IMPERMANENCE

EXPLORATION

Zach Leader

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A design methodology that embraces change through discovery and experimentation.

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A thesis presented in partial fulfillment of the requirements for the degree of Master of Fine Arts in Graphic Design in the Graphic Design program at Vermont College of Fine Arts, Montpelier, Vermont.

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IMPERMANENCE

Every day we experience impermanence—that is, everything is always changing. Our minds, our bodies, and the world around us. Yet many, if not all, of us can be highly resistant to change. The mind likes routine, certainty, and security. Whenever something is changing it can be somewhat threatening to the mind.

When we resist change, it's often like we're trying to push away the ocean waves. No matter what we do, the water bends around us and still makes it to the shore. Or maybe it's so powerful that it knocks us over and sends us tumbling underwater for a few moments, making us feel afraid that we may not find our footing again to stand up and breathe.

If we can get comfortable with the idea that life is ever-shifting, then the mind can be at ease. We can release our grip on what we perceive as stable and constant, and with this understanding of change comes freedom of mind (Headspace n.d.). Instead of fighting the tumultuous sea, we can learn to surf it, sail across it, explore it, discover it, fall into it, and learn from it.
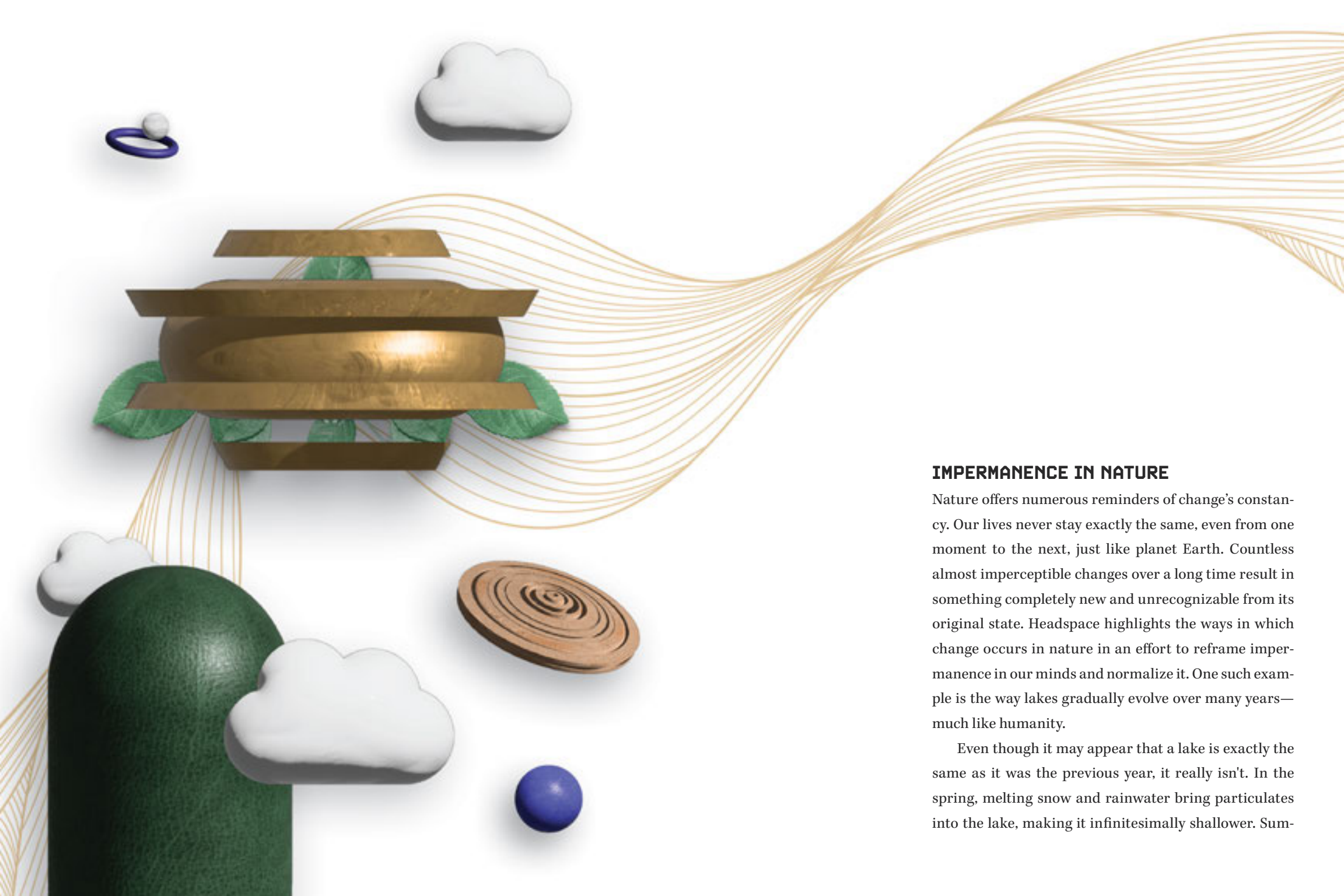
IMPERMANENCE IN NATURE

