male as their gender identity. It’s not *exactly* my hairstyle, but it’s close enough, and it’s not obvious to me how to change my hairstyle, anyway.

They say that race doesn’t matter in Our Reality because it isn’t visible in one’s avatar. And that gender doesn’t matter, either. I wonder if that’s true. Something doesn’t feel right about this. I’ve learned enough from Mx. Rodríguez’s history class at Centennial to know that even if technology designers think that they have designed for diversity, they probably haven’t.

Now for what to wear. A Manchester United hoodie, obviously. Navy sweatpants and black-and-white Converse shoes. No, a National Team hoodie, might as well spread

the love. Type of face mask? A plain black Under Armour sports one seems fine. Clearly, we don't need face masks in Our Reality for viral safety reasons. We don't technically need shirts or pants or shoes either. But our avatars still wear all the clothes that are standard in the real world.

Good, I'm happy with my avatar's outfit. "Continue," I say, as instructed.

A pale-blue blob with the white text appears in front of me: "*Confirm Purchase for 150 Our Reality Coin. Say 'Yes' or 'Cancel'.*" What!? I wasn't expecting this. Clothes are mandatory, but it seems that I have to pay money for this outfit? They should have been more upfront about the costs. And how much is 150 Our Reality Coin in dollars?

"Cancel," I say. I'm not going to waste more time on this. And I'm not going to waste money, either. I don't even know how to load money into Our Reality. I choose the first options that appear before me in the "complimentary" category, which I somehow missed before. My avatar is now wearing a pair of generic gray sweatpants, a dark-blue hoodie, a light-blue mask, and tennis shoes. I say "Yes" to confirm this outfit.

My Goggles suddenly overlay my avatar's arms and clothes over my body, in the real world, with low transparency. I move my real hand and see my avatar's yellow hand move. My body looks like my avatar's! Cool. The rest of the kids in my class still look real, not like avatars. I probably still look real to them, too, at least in this world. But I imagine that we'll see each other in avatar form at Iridesce?

The configuration and orientation process continues

for the rest of the hour. I already learned that to select something, I look at it and say, “Click.” That’s how I picked what clothes to wear. Now I learn that I can also look at something and blink twice to select it. I learn that I can move forward by tilting my head at just the right angle and that I can use my words to adjust the speed. I can also use the touchpad on the right side of the Goggles to control my movement if I want. I learn that private objects that only I can see have a light-green aura, that objects that I share with others have a light-orange aura, and that objects that others share with me have a light-blue aura. The orientation process doesn’t tell us exactly *how* to share objects, though. Maybe it’s supposed to be obvious, or maybe they’ll teach us that later?

There’s a lot to remember, but I think I’m remembering all the important details. Whatever I don’t remember, I bet I can figure out later with enough trial and error.

And now, finally, at 10 a.m., Mr. Johnson exclaims, “Okay, class, let’s go.”

A thought occurs to me. Where is Mathias? Are there no ways for people who are blind to use this tech? Like Henry, Mathias and I grew up together. I hate the fact that I can’t share soccer with him like I can with Henry. It would suck if he has to miss out on all this, too.

A light-blue “*Connect to Iridesce High School?*” floating orb of text appears in front of me. I look at it and blink twice. Here we go!

Emma, 10:05 a.m., Same Day

“I’m Liam, he/him,” Liam the Center Mid says to me.

It’s finally happening! I’m meeting someone from the real world! I am assigned to be Liam’s mentor.

First thing on our checklist: introducing ourselves.

“I’m Emma, a junior here at Iridesce High School. I use she/her pronouns. My favorite color is aquamarine. My favorite food is Hokkaido-style ramen. And my favorite subjects are science and computers.”

“I’m Liam, a junior at Centennial High School. I use he/him pronouns. My favorite color is purple. My favorite foods are hamburgers and ketchup. I consider ketchup its own food group. My favorite subject is biology. And my favorite thing to do in the world is play soccer.”

Ugh, he’s not a vegetarian. But he’s an honest-to-goodness in-person sports player!? Soccer is something that you still *have* to do in person, unlike any sport I’ve ever been allowed to play. Mom’s company is working on technology that can emulate the high-speed impact of a ball. So, someday soccer will be played in Our Reality, too. But not yet. What other things in life are there that people still *have* to do in person? I run for the Iridesce track team, but I do that on my Our Reality-branded treadmill.

Could I have been any luckier in my mentoring assignment!? I need to learn more about Liam and his life. When is the right time for me to ask him about soccer?

“Have you been in Our Reality before?” I decide to ask.

“Nope,” Liam says. Oh my God, he’s not even a Tourist. He is from the *real-real* world!

“Okay! Well, welcome to Our Reality!” I reply. This

must be overwhelming for him. I hope I didn't ruin his first impression of me by sounding too excited. I need to speak more calmly. "Next on our checklist, can you show me your class schedule?"

"They haven't actually taught us how to show other people things," Liam says.

Ah, okay. "Do you see your class schedule?" I ask. Liam nods, and I continue, "Okay, look at it and say, 'Share with Emma.' "

A white window with text and a light-blue halo appears three feet in front of and to the right of Liam.

"You can also say, 'Share view only with Emma,' or 'Share for three hours with Emma,' or 'Share help,' if you'd like help with sharing."

Liam nods again.

"Okay, first on your schedule: physics. Let's go to the science lab. Mx. Adebayo is the physics teacher. They're pretty cool. Do you know how to move?"

"Yup."

"Okay, follow me." I also message him a smiley-face emoji on the text channel that I created with him, to end my sentence.

I see the smile in Liam's avatar's eyes, above his face mask. I bet he sees me smiling, too. What would it be like to be in Our Reality for the very first time, as a near-adult? I've grown up inside Our Reality. It's hard for me to think about what challenges he might encounter. Everything in Our Reality is just second nature to me.

I move my avatar slowly to the door, making sure that Liam knows how to follow me. We work our way through the room that's now filled with Iridesce and Centennial students.

“This long hallway connects all our classes. Iridesce High School was designed to have the look and feel of a physical school,” I say. I assume that what I said is true. I add, “Not that I’ve ever been in a physical school.”

Liam looks at me. After a pause, he says, “I see a courtyard to the right, but why are there only ads along the left wall?”

Oh? “Wait, what do you see?” I ask.

“Well, a bunch of ads for soccer jerseys and soccer balls. Some ads for black-and-white canvas shoes. Some ads for sporty face masks. And a few news headlines, like ‘Doctors Discover the Cure for Aging’ and ‘90 Percent of Voters Feel this Way About the President, Do You?’ ”

“Well, first off, those don’t sound like news articles. Those sound like ads trying to get you to think that they are news articles and trick you into clicking on them. Second off, that sucks, and I’m sorry.”

He raises an eyebrow at my last words.

I elaborate, “It looks like the grant only covered the Basic version of Our Reality. I see ads, too, sometimes, but my ads never cover anything except blank space, and I never see ads at Iridesce.” If I look at an ad for thirty seconds, or click on it, I get a few fractions of an Our Reality Coin deposited into my wallet, and then the ad disappears. So, I’m *guessing* that a similar thing might work for Liam, except that he won’t get paid unless he upgrades his version of Our Reality. “What’s on the wall is not important—it’s our school trophy case,” I say to Liam. “So, you’re not missing anything! It sucks that the ads are blocking your view of things, though. I *think* that if you watch one of those ads for thirty seconds, or click on one of them, the ads will go away, and you’ll be able to see

what's on the wall.”

What else is Liam missing out on if he can't use the Premium version of Our Reality? I've always wanted to leave Madrona Lake and learn about the real world, but I never thought about what Our Reality is like for people who don't live in it. Or what it's like not to use the Premium version of Our Reality.

“Make note, Liam, ads, Basic version,” I say. A little yellow square manifests in front of me, some text flies onto it as if written by a pixie, and then it disappears into a tray to my lower left. I'll think about this more later.

We keep walking in Iridesce. The hall is full of students but is wide enough to allow everyone to move easily. I adjust the pillows behind my back and fluff the cream comforter around me.

“Okay, here is the science lab!” I exclaim triumphantly, eager to move on from our conversation about ads.

“Set class to physics,” I say to the room's door, and we go inside.

I explain my last command to Liam, “We have only one science lab in our school's floorplan, but the lab is virtualized so that different classes can take place at the same time. If I said, ‘Set class to biology,’ instead, then we'd be sharing the room with all the other people who said, ‘Set class to biology.’ A virtualized room is like a room with many parallel dimensions.” Liam looks at me like he understands. I hope what I said made sense. I know that real-world spaces are never virtualized.

When is the right time for me to start asking him about Centennial and his life? I am *struggling* to contain my questions.

“All the chemistry equipment and chemicals and so on are there on the left,” I say as I point toward the left wall. “All the physics equipment is there on the right. Biology stuff is in the cabinets behind us. Mx. Adebayo is the person at the front of the room.” Some other mentors and mentees are here, too, but I don’t need to point them out. All the Centennial students are pretty easy to spot because they haven’t yet customized their clothes—they’re all wearing one of the generic Our Reality clothing options. And, if Liam looks at an avatar long enough, their name will show up for him to see, so he’ll be able to recognize his friends.

I continue, “Our main goal today is to show you around Iridesce and make sure you know your full schedule and how to get to all your rooms. And help with anything else that comes up. But I can introduce you to Mx. Adebayo if you’d like.”

I give Liam a bit of time to absorb the room. I love Mx. Adebayo’s aurora-borealis hair, with its vibrant blues and greens. It goes beautifully with their pink skin and deep-blue suit. Maybe I should change my hair to aurora borealis, too? I love that we can change our hair colors like this. I wish we had more options for hairstyles, though.

“You do science experiments here?” Liam asks.

“Oh, absolutely. Our school has a license for only 300 frog dissections a year—enough for each of our biology students to get a frog, and a few extras, but not many, so I can’t show you those,” I say. Too bad. He said that biology is his favorite subject, and the frog dissection kits are cool. “But let me show you our optics lab,” I add. “We have a site license for that.”

River jumps on my bed and curls up next to my thigh. Some of the objects in the science room become a little more transparent as River moves, to help me see him more clearly. His paws are a little dirty, leaving footprints on my bed. Was he just digging in our backyard again? There must be something—maybe a rabbit hole?—next to our apricot tree.

I'm so excited to share the news. "River," I say as I look at him. "I'm meeting a boy from a physical school right now. This is his first time in Our Reality. He plays in-person sports and seems really cool so far. I can't wait to talk with you and Wind about today."

I gently knead my fingers into his fur and rub him firmly, just like he likes, while I get an optics lab kit for Liam. My Goggles can almost always figure out if I'm reaching for something in the real world, like River, or a virtual object, like the optics kit. They do this by monitoring my brain signals and making inferences from their knowledge of my virtual and physical environments. They work correctly this time, too, as expected. But if they didn't, I could have said "Release left hand" before petting River.

I'll take River and Wind for a walk after school. Maybe we'll hunt some dragons. I love my afternoon time with them.

I splay the contents of the optics lab over the table in front of Liam and me.

These next five minutes are painfully boring. I wish I could have shown him the frog kits. Liam doesn't complain about playing with the prisms and lasers in the index of refraction lab, but he doesn't seem super thrilled, either. I guess you can only spend so much time

shining a laser into water to evaluate the angle of refraction or measuring how much different frequencies of light bend when the light hits different surfaces. I think he's more impressed with the Our Reality tech itself than with the refraction lab.

Let's move on. I'm probably not making a great impression.

"Wait!" I exclaim. I just remembered something. "I forgot the most important thing! The science lab is the only room in our school where this is possible. We can change how physics works. Check this out." This should have been the first thing I showed him. "Set gravity to zero meters per second squared."

Suddenly, everything not bolted down starts to float—us, the prisms, the lasers, Mx. Adebayo, the other students, everything. Liam's avatar's eyes are twinkling. Yep, I should have shown this earlier.

The other Centennial kids look like they are in shock. I hope Mx. Adebayo doesn't mind. I should have at least given a warning to everyone.

Good, it looks like the other mentors are explaining what just happened.

"Set gravity to negative 100," Liam says.

Nothing happens. I explain to him the need to also specify the units. This is the science lab, after all.

"Set gravity to negative 100 meters per second squared," Liam clarifies, and instantaneously we are squished against the ceiling. I hear Liam laugh. I try to look at him, to see if his eyes are smiling above his face mask, but his head is too squished for me to recognize any facial features.

Suddenly, we find ourselves floating again. Someone

else in the room must have set gravity back to zero. Liam is smiling, very widely. I'm glad I remembered to show him this!

"Set speed of light to 300 meters per second," Liam says. Wow, slower than the speed of sound. This boy is clever. I would never have thought of that. And . . . it looks like Mom's software engineers hadn't, either. All the avatars in the room freeze, and a rich-blue blob with yellow text manifests in front of me: "*Fatal Problem Detected, Room Reset.*" It stays there for a few seconds, and then everything in the room returns to normal.