Nature offers numerous reminders of change's constancy. Our lives never stay exactly the same, even from one moment to the next, just like planet Earth. Countless almost imperceptible changes over a long time result in something completely new and unrecognizable from its original state. Headspace highlights the ways in which change occurs in nature in an effort to reframe impermanence in our minds and normalize it. One such example is the way lakes gradually evolve over many years—much like humanity.

Even though it may appear that a lake is exactly the same as it was the previous year, it really isn't. In the spring, melting snow and rainwater bring particulates into the lake, making it infinitesimally shallower. Sum-

mer weather and runoffs of animal waste and fertilizers can promote the growth of algae and other plants, eventually leading to an increase in the number of plants and animals dying, settling to the bottom, and filling up the lake. When winter comes and the surface freezes over, there is slightly less unfrozen water left below. With this progression gradually happening year after year, the lake slowly reduces in size. The lake will eventually turn into a marsh or swamp, dominated by low-growing plants and animals that can tolerate low dissolved oxygen. "Ultimately though, even that water evaporates, and the former body of lake water becomes a solid piece of land. Lake succession is a dramatic example of Nature's spirals of change happening all the time. Water is ever-changing and itself a master of change." New lakes will form as old ones disappear, a continuous cycle, and dramatic example of impermanence, on Earth (Headspace 2022).

The natural world has an infinite number of examples just like lake succession. By taking note of these innumerable changes occurring at all times simultaneously, perhaps we can realize impermanence's normalcy and take comfort in the fact that change is natural, it's okay, and we can feel excitement in the idea that there's always something new to discover, experiment with, learn from and be awed by. By bringing a sense of mindfulness to everyday life, to everyday experiences, we open up opportunities to not only relax and take a breath from life's bombardments, but we also keep our

minds open. We are able to approach experiences with a sense of curiosity. This curiosity is a skill, and it's a skill that can be practiced and allowed to permeate other aspects of our lives.
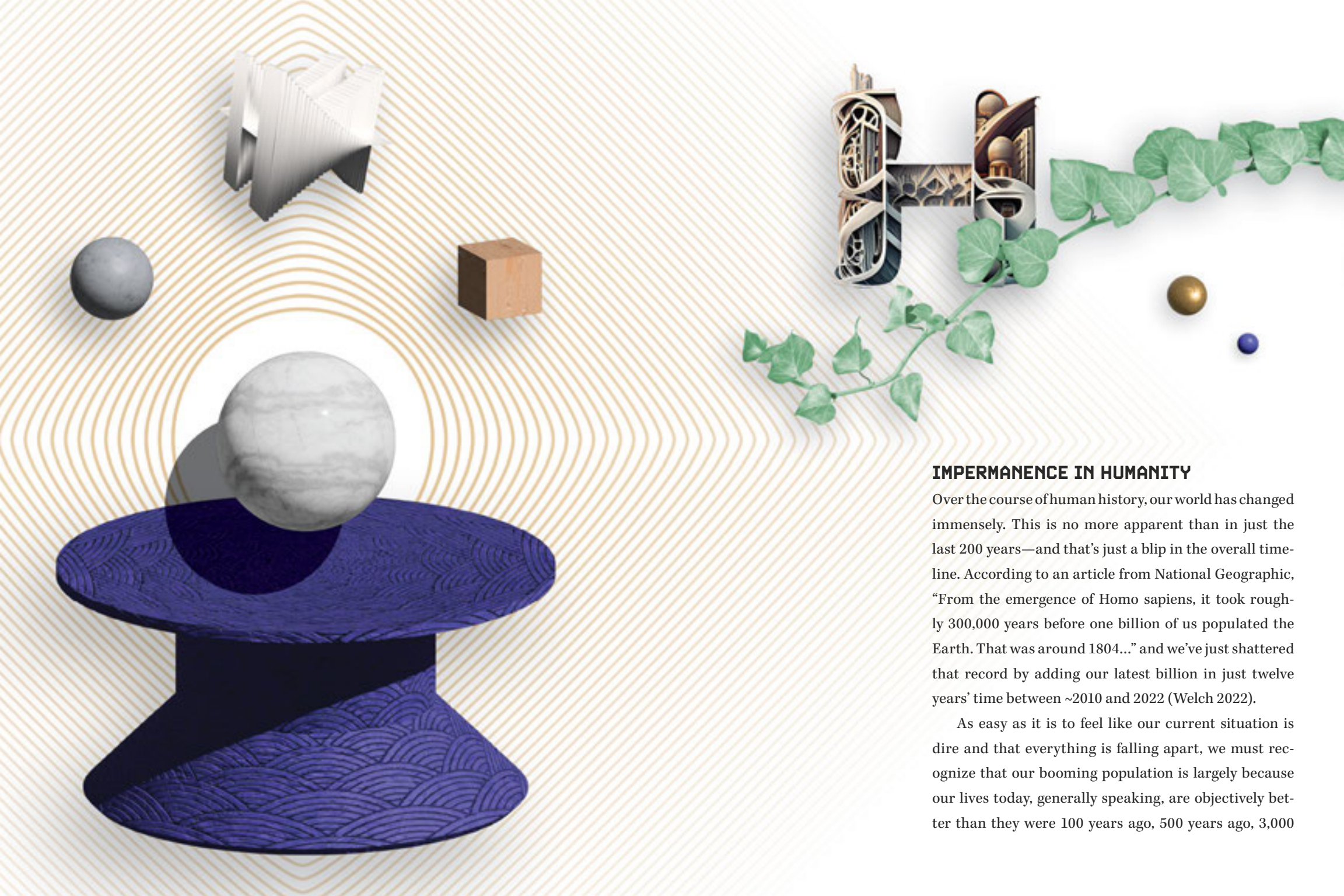
IMPERMANENCE IN HUMANITY

Over the course of human history, our world has changed immensely. This is no more apparent than in just the last 200 years—and that's just a blip in the overall timeline. According to an article from National Geographic, "From the emergence of Homo sapiens, it took roughly 300,000 years before one billion of us populated the Earth. That was around 1804..." and we've just shattered that record by adding our latest billion in just twelve years' time between ~2010 and 2022 (Welch 2022).

As easy as it is to feel like our current situation is dire and that everything is falling apart, we must recognize that our booming population is largely because our lives today, generally speaking, are objectively better than they were 100 years ago, 500 years ago, 3,000

years ago... and so on. The article goes on to say "Humans everywhere are living longer, thanks to better health care, cleaner water, and improvements in sanitation, all of which have reduced the prevalence of disease. Fertilizers and irrigation have boosted crop yields and improved nutrition. In many countries, more children are being born, and far fewer are dying" (Welch 2022).

We are constantly improving upon the bodies of knowledge of our past. Of course we, collectively, can stumble, regress, or fail, but historically we have eventually overcome and learned from those mistakes and progressed in almost every way. Humanity is an ever-churning machine refining the systems, inventions, philosophies and more of our ancestors. Now, with the invention of the internet and subsequent technologies, this is happening at an exponential rate. In Tim Ferriss's podcast episode with Historian Niall Ferguson, Ferguson says:

> *I've always believed that we are trying to learn lessons from the past. And when [British Historian A.J.P.] Taylor said that men only learn from the past how to make new mistakes, he wasn't dismissing the possibility of learning from history, but he was being ironical... no matter how hard we try, we'll end up making new mistakes. But that's not a counsel of despair... the study of history must be motivated by a desire to do better or at least to fail better next time. (Ferriss 2022)*

Failure is inevitable whether you're taking big risks or not. The ability to self-reflect after a failure is imperative. Self-reflection helps avoid repetition. If we ap-

proach failure with curiosity, as opposed to the more common reaction: condemnation, we allow ourselves to take risks and to experiment. We allow ourselves to push boundaries and grow. As long as we are constantly striving to fail better next time, we are heading in the right direction with impermanence.

IMPERMANENCE IN GRAPHIC DESIGNERS

So where do we, as individuals and as designers, fit into all of this? As the world goes through impermanence—every hour popping up a new invention, trend, idea, catastrophe, triumph—we may look up from what we're doing and notice everything has changed even though it seems we only looked down for a second.

It's easy to feel left behind. It all happens so fast. A constant feed of local or world news, friends' and family's posts and messages, ads, software updates, and more make us feel overwhelmed and anxious. So much change in so little time that maybe we just want a break, we just want things to slow down for a second, we want everyone and everything to just stay the same; so, we react when we hear news of change. Sometimes overdramatically,

angrily, and with resistance. However, the waves still make it to shore.