Well, almost normal. The room has been reset for *everyone* using it. I now see about fifty more students crammed throughout the room, along with the biology and chemistry teachers. All the science classes are now in here at once. And almost all the avatars are in contorted positions. Ha! This is hilarious.

Uh-oh, Liam is looking super stressed. His Goggles must be detecting increased blood flow to his face, or increased perspiration, or both. The face of his avatar is glistening.

I can't help but laugh. "It's okay, Liam. No system is perfect. It's not your fault," I say. Once I explain everything—why everyone looks so contorted—I think he'll be able to calm down. I try to say all my words quickly. "Our Reality has this rule that no two avatars can ever make physical contact. A body part will shrink or disappear before it makes contact with someone else."

The first reason for this noncontact rule is probably obvious to Liam now that I've mentioned the rule: it would be immoral for software written after The Pandemics of the 2020s to encourage physical contact in

any form. It would be awkward for me to mention the second reason to Liam only hours after meeting him: to avoid the types of harassment between avatars that happened in earlier virtual reality platforms, where avatar contact was allowed. Iridesce also has software monitoring all of our text chats, spoken communications, and physical avatar actions to make sure that no other forms of harassment or bullying happen at school.

I continue, “That’s why your right arm disappeared when the rooms merged. If it didn’t, you’d be touching Ashley, which is not allowed.” Ashley is the avatar standing directly to Liam’s right. Her back is toward him and has a large dent where Liam’s arm would otherwise be. She must have been in the biology or chemistry classroom at the time of Liam’s “experiment.”

“Yikes!” Liam exclaims as he looks at where his right arm should be. He quickly adjusts his body and his right arm regrows, as does the dent in Ashley’s back. “Wow, that’s *weird*. I’m sorry I did this.”

“Seriously, don’t worry about it. This is funny! I’ve never seen so many people in one place before. And did you see how Mx. Adebayo’s head disappeared for a moment? That was hilarious, too.” Mx. Adebayo’s body was bent over when the rooms joined, and if their head didn’t disappear, it would have ended up inside of Mx. Tanaka’s, our biology teacher’s, belly. It can be disorienting to have your head disappear.

“And what’s more,” I continue, “it is super amazing that you made this happen. Bugs like this are incredibly hard to find.” I *am* impressed. Mom would be, too.

“Thanks, I think. I hope it’s okay?”

“Seriously, it is okay,” I say. “But it’s also super nice of

you to worry about it. But don't. It *is* okay. Anyway, let's go to the next class on your schedule." It will be nice to leave this crowded classroom. I imagine that facilities management will be here soon to fix everything?

CHAPTER THREE

The Cafeteria

Liam, 12:30 p.m., Same Day

So much new information. Our Reality is really impressive. Everything in Our Reality is clearly not real, but it also *feels* so real at the same time. I can see why the phone version of Our Reality never took off. This *needs* to be immersive. I can also see how people might get sucked into Our Reality and spend countless hours here if they could afford it. My body is starting to hurt, though. I need to get up and stretch. It's one thing to actually walk from room to room. It's an entirely different thing to "walk" from room to room, with my avatar, but never actually leave my chair. My legs need to move!

"Turn off mobility," I say, as I get up from my seat to stretch. I am glad that the Our Reality orientation taught us that command. I see my other classmates in our

Centennial room, still seated, behind the transparent avatars of Emma and others at Iridesce. Iridesce became a little more transparent when I stood up. It is *so weird* to see both Centennial and Iridesce at the same time.

“Okay, let’s go to the lunchroom,” Emma says to me. She adds, “We all go to the lunchroom to have our lunches. The school requires it.”

These are avatars. Why do they have to eat lunch together?

“This used to not be a requirement,” Emma continues as if having overheard my thoughts. “They want to make sure that we interact with other people. We each have assigned seats—different assigned seats every day so that cliques don’t form. Or at least that’s the goal. We are supposed to use the time to talk with the people near us.”

I sit back down in real life and then follow Emma down the hall in Iridesce. Her family must be super wealthy for her to go to school here. She’s one of the people who lives almost entirely inside Our Reality. I’ve only ever seen people like Emma from behind closed windows when I deliver pizzas. She’s not like what I imagined. I like how she keeps looking back at me when I accidentally slow down, checking on me, but not in an annoyed way. She seems to really want to make sure that I have a good experience on my first day. She’s friendly, caring, not condescending. Even though I only see her avatar, I get this true, authentic feeling from her. I also like that I’m already learning to recognize bits and pieces of her personality. It’s cute how she tilts her head to the side and rubs the back of her neck with her hand when she thinks.

I hope my friends are getting equally kind

introductions to Iridesce.

“Say, ‘Pull up seat map,’ to see where you are seated,” Emma says as we enter the cafeteria. I do as I am told and see my seat highlighted in yellow across the room. Emma must be giving the same instructions to her Goggles. A bunch of other Centennial and Iridesce kids are already seated around the room. Henry’s avatar is already here, too. I recognize his avatar from when we both joined the Iridesce homeroom at ten. He’s wearing the same clothes as me and has chosen bright-orange skin and neon-pink hair. After looking at him for a bit, his name pops into my view, so I know it’s him. He’s seated at the opposite side of the room, and he looks miserable. I hope he’s okay.

“Oh, cool!” Emma exclaims. “Olivia’s next to us. I’ll introduce you. She’s another junior here, and my best friend.”

We head to our seats. Olivia is seated opposite me, and Emma is seated to my left. Olivia has vibrant, ruby-red skin and burgundy hair, and she seems to be wearing a fancy dark purple suit. I see a faint glowing yellow beam between Emma and Olivia. I’ve learned enough about Our Reality by now to know that means they are having a private conversation.

The beam between Emma and Olivia disappears. “Olivia, meet Liam, he/him. Liam, meet Olivia, she/her.” I’ve been added to a group audio conversation. Emma explains to me that Olivia’s mentee is sick today. Being sick wouldn’t be an excuse for an Our Reality student to miss class. There’s no chance of getting another Our Reality student sick. But Olivia’s mentee is from Centennial, and we have strict policies for not exposing

other students when we are sick. Our school has thermal cameras in every classroom to detect if someone might be getting a fever. Our classrooms have audio sneeze and cough sensors, too. So, naturally, Olivia is not mentoring anyone today.

There are other conversations going on in the lunchroom—I can tell by the yellow beams. But unlike my cafeteria, the room is silent except for some gentle elevator music playing in the background. I can only hear Emma and Olivia. I can't even hear the conversations happening between the two people seated directly to my right. Emma said that her school makes people come to the lunchroom to be social. Is this what being social looks like in Our Reality? Is it better or worse to not let people sit near their friends? Near people like themselves? Near people that they can relate with?

“So, what do you think of Iridesce so far?” Olivia asks me.

“It's pretty neat,” I say. That was a lame reply. “I mean, it's pretty amazing, so real and not real, both. I don't really know if I know enough to know what I really think yet. But it is cool!” Okay, that was also a pretty lame set of sentences. How do I recover from my flopped words?

I pull the peanut-butter-and-jelly-with-banana sandwich out of my backpack, which is under my desk at Centennial High School, and unwrap it. What is Emma eating, I wonder.

Suddenly, I see the real Henry slam his fist onto his desk in Centennial and get up. Olivia's avatar was in front of him and became slightly more transparent as Henry rose. What's wrong with him? He's leaving the room. I

look over to where avatar-Henry is seated in the Iridesce lunchroom. His avatar is still there, seated with his mentor, though he seems motionless.

“What’s it like to play soccer? What’s it like to play with a team?” Emma asks, bringing me back to the present, and to a topic that I can talk about without tripping over my words. I resist the urge to joke that you can’t play soccer without a team. I hope Henry’s okay.

I spend the rest of lunch talking about soccer and about Centennial High School and worrying a little about Henry. He’s back at his desk now in Centennial, but his posture tells me that he’s upset. I’ve never seen a non-soccer player as interested in soccer as Emma, or anyone as interested in Centennial High, either.

Near the end of lunch, I see a yellow beam form in an arc from Olivia to Emma. Do I just sit here and wait?

“Mute. Turn off mobility,” I say to my Goggles. We have ten minutes before lunch is over. Might as well use the restroom. Maybe that’s where Henry went, briefly? As I pass him, I can tell that he’s still upset about something. I leave my Goggles on as I walk down the hall. I see Emma and Olivia continuing to talk in the Iridesce lunchroom while I make my way down Centennial’s long hallway, the squeaky linoleum tiles beneath my feet and the school lockers on both sides of me. The lockers were originally painted red, but most of the paint has chipped off or been covered by stickers, leaving only stickers and bare steel visible. Has this hall ever not smelled like disinfecting spray?

Emma and Olivia are transparent enough for me to easily see Centennial’s hall as I walk, but visible enough to let me easily see them, too. What are they talking about?

It seems like they are having a heated conversation. Is it about me? And do I keep the Goggles on when I enter the restroom? No one told us about bathroom protocol.

Emma, 1:20 p.m., Same Day

“Olivia, don’t be so mean,” I say as soon as our audio chat is connected. She’s been messaging me for the last half hour on our text channel. I’ve been trying to ignore her so that I could talk with Liam. He’s so cool. I thought she’d be happy for me to be talking with a boy. Instead, she’s just being mean.

“Emma, stop what you’re doing,” Olivia’s ruby-red eyes are piercing.

“What!?”

“You are flirting with him. Don’t flirt with someone like him.”

“No, I’m not flirting. And what do you mean by ‘someone like him?’ ” I ask. I try to squelch the anger that is starting to grow inside of me.

“Look at him. He’s cheap. He *looks* cheap,” Olivia says. She must be commenting on his clothes. Most of the students from Centennial High School are wearing drab generic outfits. I noticed that, too, but didn’t think much about it. I’m also wearing sweats, but mine are clearly more luxurious than Liam’s.

“Hey, it is *not* just to judge someone by how they look,” I say.

“I’m not *only* judging them by how they look,” Olivia replies. “But I know he’s cheap *because* of how he looks. I

know your parents won't let you go to the parts of Our Reality where the Tourists hang out, but I *have* been to those places. The people there look like him. Some of them, anyway. The kids who use their parents' Goggles without permission and who haven't been able to buy their own clothes. The adults who've put *all* their money into Goggles in the hopes of buying themselves more status and a better life. He's nothing but trouble. You've just never seen anyone who's not like us."

"He's *not* trouble," I say emphatically. Olivia told me that the Tourist spots were super cool. Now she's making them sound bad. Which is it? Was she just trying to make me jealous? I continue, "And he's not even a Tourist. Today is his very first day in Our Reality."

"Well, then he's worse than a Tourist. He is trouble. You can't trust people like him. And even if he's not trouble, he'll just use you to climb the ladder and escape from whatever life he has."

"Olivia, you are being totally unjust," I reply. She is being unjust. It is true that I've only ever interacted with people like me—people who live their entire lives in Our Reality. Everyone here at Iridesce can afford whatever clothes they want. Liam and his friends do all stick out. It sucks that Olivia is judging them for that, though.

"*You* are being *naive*," Olivia scolds.

"I am *not*." I stare at Olivia. I throw a scowling emoji to her on the text chat, for good measure. "And besides, what bad things can happen in just one day?" I decide to add.

Olivia's eyes grow fierce, and then soften. "Fine," she says after a long pause. "But Emma, I care about you. I am also right, though. Please don't be stupid."

The chat with Olivia closes.

A “*Be smart*” text bubble with a heart emoji appears in my view. Seriously!?! “Dismiss,” I say.

Aside from Olivia, this day is not turning out half bad. I’ve often imagined meeting someone like Liam. But somehow, I never imagined what they would *actually* be like. But if I had imagined, I suspect I would not have imagined someone like him. He doesn’t seem envious or discouraged, just eager to learn. I’m ashamed to admit it, but I also never thought about how smart people from outside of Our Reality might be. Olivia’s judgmental characterization of him is totally wrong.

“Our next stop is the auditorium,” I say to Liam as we get out of our seats. “We’re going to have a school-wide assembly.” I linger by our table, letting Olivia walk ahead of us. I need a little space from her.

Okay, she’s out the door. Let’s go.

As we leave the lunchroom, a thought occurs to me. We don’t *actually* need to go to the assembly, do we? I don’t want to just sit there listening to Principal Femi speak. I want to hang out with Liam. I want to learn more about his life.

“Disable messages from Olivia,” I say to my Goggles. I don’t want to hear from her.

I then turn to Liam and say, “Liam, I have a better idea. Let’s ditch the assembly.” I hope this is a good idea. I don’t think I’ve ever ditched anything before.

“Oh?” Liam asks. He looks at me, his eyebrows raised.

“Let’s go back to the science lab. I’ve changed my mind. I want to show you the frogs.” He will love this.