Change is inevitable. This is not to say we should give in or become apathetic; instead, it means we can take a pragmatic, balanced and prioritized approach in how we react (or, even better, proact) to the world around us. As designers, we can surf the seas of change, and it starts with exploration, awareness, and curiosity. Many of us don't take that first step even given the amount of content we consume. We become complacent because what we've done in the past has worked and we've learned to replicate those successes, and we tell ourselves, perhaps subconsciously, that this will work forever. So we go about our days mindlessly, and with the false impression that we are immune to the impermanence happening around us or the impermanence happening *to* us. Then, we become fearful when we are inevitably confronted by change. However, embracing change and stepping outside your comfort zone can have numerous benefits. A person who is curious, open, and actively seeks new and diverse challenges or experiences exhibits a strong correlation with having a higher level of well-being. They can also be more confident, resilient, adaptable, and compassionate (Kashdan and Rottenberg 2010). When venturing into new territory, small steps build momentum, and soon you'll be adaptable enough to handle any technological shift life throws at you. We can choose to be mindful, aware, and curious. We can choose to explore this ever-changing world and to experiment

with what we've discovered. In our experimentations, we will fail. Through our reflections on those failures, we learn and we fail better next time.

Exploration is a method in which we can adapt to new tools, technology, and change. Designers have been presented with drastic industry shifts in the past and will be presented with them again numerous times in the near and far future. It is clear that when we approach change with curiosity and explore how new things can be used and harnessed, we adapt and become capable of incredible things. Impermanence is not something to fear. Impermanence is an opportunity—an invitation to explore.

THE SEEDS TO MY DESIGN METHODOLOGY

Exploration is fundamental to my methodology, and, whether I realized it or not, it always has been. My experience with graphic design from the very beginning has been untraditional. The first real attachment I felt to graphic design came before I even knew what graphic design was. I was mesmerized by the release of iOS 7, when Apple overhauled their mobile user interface in 2013. Apple abandoned their skeuomorphic apps, in which each app appeared to be stylistically independent from one another, in exchange for a more minimalist, abstract, unified style. It was clean, vibrant and gorgeous. It felt like the future, and I wanted to be able to do that. I wanted to be able to revamp those little icons and ultimately provide someone with an experience like the

one I had when I first launched my devices after down-loading the update.

It was the dawn of my senior year in high school at the time, and, again, I had hardly heard of graphic design so I was under the impression that everything that took place on a device involved programming. I thought I had to study computer science to accomplish what Apple had. So I took it upon myself to start learning how to code. I remember taking lessons on HTML through Codecademy, and I felt such joy and pride when I programmed my computer to say "Hello, world!" However, the lessons progressed quickly, and as I faced more adversity I lost interest in these puzzling strings of words and symbols just to make a simple red rectangle. I just wanted to make visuals and have fun, not give myself more homework.

iOS 6 (left) and iOS 7 (right) showcasing the drastic design change that left me mesmerized and inspired. Images sourced from Wikipedia (Anonymous 2018) and (Anonymous 2017), respectively.

Thankfully, that semester in high school I was already enrolled in a graphic design class by coincidence. It was intensely focused on learning Photoshop. We'd independently go through packets of walkthroughs in which each subsequent lesson usually introduced new tools or methods and would result in some kind of effect on a photo or some other artifact. We made collages, billboards and other print ads, I turned my face into fire, made a zombie-self-portrait around Halloween... Ultimately I fell in love with the software, and I was good at it. I think all those years of learning new controls for a multitude of video games allowed me to pick up the "controls" of Photoshop rather quickly (and I think I'm still reaping the benefits of that as I try new apps to this day).

By late winter, the class came to an end, and I was left with an addiction to creating that I could no longer feed because I didn't have the funds to buy the software for myself. So, I found a $10 Photoshop app for iPad (with painfully time-consuming bugs that would erase all progress—thanks, Adobe) and used that to create. I played and experimented for hours, often late into the night. A few months later as I entered college, I finally got my own laptop and Adobe subscription. With each project, I often took a similar approach as my high school class in which I'd look for new ways or tutorials to incorporate a tool or method I hadn't yet used in Photoshop. Each creation was made with some level of education. It was a wonderful time of my creative life because, to this day, I have never felt such a strong addiction to creating

as I had then. I would even feel urges in my chest after having gone some days of not making any artwork. I also had very little preconceived notions of what "good" or "bad" meant, so I would just have an idea and make it, or at least attempt to, and then share it with my family—all while not being too judgemental or harsh on myself. Surprisingly, a number of pieces from this era have stood the test of time and are even hanging on the walls of my apartment today.

On that note, I really didn't start doing "graphic design" until halfway through my freshman year of undergrad at Le Moyne College. Late in my first semester, I had to give a persuasive presentation in a public speaking class, so I decided to give what was essentially a sales pitch showcasing my Photoshop skills. My professor said she knew someone in the Campus Life and Leadership department who could use my skills, so that person became my first-ever client and I began making posters advertising weekly events at our campus pub among other one-off ads. I remember really struggling with some of these designs because it was the first real time I had to take someone else's copy and form it into a comprehensible message that looked cool. I was a communications major, so I wasn't getting a formal education in graphic design. I didn't know any of its principles—hierarchy, scale, contrast, etc. or that they even existed. Without a proper understanding of how to visually organize and communicate information, I found myself creating absolute trash and really judging myself

for it but not knowing how to fix it. I just kept making and experimenting as inspiration struck for a personal project or as tasks rolled in from freelancing on campus.

Eventually, these little freelance projects built up enough to land my first internship Sophomore year, and I gained a lot of momentum from there. For the rest of my college career, I filled my schedule with better and better opportunities throughout the local community. I only took two courses in undergrad that were remotely related to graphic design, and those were introductions to InDesign and Illustrator, respectively. By my senior year, I was freelancing for the top agency in the city, interning at another, was the designer at our on-campus firm, and was the president of my college's advertising club in which we presented an ad campaign for Ocean Spray at the National Student Advertising Competition in New York City. *These* experiences were my graphic design education. Over the years they kept rolling into a bigger and bigger snowball. I shouldn't speak as though this was a finite section of my life, however, as that snowball has never stopped rolling despite the fact that I'm several years out of undergrad now. I may be a better designer, but I'm still doing the same things I was doing a decade ago to foster my design education. Slowly accumulating lessons learned one snowflake at a time.

I think this lack of a formal education in design forced me to be resourceful. I was constantly on the hunt for tutorials, YouTube videos, font websites, and other browser-based, free tools, books, and, most importantly,

Works from my early days
using Photoshop. The Lone
Wolf, The White Tiger, and
Chaos.

skilled people to learn from and ask a thousand questions. I think it forced me to take lessons from seemingly unrelated industries and experiences and connect them back to my own life and design practice. In addition, it may have allowed me to be more original as I had no design professors whose strict models I may have had to adhere to. My informal design education forced me to be eager to learn, to be aware of what's new, learn how to do things more efficiently, to be curious, and to pay close attention to how other people work. I remember during my internships sometimes I'd be literally watching over someone's shoulder and if they used a keyboard shortcut I didn't recognize I'd interrupt them and ask what they just did, then jot down the hotkeys and use them later. I was probably annoying as hell. As my experiences snowballed, I was constantly exposed to new, talented people. They were my teachers just as much as those in my classrooms.

Of course, this method of learning came with its drawbacks. As I was piecing together my design education bit by bit, I naturally pursued my interests and missed out on a lot of crucial aspects of design. I was woefully underexposed to design history, certain terminology, and entire skill sets like typography and printing. I was also heavily software-focused up until my time in grad school at Vermont College of Fine Arts (VCFA). I thought Adobe and graphic design might as well have been one and the same. VCFA has shown me that Photoshop, Illustrator, and InDesign are just 3 of a thousand,

or an infinite number, of graphic design tools. Bottom line: it's hard to learn what you don't even know exists. Awareness of what you don't know is key, and such awareness only comes to fruition through exploration and curiosity. Thankfully, I've found myself in a diverse range of experiences that have contributed greatly to my growth as a designer which has helped to fill in those gaps in my education year over year.