“Okay . . . But didn’t you say they are expensive, and that your school has only a limited number of them?”

That's nice of him to care, but it doesn't matter. It will be fun!

"Yes, sure," I answer. "They'll know it was me. The school may need to buy more. They'll send a bill. My parents will get involved. But we can work it out. And it will be worth it. You'll like it. Come on, follow me!"

Ha! I'm a rebel. This *will* be fun!

CHAPTER FOUR

The Science Lab

Liam, 1:35 p.m., Same Day

Is Emma's avatar actually glowing? I can't quite tell, but I think it is. Even if it isn't, her voice is radiant. She seems like a new person, and her excitement is contagious. I'm up for an adventure and now can't wait to see the frogs. We dissected frogs last year in my biology class, too, but we got only one frog for every six students. It was a little hard to get a good look at everything.

We change directions and head towards the science lab.

"I think we'll actually have the lab to ourselves," Emma says. "Everyone else will be in the assembly."

"Okay," I reply. I'm not sure what else to say. It occurs to me that if we get caught, we could get in trouble. Emma seems to know what she's doing, so I assume we'll

be fine. And besides, even if we get in trouble, it would probably be a simple scolding and a “Don’t do this again!” Right?

I continue to walk with Emma to the science lab. We’re side by side now. I know where the lab is, so I no longer need to follow her.

Suddenly, I can’t move. I’m stuck in place, though I see Emma continue to walk. What’s happening? She turns to look at me.

And then, as if to answer my question, the best soccer player of our generation—Gracie—manifests in front of me. I do a double take. It can't really be him, can it? Everyone in this school is super-rich. *Maybe it is him?*

Nope. It’s another ad. Not that I mind all that much—I kind of want to buy the protein drink that he is advertising—but I also want to keep walking with Emma.

“You okay?” Emma asks once I start moving again.

“Another ad, did you see it? I couldn’t move this time, until after it finished playing.”

“No . . .” Emma replies, her voice trailing off. What is she thinking? Does she ever see ads like that? Or are they only shown to people like me? People who are using the Basic version of Our Reality?

“Let’s keep going,” Emma says, though the tone in her voice suggests that she’s still thinking about the ad. I suddenly remember that she had already told me that she never sees ads at Iridesce.

We approach the science lab. I know what to do next.

“Emma, let me do it,” I say, and then I say, “Set class to biology.” I can tell from Emma’s avatar’s eyes that she’s smiling at me. We enter the classroom. The room is empty except for us.

Emma opens the door of one of the cabinets at the back of the room, pulls out a large brown box, and sets the box on one of the lab tables. We open it together. Inside the box are a large-ish white tray, a blue plastic sheet, a box of purple gloves, two scalpels, a pair of scissors, and a large frog about the size of my hand.

We take the tray out of the box and set it on the table. Emma lines the tray with the plastic sheet. She's clearly done this lab before.

We both put on our gloves. I understand that this lab is supposed to emulate reality, but I also notice that it is much easier to put virtual gloves on my avatar than it is to put real gloves on me—the virtual gloves are not as sticky and tight.

A couple of my Centennial classmates stand up and stretch, making my view of Iridesce momentarily more transparent as they move. It is getting late in the day, and we have been sitting for a long time. I guess they decided to attend the rest of the assembly standing up? Not a bad idea. I'll take the opportunity to stand up, too.

"Play frog dissection instructions," Emma says. I see another avatar appear in front of us, on the other side of the table. They have yellow skin, like mine, and are wearing a white lab coat. They also have a frog and a dissection kit in front of them and are wearing the same purple gloves as Emma and me.

"You must rinse the frog with water to ensure that it is clean. Then place it in the dissecting pan," the avatar tells us in the prerecorded instructions.

Like the science labs in my school, the table here has a sink. Emma and I both reach for the handle of the water faucet and . . . both our hands shrink. It doesn't startle

me as much this time. But it is still pretty trippy to see your hand disappear like that.

“Sorry,” I say as I quickly withdraw my hand. It’s probably rude to collide with someone else and make their hand disappear?

“It’s cool, Liam. Seriously.” Emma is looking at me, smiling. “You’re supposed to learn all about Our Reality. This is part of Our Reality.” And then she sends a smiley-face emoji to me over our text channel.

“Does it feel weird to you, too, when your hand disappears?” I ask. I know it’s not my real hand. Still, I’ve been using Our Reality all day, and to have what my brain thinks is my hand suddenly disappear *is* really weird.

“Sort of. But not really. I’m used to it. Come on, try it again.” Emma extends her right arm to me. I reach out with my left and we start to move closer together. First, our hands start to shrink, then our forearms. Now there’s nothing left of our arms past our shoulders. Okay, this is pretty cool. And pretty fun.

We separate. “Okay, put your arm out again,” Emma tells me. I do as I am told. “A little lower,” she adds. It’s now at about her chest height. “Watch this,” Emma says. A huge smile is visible in her avatar’s eyes, above her face mask.

She bends forward, moving her head toward my hand. My hand starts to shrink, but so does her head, until finally she has no head and I have no arm.

She separates once more, and both our bodies return to normal. “Now, if your *whole* body walks toward me, we will both flatten like pancakes. Wanna try that?”

How does anyone get any work done in Our Reality? This is just too much fun. We set gravity to zero meters

per second squared. Having the frog dissection kit float around with us is a little weird, so we put it away. Then we lose ourselves to the joy of bouncing around the room, colliding, shrinking, and experimenting with the physics of Our Reality. Our Reality is pretty cool.

Emma turns to me. She pauses for a long time.

What is she thinking? I look at her, wondering if I should say something.

I suddenly notice the real-world Mr. Johnson behind Emma. It looks like he is staring at me. Is he?

Uh-oh! A few of my classmates are staring at me, too.

Facepalm.

Of course, they can see me behind their partially transparent views of Iridesce, just like I can see them. Why didn't I think of that earlier? I control my avatar's body by moving my real body. With my wild movements, it must be obvious to everyone that I ditched the assembly.

I look around the Centennial room and see some other kids on their phones. Good. If they aren't going to get in trouble for using their phones, I won't get in trouble for waving my arms all over the place. I return to my seat. School is almost over anyway.

I've learned an important lesson. I can't get so sucked into Our Reality that I forget about the physical world. I need to be more careful.

Emma, 2:45 p.m., Same Day

This has been the best hour *ever*. I love hanging out with

Liam. Our Reality has never been so much fun. I can't remember doing anything like that since I was a kid.

"Hey, Liam?" I say after a long pause.

"Yeah?" he replies.

"May I ask you one thing before school is out?" I say. I float closer to him.

"Sure."

"Can you show me a video of what it actually looks like when you play soccer?" I ask. "Do you have any videos on your phone?" I know what a phone is even though I don't have one; I only need my Goggles. But I'm hoping that Liam has one and that he has some videos on it.

"Of course," Liam says. "I have tons of videos. How do I upload them to Our Reality?"

"You don't need to do that. You can just play them on your phone, and I can watch."

"Okay . . . How can you see my phone?" Liam asks.

"Say, 'Share external view with Emma,' and then I'll be able to see whatever you can see," I reply. This is so exciting.

"Okay, I'll do that."

A moment passes. I can hardly wait.

I blink twice on the "*Join Liam's External View?*" floating blob that appears in front of me.

"Whoa, the science lab disappeared! And you are beside me, at Centennial!" Liam exclaims.

"Yep. I can now see what you see."

I am now next to Liam, *in his classroom*. I should have asked him to do this earlier! I see real people my age! Sitting in real desks! And there's a real teacher sitting at a

big desk at the front of the room! Of course, I don't actually see Liam, I see his avatar. And he doesn't actually see me, he sees my avatar. I see the rest of the kids in his classroom for real, though, just the way he sees them. Clothes in Our Reality always look brand new, even if they are generic, but everyone here looks like they are wearing clothes that are faded and old. All the desks are in rows, but they are all pointing at slightly different angles. The room is not as perfect and orderly as it is in Our Realty. So, this is what a real classroom with real people looks like!

I want him to walk me around his school. There's no time today, though.

"On Wednesday, can you show me your school?" I ask Liam.

"Sure," he replies.

"Okay! But now I want to see those videos," I say. What has gotten into me? I'm not normally so blunt.

"Sure," Liam says as he starts to flip through videos on his phone. "Here is one from last week. Mom and Dad record all my games so that I can send the videos to college recruiters."

The video starts to play. "That is me," Liam says as he points to a tall guy. "I'm the one with the number 45 on the back of my jersey. Alex is about to cross the ball to me, and I'm going to score a goal. There's the cross! And . . . gooooo!"

I'm not actually paying attention to his words. What is a "cross?" I'm just trying to absorb *him*. He looks as confident as I imagined. He is so strong and so fast. He's looking at the camera now, after that goal! I see him smiling! I see his *face*! He looks so happy. They don't wear

masks while playing games!? That short, curly blond hair is adorable. His teammates run towards him on the field. They slap his hand—they *touch* him! I know that gesture from the old movies that I’ve secretly watched—it’s called a “high five,” though I’ve never seen anyone actually do it. I can hardly believe what I’m seeing is happening in 2034! What is his life like!? Come on, turn back and look at the camera. Yes! There’s his face again! He’s not wearing a face mask! I never thought I’d actually see a *real person’s face*—the face of *someone that I actually know*!

“Your video is so awesome,” is all that I can think to say. And then, “Can you show me another?”

I know what in-person sports are, so I *knew* that he plays his games with other people, in real life. But I’m still in shock to see it actually happen. And for *someone that I know*. Those other people on the field with him, they get to see him in person. They get to run around together and have fun in real life. They even touched him, in real life, just like we kind of sort of almost did in the science lab. I want to be one of those other soccer players.

I hear an alarm in my ears. School’s out in five minutes. Why does school have to end so soon?

“Okay, I gotta go back to Iridesce, and you probably have to log out, too,” I say. “I’ll see you on Wednesday?”

“Yeah, I gotta return these Goggles. See you on Wednesday, Emma. And thank you for today. You’ve been an awesome mentor.” He sends me a smiley-face emoji on the text chat. He’s really getting the hang of Our Reality.

“Thank you, too, Liam. See you on Wednesday!”

Now to tell River and Wind about Liam, as I

promised. I'm definitely not going to talk with Olivia. I don't want to un-silence messages from her. I silenced her for a reason. I bet she noticed that I wasn't in the auditorium and has been messaging me.

Why do I have to wait until Wednesday to see Liam again?

Liam, 8:30 p.m., Same Day

Done showering, clean clothes on. Time to go downstairs for dinner. This was a cool day.

I take my seat at the kitchen table. All four of us are here now—Mom, Dad, Jackson, and me. In front of us is our usual Monday night dinner: spaghetti and meatballs with a nice big salad. I like pasta. I wonder if Emma is having pasta tonight, too? I know she likes Hokkaido-style ramen. I also like ramen, but I didn't know what Hokkaido-style ramen was until I did an online search for it after school, before soccer.

Emma knows what I look like. I'm glad. How can I figure out what she looks like?

"How was school today, boys?" Dad asks Jackson and me, interrupting my train of thought.

"Good," I say.

"Good," Jackson replies. He's in fifth grade. We both give our standard answers.

"How was Our Reality?" Dad asks as he looks at me. He's known for several weeks that I was going to use Goggles and visit Our Reality today. He's not said much about it since he found out. But I know he's been very

excited for me.

“It was pretty cool, actually,” I reply. My whole family is staring at me now. Maybe I should downplay how cool Our Reality is so that they don’t feel jealous?

“Did it feel real? Did the people in it seem real?” Dad asks.

“Yeah, actually. I mean, everyone looks mostly human except that no one actually looks real. Everyone picks their favorite color for their avatar: red, blue, green, whatever.”

“What color did you choose?” Jackson asks.

“Heh, what do you think? Yellow skin and red hair. Man U,” I reply. Jackson rolls his eyes.

“Is school better in Our Reality?” Dad asks me. Is he worried that the answer is “yes”?

“I don’t know yet,” I say. I look at Jackson and then add, “Of course, our schools are pretty good too, you know.” I’m worried that I just told a lie, but I don’t want Jackson to want what he can’t have.

“What did you do in Our Reality?” Mom is now asking the questions.

“Well, after configuring my avatar, I joined the homeroom class at Iridesce. I met my mentor, who basically showed me around their school all day.”

“What’s your mentor like? I hope they weren’t too snooty. Did they help you?” Dad follows up.

“They were nice. Our Reality makes a lot of sense once you’ve spent a little time inside it. But there’s a lot to get used to, too. She helped me quite a bit,” I say. And, uh-oh, the “she” pronoun slipped out in my reply. Now I’m going to get a *lot* more questions.

“She? What’s her name? Was she nice?” Mom asks. Thank you, Mom, for the predictable questions.