This MFA program is easily the most formal my design education has ever been, and as I write this section on the history of my makeshift education, I see just how fitting it is for me to be in *this* program. This model is basically what I've been doing since I first downloaded the $10 Photoshop app for iPad, but with a bit more structure and a lot more accountability and community. My experience with this method of learning and designing is perhaps why I'm so drawn to impermanence. I am excited for what the future holds for us designers, though it is uncertain, this is hardly the first time we've encountered such radical change.
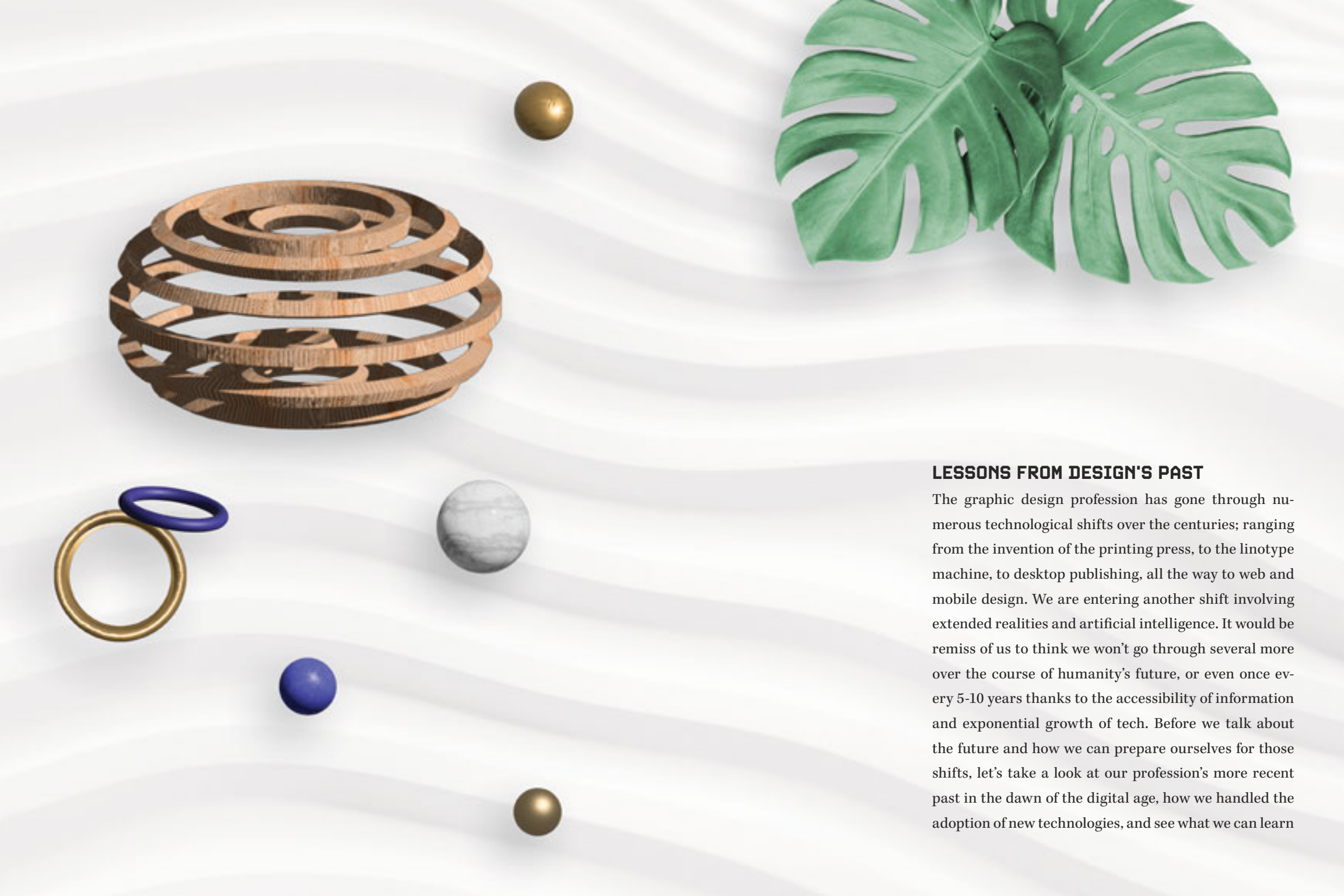
LESSONS FROM DESIGN'S PAST

The graphic design profession has gone through numerous technological shifts over the centuries; ranging from the invention of the printing press, to the linotype machine, to desktop publishing, all the way to web and mobile design. We are entering another shift involving extended realities and artificial intelligence. It would be remiss of us to think we won't go through several more over the course of humanity's future, or even once every 5-10 years thanks to the accessibility of information and exponential growth of tech. Before we talk about the future and how we can prepare ourselves for those shifts, let's take a look at our profession's more recent past in the dawn of the digital age, how we handled the adoption of new technologies, and see what we can learn

from our history so that we may "fail better next time" with each new shift that comes our way.

The digital revolution has been the most profound and most drastic change the profession of graphic design has gone through. Design was and always had been a very hands-on process. Which is fascinating to me because had I been born a few decades earlier, I certainly wouldn't have had the steady, artistic hand required for this career. What would I have become without my CMND+Z button? However, many practicing designers of the 90s were probably wondering what they would become with the rise of the personal computer and its graphic design capabilities.

In Lorraine Wild's 1996 essay "That Was Then, and This is Now: But What is Next?," she discusses some major differences of AIGA's 1995 conference from its predecessors. What was usually a gathering of designers to glorify and praise designers, the conference that year was prefaced by the following: "'We all know that design is going through a period of unprecedented change. Is the profession you care about passionately on the verge of a renaissance—or extinction? Is the business world finally beginning to appreciate the value of what you do? Or is public access to technology going to put us all out of business?'" (Wild 1996, 137). This advertisement for the conference is a clear indicator of the amount of fear and uncertainty surrounding the rise of new technologies. Such fear and rapidly changing circumstances left many scrambling, especially design educators as Wild

It's also worth noting that this kind of thinking sounds an awful lot like the fearful conversations surrounding artificial intelligence right now—designers didn't go extinct back then and we won't now.

points out.

With the numerous software programs becoming necessary on top of the mandated, traditional skill sets, educators were suffocating conceptual development with the emphasis on learning tools. After all, that is what employers were starting to demand, as they, too, were struggling to stay ahead of client demands that required knowledge of the new tools. Wild sees this as short-term thinking in education, and as I write this 26 years later, I can confirm that she was correct because I can guarantee most if not all of the software taught in those classes have since changed or been replaced (and gotten better—thanks to impermanence). Wild says:

Beyond training the eye to see, technique is an unstable thing. Actually one of the peculiarities of design education at this moment is the fact that many students possess greater technique on the computer than their teachers, anyway. What teachers can lead students to is a greater understanding of methods of research, of questioning, of learning how to learn that we all need to internalize, more than ever. (Wild 1996, 147)

While I am a proponent of new technology and learning and experimenting with new tools, Wild extracts an important lesson from the shifts happening in the design profession in the 1990s. Design education should revolve around its concepts, principles, and its methods of communication. These things are far more stable than methods of making, which should be a lower priority in curricula. Additionally, principles can be applied to any

method of making no matter how they change. Yes, today's employers need graduates to know Photoshop, but learning such tools should be a method of applying design's foundations, not *be* the foundation itself. Because in another 20 years Photoshop could be replaced, and then what did all those students pay tuition for? In addition, we are in the Information Age in which someone like me can (and did) learn Adobe's products and numerous other tools without ever earning a graphic design degree. Where tools are concerned, all students really need, at minimum, is an awareness that certain tools exist and what they are capable of. Then from there, they can discover their preferred methods of making by exploring and experimenting.

In Rudy VanderLans's essay "Graphic Design and the Next Big Thing," written in 1996 shortly after Wild's, VanderLans is critical of the World Wide Web and the hype around it. He recognizes that the design community, at least at that time, can easily lose sight of design's role and of the actual content designers are putting out there, and they are instead often distracted by "the next big thing" creators are using to make. VanderLans reminds the community to stay focused, writing, "The purpose of what we do as designers will remain fairly basic: to communicate as effectively as we can those messages and ideas that we most care about. Having the option to do this differently and with more pomp and circumstance than before raises interesting questions not just regarding 'how' but also 'why'" (VanderLans 1996, 185).

VanderLans encourages designers to be intentional with their content and methods of creating it. Ask ourselves: why am I using this new tool? Is it actually helping to communicate the content more effectively or am I only using it for its novelty?

To translate this lesson into today, I came across an example in which a book used an augmented reality experience to bring up a YouTube video anchored to and floating above the cover of the book. It was cool because it was a new experience, but once the novelty quickly wore off you're left wondering how this is actually better than a QR code that simply opens YouTube on your phone. The answer is: it's not. It made for an awkward viewing experience since the video didn't actually fill the screen on your phone, and you're almost literally tied to the physical book's placement in real space. If you wanted to get up and watch the rest of the video elsewhere, you'd have to carry both the book and phone with you all while keeping your camera pointed at the book.

As we go through technological shifts, let's remember what VanderLans said about our purpose. It's easy to get wrapped up in novelty, but ultimately what matters is the content we're putting out there and how our audiences are digesting it. When making something for clients or general audiences, we should be asking ourselves how our tools are amplifying either the way in which we make the product (ex. is it more efficient?) or the way in which it is received (ex. is it communicating more effectively?). Making something for the sake of giving some-

one a novel experience of the tech is fine, but beware that novelty fades quickly and is only fading faster as our attention spans get shorter and we're exposed to more and more impressive experiences. Novelty can result in dismissal, but being innovative can push boundaries and further our industry. Addressing change in an exploratory way helps identify what is trendy versus what is truly valuable.