“Her name is Emma. And yes, she was nice,” I reply. Can I *please* get Mom to stop asking me about girls?

“Can I try your Goggles?” Jackson saves me with his question.

“Sorry, Jackson, I had to leave them at school.”

“There is one kid in my grade who has Goggles. They say they’re awesome. I want to try them,” Jackson says.

“I know, Jackson,” I reply. “They are pretty cool. But if you never try Goggles, that’s also totally okay, too.” I hope what I say is true.

“Mom, Dad, can’t we please get Goggles?” Jackson asks. He has been asking this question for years. I don’t think he really grasps how expensive they are.

“Jackson, honey, we told you. Goggles are too expensive. And we would need to buy at least two—we can’t just get one for you or one for Liam.” Mom gives her standard reply. I can hear the sadness in her voice. I know that she secretly wants to get Jackson and me Goggles so that we can experience that world. I know Dad wants Goggles, too. He wonders if he would have better luck finding a job if he could put “Our Reality experience” on his resume, or if having Goggles would help him land one of those exclusive jobs that reside entirely in Our Reality.

“Liam,” Mom continues, eyeing me like a wolf. She is good at controlling the subject when she wants. “Tell me more about Emma.”

Uh-oh, here we go again.

I need to *not* let Mom know how cool Emma is. Emma is cool. She already feels like a friend. But if Mom finds

out that I like her, as a person and as a friend, she will *never* stop asking questions.

CHAPTER FIVE

The Question

Emma, 6:40 a.m., Wednesday, June 7, 2034

I am in homeroom now. Mx. Hill seems to be shocked by my early arrival. They stare at me for a while, then turn their attention back to Layla and Noah. Do Layla and Noah always come to school early for Mx. Hill's office hours? I guess I've never been here early enough to know.

I want to see Liam. I want to ask him the question that I've been wanting to ask since forever. Well, since Monday. Will he say yes? Will I have the courage to actually ask?

When will Liam arrive?

I look to my right and see a Steller's jay land in our apricot tree just outside my window. "Increase transparency," I say to my Goggles so that I can see it better. It looks so beautiful in the morning light. Steller's jays are my favorite birds. Maybe I should change my

avatar to a richer blue, to match this jay? This bird can fly anywhere it chooses.

I see Liam fading in! “Normal transparency,” I say. Liam’s a little early, too—we have fifteen minutes before Mx. Hill will start speaking. I like Liam’s choice of yellow skin with red hair. What would he think if I gave him a present of some nicer clothes?

“Good morning, Liam,” I say after he’s fully materialized.

“Good morning.”

“Are you glad to be back at Iridesce?”

“I am,” he says, and then he sends a smiley-face emoji over the text channel. “Today we’re going to go through my fall schedule for normal-length classes, and you’re supposed to shadow me the whole time, right? Basically, to be there in case I need help with anything?”

“Yep, exactly. Do you have any questions?” I ask. I’m stalling. I need to find the right time to ask my real question.

“Can we go to the science lab again?” Liam asks, and then follows up with a wink-and-tongue-out emoji on chat.

I want to say, “I had a lot of fun with you there, too, Liam.” But I don’t want to sound cheesy or for him to get the wrong impression. Instead, I say, “We will, though we’ll be in your class the whole time. So, no setting gravity to zero.”

“Aw, bummer. Okay,” Liam says. I agree. I wanna be a kid again and hang out there and goof around some more, too.

“Hey, Liam, I’m trying to remember what you said about life at Centennial. How often do you meet your

friends in person?" I ask. I'm preparing to ask my real question.

"Oh, all the time at school. I told you about my buddy Henry? He and I hang out the most, though usually for soccer. A bunch of other people often join, too. Different people every time. Henry and I are the core group. He's dating someone new, so he hasn't been able to stay after practice as often as usual."

"Do people ever touch each other at Centennial? I mean, like accidentally? Or, like couples? Or, not just couples, but friends? I mean, what's it like?" I stumble over my words. I wish I could take everything I just said back. How did I mess up my words so badly? I practiced asking my questions so many times last night.

"We're not allowed to, not on school grounds. Of course, people break the rules. My buddies and I are used to bumping into each other at soccer, so we sometimes forget the rules and jostle with each other on campus. But we're not supposed to. Some teachers are stricter than others. And yeah, people have relationships, but no one ever does anything on school grounds."

I think about the video he showed me of him playing soccer and wonder what it would be like to be on a field, playing soccer with him, and him bumping into me or giving me a high five. He is *the only person I know* who gets to *see real people*. He gets to have *real, physical, human contact* with others. I try to bring my mind back to the present.

"*Are you okay?*" A blue text box from Mom appears, blocking my view of Liam. Seriously, now!?

"Yes." I dismiss her message.

"*Are you sure? Your heart rate is spiking.*" Another text

bubble!

“Yes!” I dismiss her message again.

“I think I told you that I’ve never met anyone in person? Not since I was a toddler, anyway,” I say to Liam. “My parents would never allow it. None of the other parents of Iridesce kids would allow it for their kids, either. At least not the parents of my friends. Your parents allow it?”

“Oh, yeah, sure. It’s not a big deal,” Liam replies. That’s what I needed to hear. I think I’m prepared to ask my real question. I think? Should I do it?

“Emma, what’s going on? Are you sure you’re okay?”
Oh. My. God. Another message from Mom!

“Yes! I’m sure!” I reply with more emotion.

I give myself a moment to reset my brain. I’m used to doing this, with Mom and her interruptions. It’s even easier than normal this time. I have not wavered in my intent.

I inhale deeply, harnessing courage into my chest.

Liam tilts his head as he looks at me. I must have inhaled deeply enough that my Goggles decided to make my avatar inhale deeply, too.

“Can I meet you in person?” I blurt out, having already committed to my next action with that inhale.

“Uhhh,” I hear him say. His avatar looks stunned. Why is he pausing like this!? I want to meet him. I want to see his school. I want to know what it’s like to interact with another human being in the real world, outside of Our Reality. I want so many things.

I also don’t want to make a fool of myself.

Why is Liam taking so long!? Why isn’t he answering!?

“Your heart rate is way too high.” Another text bubble from Mom! Seriously? Now I can’t even see Liam’s reaction!

“Are you okay?” Now Dad is messaging me!? Dad never messages me! Dad is *not* a computer scientist—he is a bioengineer. He works with remote wet-lab robots, via Our Reality, but his expertise is biology, not technology. He normally leaves all the actual tech stuff to Mom. Mom must have messaged him about me. Double-triple-ugh. I don’t want them *both* to be messaging me right now!

“I AM OKAY!” I message back to Mom. *“I am FINE!”* I message back to Dad.

It just occurs to me: Will Mom and Dad come into my room to check on me?

Liam, say something!

“Sorry, I had to watch a coffee ad. Sure. When?” Liam says at last, as I was trying to formulate a coherent apology and retract my question while also worrying about what Mom and Dad might do next. Stress and anxiety quickly drain from my body. I breathe a sigh of relief.

And seriously!? I had a panic attack because of an ad for coffee!? Liam needs to get a Premium account. I’m surprised that they allow ads on Iridesce property anyway, for anyone. Maybe no one ever thought about it before because everyone in Iridesce has Premium accounts?

“I’m scheduling an appointment with your doctor.” Another message from Mom. She is persistent.

“I’m fine, seriously. I just forgot an assignment. I can make it up though. But seriously, you have to stop interrupting me while I’m at school. I’m trying to learn!” I

message back. I quickly follow that with another message:
“*Tell Dad, too.*”

I am so relieved about Liam.

Mom and Dad can *never* find out about what I’m going to do!

How will I sneak out and see him?

I am *so* excited! He said yes! Will we touch?

I will soon have *my first real, in-person* meeting with someone—anyone—since *forever!*

I like Liam. I’m glad that he will be my first human contact.

I hope nothing goes wrong.

Uh-oh, I think my pulse is spiking again. Breathe. Breathe. “Turn on background ocean sounds,” I tell my Goggles as I try to relax.

Liam, 6:55 a.m., Same Day

I’m a little surprised that she asked me, but I certainly don’t mind that she did. She’s cool. I am already starting to think of her as a friend, and if she’s going to be my friend, I should get to know her in my world, too, not just in Our Reality.

I know this is a huge deal for her and that her parents won’t be okay with us meeting. I hope she knows what she’s doing. If she later tells me that she can’t meet, I’ll understand. I’ll be disappointed, but I’ll understand.

“Any day next week after 6:30 should work for me. That’s when my soccer practice is over. Except for Friday,” I say.

I should have said 7:30 or 8, so I'd have time to shower.

We decide to meet next Monday at 9 p.m. at a public park near her house. Madrona Lake Park. There's no other place that we can meet. Emma doesn't drive, and even if she could her parents don't have a car. She's also never hired a car before and doesn't think that she should. I'll drive to the park instead. Madrona Lake is an elite neighborhood. I hope the neighbors don't complain about some unknown teenager parking his beat-up 2014 car there.

What excuse will I give Mom and Dad for me staying out late? An extra shift delivering pizzas? Meeting Henry or Mathias to work on an assignment? I'll figure out those details later.

Emma seems giddy, in a super endearing way. Will I really be the first person she's ever met in real life? I don't want to disappoint her.

"Welcome, everyone," Mx. Hill says, interrupting my thoughts and my conversation with Emma. Darn. School is starting. I wish we could spend the day just hanging out, like we did on Monday, instead of spending the day doing full classes. I'm glad that I get to see Emma next Monday.

I have a funny realization. Aside from Mathias, do I have any friends who don't play soccer? It is nice to make new friends.

A text bubble from Emma pops into my view. "*Can you still show me your school today? Maybe during lunch break?*"

"*Definitely,*" I reply. Heh, why do I have to pay attention to Mx. Hill? I want to keep chatting with Emma.

Liam, Friday, 6:30 p.m., June 9, 2034

Wow, Henry's had a rough practice. Actually, he's had a rough week. I saw how he drop-kicked that ball after Coach blew the end-of-practice whistle. When Henry's in the zone, his kicks are graceful and precise. But when he's angry, man, the balls fly far but completely out of control.

"Henry, you okay?" I ask. I know he's not.

"No, Dude. Our Reality sucks. Why are you going to meet that girl?"

"Henry, chill. I'm trying to check in with you. No need to be harsh. I'm meeting her because I promised I would. And I like her. And she needs a real friend. Why does that bother you?"

"Our Reality sucks. All those people are entitled jerks. Why can't you see that?" Henry asks. From what Henry said earlier this week, it sounds like his mentor is a real jerk. Emma is awesome, and she's really been trying to help me learn Our Reality. Like, really learn it. But Henry's mentor enjoys pointing out all of Henry's stupid mistakes and then doesn't take the time to tell him how to fix them. Henry got a bad deal with his mentor.

"Your mentor is a jerk," I say. "But that doesn't mean they all are."

"Have you seen the graffiti on our school!?" Henry replies. "When you wear the Goggles and look out our homeroom windows to the science wing? Haven't you seen that graffiti?"

I have. Someone has graffitied "Centidiot High School" and other derogatory words all over the outside of our school, using Our Reality. The graffiti words—which I've

learned from Emma are probably “Our Reality Art Objects” that are locked to specific GPS coordinates and configured to have “global view” permissions—are only visible to people wearing Goggles.

Henry continues his rant. “It’s a cruel inside joke for all the rich kids. Any rich kid going by with their Goggles will see the graffiti and laugh at us. All of us regular kids, without Goggles, would never even know. If they want to be mean, they should at least be mean to our faces.” As Henry said, I would never have known that the graffiti was there if our school hadn’t received the grant for the Goggles, and if I hadn’t looked out the homeroom windows with Goggles on.

“Dude, Henry, there are bad people everywhere. There are bad kids at our school. That doesn’t make everyone bad. And you know, the lives of Iridesce kids aren’t perfect, either,” I say. I refrain from adding that the graffiti wouldn’t be from anyone at Iridesce—Iridesce kids never leave their homes. It must be from someone else wealthy enough to afford Goggles—someone who bought Goggles, came to our school, and created those graffiti Art Objects with offensive content that only people with Goggles can see. Maybe one of those rich kids in an in-person education pod? Or one of those rich kids whose parents don’t worry about the next pandemic? I hope they didn’t tag any of our homes. Henry would explode if they tagged his dad’s pizza shop. Clarifying these nuances to Henry right now wouldn’t help the situation.

“Why are you sticking up for them, Liam? Life is perfect for those Iridesce kids. They are jerks, and life is perfect for them,” Henry retorts.

“Relax, Henry. Listen to me,” I reply. “They have

money, sure. But they are missing things, too. Like, seriously, Emma's stuck in Our Reality. For her, it's like a prison." I might be exaggerating just a little. But what I say is basically true. I continue, "And there is no soccer! How much would that suck?" I'm trying to calm him down.

"You're a fool. If she talks nice to you, it's because she's a spoiled brat who has taken an interest in a new pet—you. 'Liam the Pet.' Not 'Liam the Center Mid.' "

"Henry, come on," I say.

"No, Liam, you come on. Can't you see? Our Reality doesn't make the world a better place. It just makes it a better place for people who can afford it. Not people like us. Not normal people. You're blinded to the truth because you like that girl."

I thought Henry was done. But then he decides to continue, "And if you're going to be crushing on a girl, why don't you crush on someone in our world?"

I stand in silence as Henry stomps away. Work may be awkward tonight.

The sad thing is, I see Henry's point. It's like Our Reality kids and Centennial kids are sharing the same planet but living in worlds that are completely separate. For me, I like my world. My world has soccer, which is all I really cared about until this week. But I understand why Henry is upset. It *is* unjust. And *no*, I'm not crushing on Emma. I like her. She's a good person. I'll be proud to call her my friend. But I'm not crushing on her . . .

CHAPTER SIX

Madrona Lake

Emma, Monday, June 12, 2034

I can't believe the night is finally here.

I am so excited. Scared. Nervous. The blood is rushing through my body with an intensity I've never felt before.

Mom, of course, has been asking me how I'm doing. I've been telling her that I'm fine and that I'm just stressed with all the exams and projects due before Summer Break. Mom changed our vacation plans to try to give me more time to relax. Instead of spending three days in Tanzania, three in Italy, three in Peru, and three in Japan in a whirlwind Our Reality mega-tour, Mom purchased the exclusive "Costa Rica Meditation Escape" package in Our Reality.

I've spent *every second* of my free time preparing to meet Liam. I ordered my first pair of jeans last Wednesday after school and a pretty shirt. I also ordered

new shoes and a nice late-spring jacket. Up until now, sweats and PJs have always been fine for me. I don't like how this fabric—denim, it's called—feels on me, or how tight the jeans are, but they look nice, like how some people's avatars dress at Iridesce. Should I upgrade my style in Our Reality, too?

I told my parents that, as an almost seventeen-year-old, I want to start dressing more maturely, even though I only ever leave the house to walk River and Wind.

I also sent Liam a photo of me. He asked so that he'd know who I was when he saw me. Made sense for him to ask. I've never actually been to the park at night, and I would be shocked if anyone else were there. But he wouldn't want to accidentally approach a stranger. They would probably run away from him, for social distancing, if they were Madrona Lake natives. They might even call the police if he got too close. I'm glad that he asked for the photo. I, of course, keep replaying the scene from last Wednesday, when he showed me videos of himself playing soccer. He gets to see people in person! *Now I get to see someone—him!—in person, too.* Did I mention that he is super nice?

With being so nervous that I couldn't eat dinner, and with Mom monitoring my heart rate, I didn't need to make up a huge excuse for why I was going to be in my bedroom starting at 8:30. I told my parents that my stomach was upset, which was why I wasn't eating much dinner. And that I need to get to sleep early to be fully prepared and rested for my calculus exam. So, I'm going to go to bed and get a really solid night's sleep.

My room—our whole house—is protected by a home security system. There is a sensor attached to my wall,

next to my window, that detects if my window is open. I remove that sensor and attach it to the window itself. That way, whether the window is closed or not, it registers as closed. Now I can close the window when I leave, my parents can set the alarm for the night, and I can still open my window later without triggering the alarm. I tested this plan last night, from the inside.

I've rehearsed this evening so many times in my head.

A text bubble from Olivia appears, reading, "*Seriously, Emma, be smart.*" Olivia thinks I'm being stupid. I am not. Well, I guess I did do one stupid thing: I told Olivia about my plans. That was a mistake. I was just too excited not to share this news with *someone*.

I should not have told her.

"Dismiss," I say, and then, "Disable messages from Olivia." I'll turn messages from her back on tomorrow.

I tie my shoelaces, stand up, and pose again in front of my bedroom mirror. I am *so* ready to go.

"*Are you sure you're okay?*" Seriously!?! Another text bubble, this one from Mom. I want her to stop asking.

"*Yes, thanks Mom. Totally fine. I'm going to bed now and am recharging my Goggles. Love you. Goodnight.*" I message back. The longer my reply, the more she will think that I'm totally fine and won't worry. I also message "*Love you, goodnight*" to Dad and then take off my Goggles.

I told Mom and Dad that I'd be sleeping. I don't want them to be tracking my location or my heart rate or anything else. This means that I need to leave my Goggles at home, which is scary—I've never been on a walk without them before.

I slide the window open and feel the crisp, cool air enter my room. It is June, a time of year where it's still chilly in the evenings in the Pacific Northwest. The air smells fresher than it's ever smelled before. I'm lucky it's not raining.

The soft breeze and the sound of leaves are inviting me outside. I sneak out the window and climb down the ladder that I placed next to my room last week. I was prepared to answer any questions my parents might have had about the ladder, if they happened to see it, which they haven't. I have taken a serious interest in birdwatching, or so I'd tell my parents. I bought two bird feeder kits last week. I was preparing to hang them from the tree outside my window.

I have been so methodical in my planning, there's no way that I missed anything. I hope . . .

Liam, That Evening

I like how Emma smiles at my jokes. I know they are not very good. I like that she is always checking in with me to make sure that I understand what is going on. And she's even kind and thoughtful when she checks in with me, not presuming that I don't know something, but just offering to help in case I'm lost. I've only known Emma for a week, but I already feel like I know her as a person. Maybe it's because we were avatars every time that we met, up until now, and were not distracted by the physical world? Or maybe it's because we have been spending so much time together at Iridesce?

It is also super weird for me to have a friend that I've

never met in person. I know that she is the one who suggested that we meet, but I am excited to meet her, too. And yes, I know I called her a “friend.” She *is* a friend. Somehow, even though I’ve only known her for such a short time, I feel closer to her than I do to most of my guy friends at Centennial. Heh, my younger self—and by that, I mean myself from a few weeks ago—wouldn’t believe me, but it’s actually kinda fun to have a conversation with someone who doesn’t also play soccer.

She’s definitely not what I imagined Our Reality people to be like. I know Henry and a few others are having different experiences. And, worse, Mathias can’t even use Our Reality. But, anyway, Emma is more than just nice—she’s a good human being.

One thing is bothering me, though. This is about me, not her. That photo that she sent me . . . First off, she seems like just as cool of a person in real reality as she and her avatar are in Our Reality. But that’s not what’s bothering me . . . When she sent me that photo of herself, I didn’t expect her to be Black.

I don’t mind! I was just surprised. I have Black friends on my soccer team, too, so I *shouldn’t* have been surprised. But I was.

Ugh! I’m not supposed to think that way. It’s like saying, “Nothing I’ve ever done, whether intentional or accidental, has ever been racist. I can prove this to you because I have this one Black friend.” Why did I assume that she was white, like me? I am embarrassed. And mad at myself for making assumptions.

And also, there’s the fact that race isn’t visible in Our Reality. That seems weird, now that I think about it. We talked a lot about race, culture, and identity in Mx.

Rodríguez's history class at Centennial this past semester. Does living inside Our Reality make it harder for people to maintain their own identity? Wouldn't it be better if race and culture were explicitly visible in Our Reality? Didn't we learn in history class that it is better to see and discuss race-related issues than to pretend to be blind to race? I guess it's true that I've only ever been to Iridesce and don't know what the rest of Our Reality is like. Maybe people outside of Iridesce find ways to express their racial identities in Our Reality?

I see Emma approach, wearing the jeans, blouse, and jacket that she told me she'd be wearing. I push all other thoughts out of my head. And, oh my God, that is so awesome. I think she's wearing what looks like a new pair of black-and-white Converse shoes, like the ones I told her I tried to buy on my first day last week.

She stops a few yards away. With her weight on her back foot and her body angled a little to the side, I can tell that she is nervous but trying not to be. I would be nervous, too, if I were her. I need to be respectful and give her whatever space she needs.

"Hi Emma," I say.

I drove here in my car, which smells permanently of pizza. I suddenly hope the scent of my deodorant covers any smell of pizza on my body.

"This park is *amazing*," I add, trying to make conversation. The sun has turned the clouds a radiant shade of orange and pink. The moon is gently beginning to rise, its reflection shimmering across the lake. It is peaceful over the water—no commercial drones are allowed to fly over the lakes or parks in the city. The trees surrounding this park are majestic, and the grass is

perfectly groomed. I'm at the edge of the parking lot now, though no other cars are here. The path I'm standing on winds through the park and the trees, heads down to the water, and then continues near those houses—those mansions—in the distance. The path looks so peaceful and inviting. I can hear, faintly, the gentle lapping of waves along the shore. I didn't know that parks like this existed in the city. I think Emma and I should head down to the water.

Emma smiles but seems not quite ready to speak. I'll continue to make conversation. "Set speed of light to 300 meters per second," I say.

That makes her laugh, and I see the smile in the corners of her eyes above her face mask.

"You are really getting the hang of Our Reality," Emma says. Joy is in her voice. "I sometimes forget that you tried Goggles for the first time only last week."

We talk about Mx. Adebayo's lecture, from physics class today, on the rise and fall of post-quantum cryptocurrencies—or cryptos, for short—as we start to walk the path that winds through the park. We walk side by side, three feet or so apart. This distance is normal for me and my friends. I know that this is completely new to Emma.

I am honored that she knows that she can trust me.

It must suck to live a life without real, in-person friends.

CHAPTER SEVEN

The Drones

Emma, Getting Late

It is different talking with someone in person than it is in Our Reality. I can *feel* when Liam's interested in what I'm saying. Like really feel it, deep in my body. I can hear him exhale slowly after I ask a question, as he thinks about his response. When he turns to look at me, I can feel it in my heart.

If I put my arm out, I could touch him. Liam is so close to me. Being near him makes my whole body tingle. I feel euphoric. Even in my dreams I never imagined how wonderful being near another person would be. So, this is what it's like to have an in-person friend.

A. M. A. Z. I. N. G.

He is a lot taller and stronger in real life than I had even imagined. I hope it's not obvious that I'm staring.

I wish that we could keep talking, walking, and hanging out all night. I know it is getting late. I don't actually know how late. Without my Goggles, I can't tell time. The sun has finally set and, this far north and this time of year, that probably means that it's at least ten o'clock.

I should get home. The walk home will be scary this late at night. It would be scary even with my Goggles. If Mom and Dad catch me, I assume that the later I am out, the more trouble I will be in. But being out here tonight is *definitely* worth it. When can I see Liam again? I mean, not at Iridesce, but in person? Will he walk with me again next Monday? Should I ask him? Can I meet his friends in person, too? Can I transfer to Centennial High School? That's not a serious question. I know that's not possible.

I think I know how real-world friendships are supposed to work, at least in the old days, based on the classic movies I've seen. Of course, it is illegal to watch movies or shows filmed before 2026. That was when the Video Pandemic Preparedness Act was passed by Congress. There was too much physical contact in old movies, and no masks, which certain politicians said set bad examples for society. The Act was passed after the vaccine for The Pandemic of 2024 was found, but during a time when masks were still highly debated. Historical documentaries are still allowed, however, and I've seen the movie industry's thinly veiled "documentaries" about classic movies from the early 2000s. I also know, from my earlier questions to Liam, that his friends hug their partners, like in the old movies, just never at school. I don't know for sure what Liam will do, and of course we are friends—not partners—but I want to risk it.

I turn to Liam. “Okay, I really should go home,” I say. I outstretch my arms, just like in the old movies. It’s good that Mom’s not monitoring my heartbeat right now.

He pauses for a split second and then squeezes me into a hug. I am grateful that in real life, unlike in Our Reality, no coffee ad can interrupt this moment. His hug is light at first, like a butterfly landing on my clothes. But then it becomes a strong yet gentle hug. Does he always hug people so tightly? Or could he somehow tell how badly I needed him to hug me?

I feel the warmth of his chest against my body. I hear his breath outside my ear. I feel the pressure of my fingers against his bare neck—against his skin. Tears of joy begin to well up in my eyes. Real, human-to-human contact. I lay my head on his chest. I can even smell him. I can’t recognize the scent, but I don’t care what it is. The fact that I can smell another human being is somehow incomprehensible.

I try to imprint this image and this moment in my mind so that I never forget. If I had my Goggles on, I would take a video. I wish I could capture this whole scene and replay it forever. Here I am, actually touching another real human being.

Not just any human being. A friend.

Can I ever go back to a life without touch? And no, hugging my parents, however rare, doesn’t count. My thoughts are so heavy and complicated—I want to think about how my life should change. How the world should change. But I don’t want to think more about that right now. I am just going to sink deeper into this hug.

Liam, Same Time

Her hug is so tender. Her lean into me is so complete that if I were to move, I think she'd fall.

She needs this hug, I can tell.

The rhythmic sound of her deep inhales and exhales and the pressure of the side of her head on my chest tells me that I am hugging her the way that she wants.

The way that I want, too.

I will let her decide when this hug ends, not me.

I know I'm attracted to her. To her as a person, in Our Reality. And now to all of her, in the real world. But this hug, it's not one of attraction. In fact, I want to shove that attraction out of my mind. She needs a friend. There are parts of life that she is missing out on, living inside of Our Reality. I am glad that I can be her friend.

I readjust my arms and soften deeper into this hug, too. Do I also need this? I didn't think that I did, but maybe I do? Soccer has been my entire life, until now. Maybe there's more to life than soccer?

I don't want Emma to stop hugging me. I *do* need this hug, too.

Yup, I didn't realize how much *I* needed a *real* friend. Not a soccer buddy, but a *real* friend. Someone who I trust, and who trusts me. Someone who I can be vulnerable with. It's ironic that I met my first real friend online, in Our Reality. I've only known Emma for a short time, but I already know that she's that type of friend.

I readjust my arms again and sink even deeper into our hug.

I'm glad that Emma is my friend.

“Okay, I really should go,” she whispers after a while. I know it’s getting late, but I’m not ready for this to end.

I release her, gently. She takes a few steps back.

Our eyes stay connected. Her weight is on her toes, her arms wide by her sides, and her chest leans toward me ever so slightly, as if a gentle gravity is pulling us together.

A long pause.

“Can we do this again?” she asks.

“Of course,” I say. I would have asked her the same question if she hadn’t asked me.

She tilts her head to the side and rubs the back of her neck with her hand, just like she does with her avatar.

Another long pause and then, in a barely audible voice, she asks, “Can I take off my mask?”

It is only after she asks that I realize how meaningful it would be, for her, to see someone for real, in their entirety and without a mask. And how meaningful it would be to have someone see her, for real, too. My heart hurts, thinking about the pain and isolation that she must normally feel.

“Yes,” I say, knowing that taking off our masks will seal our bonds of friendship and trust.

As we start to remove the clasps around our ears, a loud sound cuts across the water. *Wee-ooo-wee-ooo-www-ooo* and *chop-chop-chop*. The sound of a police siren blended with the muffled sound of quadcopter blades.

We both turn to look. A police drone is heading straight toward us, its distinctive red-and-green lights on the sides, with brighter blue-and-white lights in the center, reflecting off the water. It is the only drone over

the lake. It is moving quickly!

The drone arrives overhead, hovering above us.

Two more drones—one from the southwest and one from the northwest—emerge from beyond the trees and houses. They shine spotlights on both of us. Emma looks as stunned as I am.

Did someone in Madrona Lake complain to the police about my old car being in the neighborhood, like I worried they might?

The center drone—the one from across the water—announces, “This park is closed to the public between 10 p.m. and 6 a.m. A resident reported this violation.” The drone’s voice is cheap, clearly computer-generated. Even if the drone is new, its speech synthesis technology must be decades old.

“I’m sorry,” I say, loudly, to Emma over the sounds of the drones. With my old car parked here, this must be my fault.

The center drone’s spotlight on me turns yellow. Is this modeled after Our Reality’s yellow chat beams? Or is Our Reality modeled after this? “Sir, we ask that you please go home immediately,” the center drone says. I nod. The spotlight on me returns to white.

The spotlight on Emma turns yellow. “Ma’am, you must return to your neighborhood immediately.” Emma’s shoulders rise indignantly, then slump, then rise indignantly again.

Why did the drone say “your neighborhood” to Emma?

“I live here,” Emma says.

“That’s my car!” I shout and point toward the parking lot. *“I’m the one who doesn’t live here.”*

The center drone ignores me and says to Emma, “Ma’am, the complaint mentioned you.” A microscopic pause. “Processing data. Algorithms suggest high risk.” Another microscopic pause. “You must leave now.”

Wow. *A neighbor reported her?* But not me? And what does the drone mean by “Algorithms suggest high risk?” Mx. Rodríguez taught us that algorithms can produce unjust outputs if they are not developed mindfully. But they also told us that scientists have worked to eliminate injustices in algorithms. Was Mx. Rodríguez wrong? Or did the scientists not work hard enough?

“*I live here, in this neighborhood,*” Emma states emphatically.

“*That’s my car!*” I shout again.

The center drone’s spotlight on me turns yellow, and the center drone says in its horrible, monotone voice, “The complaint did not mention a car. Please be quiet. This incident does not concern you.” The spotlight on me turns white, again.

This is not okay! The drones are targeting Emma.

The drone continues, “Ma’am, turn your head toward the light, hold out both hands, palms facing me, state your name and address, and wait for identification.”

Emma turns as instructed, shows her hands, and gives the requested information. The drone’s camera must be sharp enough to read fingerprints as well as recognize faces. She squints her eyes to avoid being blinded by the light.

“Identity and address confirmed. Suspect lives nearby. Ma’am, Drone 2, to my right, will escort you home.” No “I’m sorry” from the drone.

Emma, on the other hand, says “I’m sorry” to me. Or

at least I think that is what she says—I see her chin move under her mask, though I can't quite hear her words. *She* has nothing to apologize for.

“Ma’am, leave now,” the drone instructs.

Emma squints at the drone that is speaking. The spotlight must be blinding her. She reaches up with her right hand to cover her eyes.

Bam, Bam, Bam!

Are bullets being fired at Emma's feet!?

Shriek-shriek-shriek! Shriek-shriek-shriek!

I cover my ears in pain while keeping an eye on Emma. What sound is that!?

The shrieking sound stops. The ringing in my ears continues. My ears are killing me. Emma's doubled over, but still standing. I don't think she's been shot? She's covering her ears, like me, her face twisted in pain.

“Emma, are you okay!?” I shout at Emma. I see her nod.

“What did you do!?! She's done nothing wrong! She *lives* here!” I shout at the drone. Will it shoot at her again? Will it shoot at me? How can I help her?

“Sir, this does not concern you,” the center drone says to me with its ugly, antiquated digital voice as it turns its spotlight on me yellow for a moment. It then says to Emma, “Ma’am, those were nonlethal biodegradable rubber bullets. We are warning you not to disobey. Keep your hands open and visible at all times. Leave now.”

Do I intervene? Do I not? I don't want this situation to get worse. If Emma leaves, the drones won't shoot her, right? The drones' algorithms are *clearly* unjust. Will they shoot her for real!?

“Go!” I say to Emma, my voice filled with urgency and shock. And with disappointment in the world. I hope she will remain safe and uninjured if she leaves.

Emma turns and starts to walk. The smaller drone to the main drone’s right begins to follow her with its spotlight on. Emma’s squinting at the drone over her shoulder, pausing slightly. What is she thinking? Keep moving Emma! The drone can’t be trusted! Don’t give it a reason to shoot!

Why did the center drone think it was okay to fire those shots? Or play that horrible sound?

“Emma, go! Be careful!” I shout, ignoring the center drone’s instruction for me to stay out of this. Emma’s eyes, angry at the drone, turn briefly to me, showing a mixture of gratitude for my concern and uncertainty over what to do next. She returns her eyes angrily to the drone, squinting at the light. Stop looking at the drone, Emma! Keep walking!

Should I follow her to make sure that she gets home safely? If the drone shoots at her, what will I do?

Emma’s eyes are now firmly set on her path home, and her gait becomes determined, perhaps fueled by anger and insult. She should be angry. I am!

The light on me turns yellow once again. The main drone says, “Sir, we ask that you please go home immediately.” The drone has apparently decided that I’m not a threat and that it doesn’t need to scan me for identification. What made the drones’ algorithms so clearly biased in favor of me, and against Emma? This whole situation is *completely* wrong.

I turn and walk slowly toward my car, but I keep my eyes on both of the two remaining drones, and on Emma.

The drone that is following Emma is very easy to see—its blinking police lights are so visible. The yellow spotlight that it is shining on Emma makes it easy to see her, too, even though she’s now pretty far away.

The two remaining drones watch me for a bit, turn off their spotlights, and leave in the directions from which they came.

Thank goodness they are gone. They truly didn’t care about me. All they cared about was Emma.

I turn and start to follow Emma. I don’t want to get too close. I don’t want to attract that drone’s attention. But I want to be there to do something if the drone does try to shoot her. If this were a normal crime, I would call the police for help. But I can’t call them about this.

I pull my phone out of my pocket and start to record a video as I follow Emma and that drone.

Emma, 11:00 p.m., Same Day

WTF.

W. T. F.

Seriously. *W. T. F.*

I was shot at. My ears hurt.

I met a person in real life. I hugged him! He’s awesome. I have a real, in-person friend!

This is both the best and the worst day of my entire life!

I was shot at!

The drone didn’t care about Liam. The drone targeted *me!*

W. T. F.

Who called the cops? Didn't the drone say something like, "Ma'am, the complaint mentioned you?"

Wait!? Have the neighbors called the cops on me before? Are my neighbors why I sometimes see a police drone hovering above me when I walk River and Wind?

Once the drones identified me and learned my address, why didn't they just let me go?

Is this what Mom and Dad tried to protect me from? My neighbors? The drones? That sound? Those shots?

Would I have been shot in the chest by rubber bullets if I waited any longer?

By real bullets?

Did it shoot at me because I moved my hand?

Why did the drones not care about Liam? They were *clearly* focusing on *me*.

Ugh, I know why.

This drone does *not* need to be saying "Police escort, stay away" over and over on its speakers. It does *not* need to be shining a spotlight on me. Can't it tell that I'm going home? Plus, I *live* here! It's treating me like a criminal.

I'm sure everyone not asleep is looking out their windows at me right now. In fact, with the bright blinking police lights and its loud retro, digitized computer voice, it has probably awakened the entire neighborhood.

Which of my neighbors called the police? Which of them are watching me right now, glad that I'm being treated this way? Did they call the police because they don't like Black people? Or because they didn't think that a Black person would live in Madrona Lake? Either way, it is *not* okay.

Who or what can I trust anymore?

Twenty minutes ago, I was ready to leave Our Reality entirely and join Liam's world. Okay, not really. That would have been a stupid decision. I am only sixteen. But I *did* want to keep spending time with Liam. I would have hung out all night if I could.

But now? Now I just want to be home and forget everything that happened. I want to be safe, in my room. I want to be away from this drone and away from these neighbors.

Will this drone shoot me? Am I safe if I don't provoke it?

Mom and Dad are going to be so mad at me.

I need to calm down and collect myself. Breathe, as my Health App tells me when I turn on Meditation Mode. I feel so vulnerable without my Goggles. If I had my Goggles, I would have a recording of the whole thing.

There's no way that I can talk with Olivia about any of this. She will say that she told me that I was being stupid. She'll tell me that I never should have hung out with Liam. That she knew he was trouble.

I need to talk with Liam.

Should I be grateful that I wasn't actually shot? That I'm not dead or in a hospital? Or should I be angry that this would even be a question? Maybe both?

My muscles are so tense. My body is shaking with frustration.

I approach my front door. Mom and Dad open it before I get up the steps. They heard the drone approach. How could they not? They must have seen that it was me through the camera in the door lock.

“What are you doing!?” is Dad’s first question. I’m not sure if he’s talking to me or the drone. He tries to get between it and me.

“Why are you outside!? Where are your Goggles!?” are Mom’s first questions. She is looking at the vacant space around my eyes, and at the drone.

“Your daughter was violating Madrona Lake Park’s hours. It is closed to the public between 10 p.m. and 6 a.m. This is your first and last warning. Confirm your understanding.” The drone shines yellow spotlights on Mom and Dad.

“We understand,” Mom says immediately. And with that, the drone turns off its spotlights and flies away. Finally.

My legs start to feel weak. I want to keep standing.

I have a lot of explaining to do. I can’t deny that I snuck out. I’ll get in trouble for that. Do I also tell Mom and Dad that I met Liam in person? I don’t care if I get in trouble. Not anymore. My ears still hurt. That drone shot at me. My neighbors called the cops on me.

“One of those drones shot at me,” I say. Mom’s and Dad’s eyes and bodies melt as they usher me inside.

CHAPTER EIGHT

Toward Justice

Liam, 6:30 a.m., Wednesday, June 14, 2034

I arrive early at Centennial High, put on my loaner Goggles, and connect to Iridesce. Mx. Hill is at the front of the classroom, this time having bright-orange skin and wearing a cream-colored suit with a faint netting pattern.

I haven't talked with Emma since Monday night, when the police drone escorted her away. That was over twenty-four hours ago. When will she arrive? I wish I could have used Centennial's Goggles on Tuesday. I wish I had my own pair. Should I have gone to her house yesterday to check in with her? Her parents would *not* have liked that. That was the conclusion that I came to yesterday. They probably blame me for her sneaking out, and for everything that happened, and I bet that seeing me would have been the *last* thing that they wanted. But

I haven't seen her since Monday. What kind of friend am I?

Darn, I should have gone to her house and at least tried to see her yesterday. I made the wrong decision.

Emma fades in, her aquamarine skin is as radiant as always. I'm glad that she got to school early, too. And I'm glad that our desks are next to each other.

"Are you okay?" I ask. Normally this is just a polite greeting. Today, I ask out of worry.

"Not really. How are you?"

"Better than you, I think. I followed you home to make sure you got there safely. How was Monday night, with your parents? How was Tuesday?"

"That walk was a *nightmare*. Thank you for following me, just in case. Those drones were totally unjust," Emma says. She continues, "But, yeah, I got home safely. My parents freaked out, of course. Both at me, at the drones, and at my neighbors. I hate the police drones, and my neighbors, too."

"Will you be okay?" I ask. She's obviously not okay. But will she be? I know that I would not be okay if I were her.

"I don't know. I guess. I will have to be." And then, after a brief pause, Emma adds, "Dad spent the whole day yesterday trying to get the police drone video footage. And the footage from the contact-tracing cameras in the park. I'm super stressed about them seeing a video of us hugging."

"I'm sorry," I say.

"It's okay. It can't be helped now. They want to share the videos with the news, to hold the police accountable. Mom spent—"

"I recorded a video of your walk home if that helps," I

blurt out, and then follow up and say, “I’m sorry, I interrupted you.”

“Yeah, maybe. I’ll ask Dad,” Emma replies. “Mom spent the whole day trying to figure out if her company could buy the company that made the police drones. She said that she should have done it long ago.”

“Wow, she can do that?” I ask. Who is her mother? Who are her parents? I know that Iridesce is full of rich kids. Their lives must be so weird for her mother to just decide to buy a company like that. I add, “What will she do if she buys the drone company?”

“Mom says that the police bought all these drones when they downsized their human staff years ago. She said that the drones must *still* have stupid, unjust, racist designs. That was pretty obvious to both of us, right? Mom said that there were similar incidents in the news a few years ago and that the company was *supposed* to have improved their drones. In fact, the company said that they did. But apparently, they never shared the details of their fixes with the city or the public, so it’s impossible to know for sure what changes they made or how their software works. Mom says that whatever they did, if they did anything, clearly wasn’t enough. So, she’s going to fix them *for real*.”

“Wow,” I say. I figured out on my own that the drones had racist algorithms. Anyone who was there could have figured that out. What’s impressive is that her mom knows how to make the drones better, less racist, and more just. “How can companies like that still exist?” I ask.

“I asked Mom that question,” Emma answers. “She said that even if the drones’ designers weren’t intentionally racist, they probably trained their artificial

intelligence systems with bad data—biased data, based on the long history of the incarceration of Black people. Mom says she doesn't know if the designers of the drones were good people who were oblivious and made mistakes, or if they were knowingly racist. But she says that *even if* the designers of the drones were good people with good intentions, the use of biased data made the drones more likely to target me because I am Black. Mom said that *regardless of how* the drones' algorithms became racist, someone clearly didn't know how to ask or evaluate whether the algorithms *were* racist, and that's a problem."

"That sucks. I'm sorry," I say. That does suck. I wish I had a better reply—a reply that would magically make the world a better place. I don't, so instead I just add, "Your mom can fix this?"

"Yeah. I think so. Mom thinks so. If anyone can fix this, Mom can. She said she's going to start by completely retraining the drones. And if that doesn't work, she may completely redesign them. And if *that* doesn't work, she says that she will have the experience and knowledge to draft a solid, well-informed petition to the city, to ask the city to stop using police drones."

I send Emma a smiley-face and a thumbs-up emoji on our chat.

Emma continues, "Mom also said that she's tried my whole life to make the world a better place, but that she's clearly not done enough. I can't tell if she's more disappointed with me, the drones, or herself. She said that there are so many battles still to be fought."

"Oh," I say. I wish I could add something more intelligent. Do I have any useful insights to contribute?

Emma pauses and looks at Mx. Hill.

Emma turns her attention back to me and says, “You know, let’s ditch this room. I’m going to share my external view with you. When you see the blob, select it. You’ll be in my room. Don’t judge me!”

“Okay,” I reply, uncertain what is happening and why.

I see a floating blue blob with the text “*Join Emma’s External View?*”

I look at it and blink twice. Suddenly, I’m seated to the right of Emma—Emma’s avatar—in her bed! Okay, this is a little uncomfortable. And what did she mean by “Don’t judge me?” Her room is *immaculate*. That white dresser, the matching nightstands, the cream walls, the chandelier above her bed, the expansive framed mirror on the wall to the left—her room looks and feels like something out of a catalog. I can even hear birds chirping outside. Unreal. How can anyone keep such a clean room? Oh, wait, there’s a white wooden laundry basket next to her left nightstand, with an azure-blue hoodie partly sticking out. It’s nice to see at least a little bit of disorder. I keep all my dirty laundry in the designated corner of my bedroom floor.

“I’m sorry, Mx. Hill was watching us,” Emma says. “It’s probably no big deal. I mean, we were the only people in their room, so of course they were watching us. But teachers at Iridesce can use the school’s ‘teacher mode’ to listen in on any conversations in their classrooms. I don’t know if they ever do this. But they can. I wanted to talk privately.”

“Okay,” I say. That thought never occurred to me. But it makes sense in retrospect. Our school laptops also have software on them that lets our teachers know what we’re

doing at all times and read all the messages that we send. I don't know how often they look, though.

"I'm sorry, is this weird?" Emma asks me as she looks around her room. She looks concerned.

"No, seriously. This is totally fine," I say as I turn to face her. Yes, this is totally weird. I mean, I don't mind. But I *am* sitting in her bed. How could this not be weird? At least we're both still in avatar form. Actually, I can't tell if that makes it more weird or less weird.

"Okay . . . Thanks," Emma continues. "Anyway, I've also realized that I've been *way* too sheltered in Our Reality. I'm sure there must be so many people who don't realize how bad racism still is. I haven't figured out why I didn't truly understand this before. I mean, I *knew* it was still bad. Mom and Dad have talked about the injustices at their work, for example. But I didn't *realize* it, for real, if that makes sense. Anyway, I'm thinking of making an orlog to bring more awareness of reality to Our Reality. I want to use it to talk about racism. And to talk about how Our Reality isn't perfect. Both."

"That sounds like a good idea," I reply. Emma's been doing some deep thinking. I'm trying to keep up. I *think* an orlog is an "Our Reality Log," like an old-fashioned blog? Actually, I do have more to say. "I agree, there is racism that we don't always see or recognize. Or at least I don't always see or recognize it. We've come a long way, but we still have a long way to go. I think your orlog will help." I am still upset at myself for being surprised when I saw the photo of her.

"I needed to talk with someone yesterday," Emma says. "I didn't want to talk with her because I knew she'd call me stupid, but I ended up talking with Olivia. She

agrees with me, about my orlog. Her parents let her visit the places in Our Reality where Tourists are allowed to go—where I am not allowed to go. She says that Our Reality is not as lovely and glowing as I think. It sounds like racism is also an issue in Our Reality, especially at the Tourist spots. She says that there are other isms there, too. I don't know why my eyes were so closed before. I want to fight racism and other injustices in general, and in Our Reality, both."

"That is an awesome fight. I'll help you however I can," I say. I really mean it. I was disgusted to see racism in action, with the drones, on Monday night. I'm also disappointed that I didn't fully realize how serious—and how real and ever present—racism is.

"Thank you," Emma says. She turns to face me directly, crossing her legs. "I already knew that Our Reality wasn't perfect. I've always wanted to meet someone in the real world. Someone like you. And now that I've met you and we've hung out, I know just how imperfect Our Reality is. Liam, I want to have real friends. I want to see you again. For real. I want to go for a walk with you again. I want to hang out again. I can't do that if I stay entirely in Our Reality."

"I'll hang out with you whenever you want," I say. I mean it. "Will your parents let us?" I ask.

"Ha! No. My parents would never allow that . . . But here's the thing. I don't want to not live in Our Reality, either. Real reality sucks." Emma pauses briefly, then continues, "Our Reality sucks. Heh, all realities suck. I hate my neighbors. I hate the drones and the police. Drones shouldn't shoot at people. My neighbors shouldn't be able to make me feel unwanted in my own

neighborhood. I don't want to live in real reality. Our Reality is safe. Safer, maybe. I want the best of both worlds—the best of Our Reality and real reality—not the worst.”

“I know,” I say. I can tell that she's not finished with what she has to say. I still feel a little awkward being in her bedroom.

“I don't want to hide from reality. Now that I see the problem, I want to make the world better. That's why I want to start my orlog. It's something that I can actually do.”

“That's awesome,” I say.

“How do I make sense of all of this?” Emma asks. Her avatar frowns, and she sends a frowning emoji to me on our text channel to punctuate her feelings. “What do I do?”

“Start your orlog. Don't give up. You're safe now, in your house and in Iridesce.” I move my arms in a sweeping gesture around her room. This is a safe space to be in. The morning sun is warming her room with gentle light, and I hear the birds continuing to chirp outside. I turn back to Emma and say, “And let's find a way to meet in person again, too.” I reach out to hold Emma's hand, as a true friend would.

Our Reality shrinks our hands, enforcing its noncontact rules. I should have remembered that. We've played with that feature so many times already.

We both look at our now shrunken hands, and then at each other. Sadness fills her eyes. And mine.

I don't know what to say, so I simply repeat the main thought running through my mind. “Start your orlog. Don't give up.”

Emma, Early That Evening

“This world sucks,” I say. I am grabbing a yogurt cup and an apple from the refrigerator before dinner arrives. Mom and Dad are grabbing snacks, too. They probably heard me come downstairs and came down to join me. I’m a lot calmer today than I was during my conversations with them yesterday and Monday night. But I am still upset and disappointed with the world.

“I know, honey. I’m so sorry about the drone, and the police,” Mom says.

“And Our Reality, too, Mom. And our neighbors.” River and Wind are curled up on the marble floor. They must be waiting for dinner, too. I see their chests rise and fall gently as they breathe. I wish my life were as simple as theirs.

“I know,” Mom says, apparently deciding not to fight my Our Reality comment. And then she says to Dad, “Have you gotten the video from the police?”

“No, not yet. I’m still trying,” Dad says. “They continue to say that they can’t release the drone footage. This time they said that Emma must have done something wrong, either on Monday or sometime in the past, and that her actions made the drones behave in the ways that they did. They said that their drones’ judgments are always correct—that they have advanced AIs that objectively identify so-called likely offenders—and that Emma must have deserved this, somehow.” And then Dad says to me, “I *know* that is not true.” And then back to Mom, “I’m going to try, yet again, tomorrow.”

Why did they say it was *my* fault!? If a police drone shoots at an innocent person, blame the drone—or the people who built it—not the person being shot!

“I hope I get a different person tomorrow,” Dad says. “The last person also told me that they were frustrated that people like me keep complaining about the drones, and that normal people—in their words, ‘people who aren’t suspicious or who haven’t done anything wrong’—don’t complain.” Dad uses his fingers to put air quotes around the words “normal people.”

“Oh my God,” Mom says, disappointment in her voice. “No wonder you didn’t get anywhere with this person.”

“I know,” Dad says. “It was pretty infuriating.” He turns his attention to me. I think he’s trying to assess my reaction. I’m trying to understand why the person thought it was okay to tell Dad that he wasn’t a “normal person,” and why they just assumed that I was suspicious or had done something wrong. Dad continues, looking again at Mom, “I told them that what they said was wrong in so many ways, but they didn’t get it. They said that it wasn’t their intent to offend me. Anyway, I will reach out to the police again tomorrow. Hopefully, I will talk with someone else. I also have another meeting tomorrow with our lawyer.”

“What about the contact-tracing cameras in the park?” Mom asks, returning her focus to the goal of documenting this incident. The city installed facial recognition cameras everywhere—in every streetlamp, throughout every park, *everywhere*—eight years ago or so as part of the city’s effort to prepare for the next pandemic. With these contact-tracing cameras, the city can retroactively determine the identity of everyone who has come in

contact with a known virus carrier.

“The city hasn’t gotten back to me,” Dad replies solemnly. “I don’t know if we can get the videos from those cameras or not.” A thought occurs to me. Are the contact-tracing cameras and how they are used as unjust as the police drones? Are the data from these cameras being used for other purposes, and not just for contact-tracing? Do the police have access to the contact-tracing cameras? Are the cameras distributed justly throughout the city? Could the cameras’ algorithms or their usage harm some people more than others?

And, assuming that we can get whatever videos were recorded, I don’t know how the videos will help *me*. I’ll use them on my orlog, of course. But the damage *to me* has already been done. Having the videos won’t help with that.

“Can I tell you what I want?” I ask Mom and Dad.

“Of course,” Mom says.

“Absolutely,” Dad agrees.

“I want the world to be just. I don’t want there to be racism. I want everyone to be treated justly. I want equity for everyone.”

“I know,” Mom says.

“I want to live in a better world,” I say.

“I want that, too. That’s why I created Our Reality. I created it for you—I wanted to make a better world, for you. You know that.”

“But, Mom, a better world *for me* doesn’t mean a better world,” I reply. “I want a better *world*, period, not better technology. And Our Reality itself is not just. It’s not just to me because I want to see people *for real*. I want to see Liam again. In person! And it’s not just to

people like Liam who can't afford Goggles. How is that equitable? He can't even visit Our Reality except when he's at school."

"You've told me that before, about wanting to see people outside of Our Reality. Maybe, somehow, I haven't been listening. You know how hard it was for me when my sister died in the first pandemic. Black people don't get the same healthcare as white people. I wanted a world where you'd never have to be exposed to another pandemic . . ." Mom pauses, then adds, "You risked everything that I created for you when you chose to see him. You really want to see him again, in person, after all that happened? Is seeing him in person that important to you?"

"I know, Mom, about your sister. And yes, it is. It *is* that important to me," I answer. What did Mom just say? Am I actually getting through to her? Is she beginning to understand that seeing people in person is worth it to me, no matter what the risk? "Will you let me see Liam again, in person?" I ask.

"Emma, you are asking a lot. I don't know. Maybe. I've been thinking about that question, too. Your Dad and I both have. Can all of us discuss it more later? I don't want us to rush into anything. Dad and I should talk more, first," Mom says. She turns to Dad and asks, "We'll talk more tonight?"

"Of course," Dad replies.

Mom returns to talking to me, "Our Reality is better than meeting people in person. It is safer if there is another virus."

"Mom! Technology is not the solution to everything! We can't let the fear of a future virus control our lives. I

wish you never invented Our Reality!”

“Emma!” Mom begins.

“And here’s another thing,” I interrupt her. “I don’t want to be aquamarine in Our Reality anymore. I want to be Black in Our Reality. I want to be *me*. Our Reality should let me be *me*.”

“I’m sorry, Emma. I know. That is one of my regrets,” Mom says. I hear sadness and resignation in her voice. I’m glad that she ignored my outburst about wishing that she never created Our Reality. “You see, Emma, even though I am a co-founder of Our Reality and Chief Reality Engineer, I am only one voice. When there’s a strong business justification for something—where other people can see how what I propose can make them money—I can rally resources. I made a strong business case for buying the drone company, for example. I argued that we can leverage the drone technology, and their patents, to build new drones that will enhance Our Reality’s immersive experiences. So, I could justify buying a drone company. But when something is just morally right, or when it only affects a small number of our users, I have an uphill battle.”

Mom sees me frown. She continues, “As you know, I have accomplished so much. But I am still a Black woman in tech, and tech leadership is still mostly men—white and Asian men, generally. It’s a bit better than it was twenty years ago. But it’s still not where it should be. I have to work with and convince so many other people. There’s the CEO, who is a white man. There are the venture capitalists who originally funded us. There’s the board of directors. All these people know that diversity is important, but they aren’t diverse themselves and don’t

truly *understand* diversity. They think that they're capable of anticipating the needs and values of people unlike themselves, but they often aren't."

Mom turns her gaze to River and Wind and continues speaking. I can't tell if she is talking to me or thinking aloud. "Yeah . . . They know that diversity is important. They make sure that the public sees me, and they schedule me to give lots of public talks and host public outreach events, in Our Reality. All these activities are important. But I wish that I were *always* valued *for who I am*, as a person and as an engineer, and not as a public example of Our Reality's diversity." Mom uses the first two fingers on each of her hands to signal quotes around the words "example" and "diversity."

"I also need to be careful," Mom says. "If I make too big of an issue about diversity, I'm worried that the company might find some way to let me go—even as a co-founder."

Mom turns her gaze back to me and continues, "Anyway, I've tried as hard as I could to let our users express their full identities in Our Reality, but I can't do everything. Everyone else seems to think that having avatars that are raceless makes them more progressive . . ."

Ugh. "So, you're saying that *those people*—those people who aren't diverse and who don't truly understand diversity—get to decide whether *I* get to make my avatar Black?" I ask.

"Yes . . . I'm sorry."

"That needs to change, Mom."

"I know."

"How many of your users are Black?"

“Not many,” Mom says. I don’t like her answer. Mom clearly does not like her answer, either.

My mind is running in so many directions. I need to replay this conversation again later tonight. Mom’s given me so many things to think about. These are all important topics for my orlog.

“I wish I could see Liam outside of Iridesce,” I sigh aloud, changing the subject to avoid overloading my brain.

Mom starts to say something but pauses. What is she thinking? I set my yogurt cup down on the granite island in the kitchen and take a seat on the floor next to Wind. He rolls onto his back, feet up in the air. He loves to have his belly rubbed. I’ll move over to River next.

Mom starts to speak, again. She says, “Emma, how about if I have my team ship your friend a complimentary set of Goggles? We can do that tomorrow. Would you like that? Would he like that? That way you can at least talk with him outside of school. What’s his address?”

Ha! I know that I just told Mom that she can’t solve everything with technology. Still, I will take her up on her offer.

“Okay,” I say. “Thank you, Mom. I’ll ask him for his address on Friday.” I’m trying to hide my smile. “Can you give him a Premium account and make sure that his account lets him go to the places that I can go to in Our Reality? Not the Tourist places, but our places?”

“Yes, I can do that,” Mom replies.

“Thank you,” I say, and then add, “But I still want to see Liam again in person, too.”

“I know, Emma. I am not saying no,” Mom says. She pauses briefly, exchanges eye contact with Dad, and then continues, “We are not saying no . . . This would be a big

change.”

I see Dad nod in agreement with Mom.

“We are also not saying yes . . . yet,” Mom cautions. “You did sneak out without telling us. And we need to trust him, too. But I understand that this is important to you, and we’re considering it. Just give us more time.”

“Thank you, Mom. Thank you, Dad,” I say. I am happy to be able to see Liam at all, in Our Reality. It’s too early to say that he is now my best friend. But he *is* a true friend.

I don’t like technology being the “solution,” however. It feels hypocritical *to use technology* to “solve” one of my problems *with technology*. I’ll talk about this on my orlog, too. The long-term solution to problems *with* technology, and with the world in general, is not necessarily to use *more* technology. And, further, giving Liam a pair of Goggles doesn’t *actually* solve my problem *with* Our Reality, either. Being able to see Liam in Our Reality only dampens the pain. I want to see people for real, in person.

So, yeah, Mom’s proposed “solution” isn’t actually a real solution. But, still, given my current disappointment with the world, knowing that I will be able to hang out with Liam outside of school hours is a beacon of light.

I move to pet River. Wind rolls from his back to his side, lays the side of his jaw on the marble floor, and looks up at me with longing eyes. “I’ll come back and pet you again,” I say to Wind. River softens his body under my touch.

Yes, I feel a beacon of light knowing that I’ll be able to hang out with Liam. But my soul still hurts. I have *not* forgotten about all the injustices in the world—the

injustices that just happened to me, and the injustices that must be happening to others.

Mom and Dad have been silent, watching me. I can tell that they are lost in thought, too. I break that silence. “What can I do to make the world a better place? A place that is less racist and more just?” I ask. “I mean, I’ll make my orlog. But I want to do more. What can I do?”

“That is a good question,” Dad answers. “And an important one. I’m glad that you’re so inspired. Let’s talk about that more.” Dad smiles at me, and adds, “Let’s come up with some ideas.”

“I agree. I was thinking the same thing,” says Mom. “There is important work to do, and we should do it. We need to make society better, and we need to make technologies better, both. There is so much work to be done. Fortunately, there are existing efforts that we can join, to amplify our impact. Together, we can make progress. We can make the future that we want.”

“Okay,” I say. “I’m in. Let’s do it.”

Questions for Readers

1. Reflect upon your own life experiences. Picture seminal moments in which you: learned about or discovered a racial or other inequity; developed a deeper understanding of the role of people, society, and technology in perpetuating injustice; and observed something surprising and unexpected about a new technology. What did you learn in these moments, and how did you grow?
2. Imagine yourself living in the year 2034, in the world described in this story. What aspects of the world would you like? What aspects would you want changed?
3. Now imagine that you were Emma. How would you feel before and after meeting Liam for the first time? Answer the same question from Liam's perspective. See also question 6.
4. Consider the incident with the police drones. If you were Emma, what thoughts and feelings would you be experiencing? Consider the same incident from Liam's perspective. See also question 6.
5. There are many different dimensions of identity,

including age, citizenship, culture, dis/ability, ethnicity, family structure, gender, language, life experiences, national origin, race, relationship status, religion, sexual orientation, and socioeconomic status. Choose an imaginary person who differs from you along one or more of these dimensions. As that person, what aspects of the *Our Reality* world would you enjoy? What aspects would you want changed? See also question 6.

6. When exploring questions 3, 4, and 5, did you rely upon stereotypes when formulating your answers? How might you, as an individual, answer these questions without relying upon stereotypes? Suppose that you were a technology designer or policy maker interested in how people with identities different from your own would answer questions related to your technologies or policies. How might you obtain those answers without relying upon stereotypes?

7. Suppose that you were asked to write the next three chapters of this story. How would those chapters unfold?

8. What “good” technology design decisions did the designers of *Our Reality* make? What “bad” design decisions did they make? What does it mean for a design decision to be “good” or “bad,” and who defines these terms?

9. How did racism manifest in this story? What was the role of people in how racism manifested? What was the role of technology? What does this story reveal about how we might work toward addressing racism today so that

the incidents in this story do not manifest, for real, in 2034?

10. How does privacy (or the lack of privacy) manifest in this story? What is your definition of privacy? Is privacy important today? Do you think it will be important in the future? Why or why not?

11. Describe a news article that features a topical interaction between people, society, and technology. What were and are the roles of the public, policy makers, and technology designers in the creation and use of that technology? Is the technology and its usage just to all populations? If not, how should the technology or its usage change, and what can be done to make that change happen?

12. What ideas or topics in *Our Reality* would you like to learn more about? How might you learn about them? How might you apply your newfound knowledge?

Suggested Readings

[1] Michelle Alexander. *The New Jim Crow: Mass Incarceration in the Age of Colorblindness*. The New Press, 10th anniversary edition, 2020.

[2] Ruha Benjamin. *Race After Technology*. Polity Press, 2019.

[3] Sarah Brayne. *Predict and Surveil: Data, Discretion, and the Future of Policing*. Oxford University Press, 2021.

[4] Virginia Eubanks. *Automating Inequality: How High-tech Tools Profile, Police, and Punish the Poor*. St. Martin's Press, 2018.

[5] Safiya Umoja Noble. *Algorithms of Oppression: How Search Engines Reinforce Racism*. New York University Press, 2018.

[6] Ijeoma Oluo. *So You Want to Talk about Race*. Seal Press, 2018.

[7] Cathy O'Neil. *Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy*. Crown Publishers, 2016.

- [8] Caroline Criado Perez. *Invisible Women: Data Bias in a World Designed for Men*. Abrams Press, 2019.
- [9] Beverly Daniel Tatum. *Why Are All the Black Kids Sitting Together in the Cafeteria? And Other Conversations About Race*. Basic Books, 2017.
- [10] Sara Wachter-Boettcher. *Technically Wrong: Sexist Apps, Biased Algorithms, and Other Threats of Toxic Tech*. W. W. Norton & Company, 2017.
- [11] Isabel Wilkerson. *Caste: The Origins of Our Discontents*. Random House, 2020.
- [12] Alice Wong, ed. *Disability Visibility: First-Person Stories from the Twenty-First Century*. Vintage Books, 2020.

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About the Author

Tadayoshi Kohno is a professor in the Paul G. Allen School of Computer Science & Engineering at the University of Washington, where he is also the associate director for diversity, equity, and inclusion. He has adjunct appointments in the Department of Electrical & Computer Engineering, the School of Information, and the School of Law. Kohno is the recipient of an Alfred P. Sloan Research Fellowship, a U.S. National Science Foundation CAREER Award, and a Technology Review TR-35 Young Innovator Award. Kohno has published over 125 peer-reviewed academic papers. He is a co-author of the book *Cryptography Engineering: Design Principles and Practical Applications* and a co-editor of the book *Telling Stories: On Culturally Responsive Artificial Intelligence*.

Kohno co-directs the University of Washington Computer Security & Privacy Lab and the Tech Policy Lab. He was an inaugural member of the National Academies Forum on Cyber Resilience. He is a member of the Electronic Frontier Foundation Technical Advisory Board, the USENIX Security Steering Committee, and the USENIX Committee for Black, African-American, and African Diaspora Inclusion. Kohno received his PhD from the University of California at San Diego.