As the ad for AIGA's 1995 conference highlighted, there is usually a lot of fear surrounding drastic change. However, oftentimes in the case of new tech, many are quick to adopt, and if the tech is truly valuable, everyone else follows—willingly or not. What we can take away from this shift is that we are better off setting our fears aside quickly and becoming open and curious. We can see that the technology in our profession is as impermanent as the colors of nature with the sunrise, sunset, and changing of the seasons. When we welcome change, instead of scrambling, we allow ourselves to be prepared and excited.
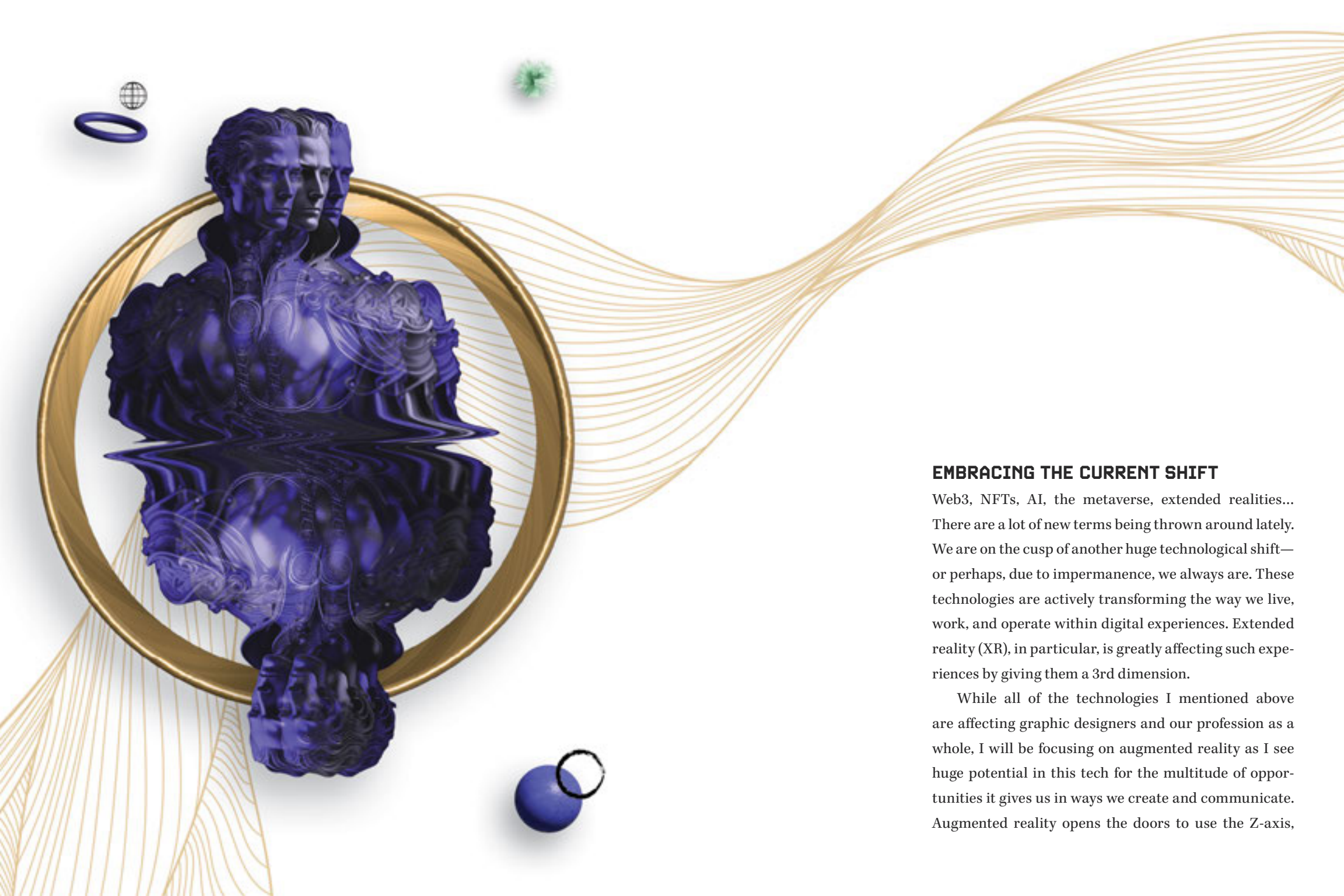
EMBRACING THE CURRENT SHIFT

Web3, NFTs, AI, the metaverse, extended realities... There are a lot of new terms being thrown around lately. We are on the cusp of another huge technological shift— or perhaps, due to impermanence, we always are. These technologies are actively transforming the way we live, work, and operate within digital experiences. Extended reality (XR), in particular, is greatly affecting such experiences by giving them a 3rd dimension.

While all of the technologies I mentioned above are affecting graphic designers and our profession as a whole, I will be focusing on augmented reality as I see huge potential in this tech for the multitude of opportunities it gives us in ways we create and communicate. Augmented reality opens the doors to use the Z-axis,

XR

Extended reality is an umbrella term for virtual reality, augmented reality, and mixed reality.

VR

Virtual reality is total immersion in a digital environment via headset or additional gear.

AR

Augmented reality is an overlay of digital information on the real world.

MR

Mixed reality, as it sounds, is a combination of AR and VR. There is a lot of overlap between AR and MR. As of now, definitions of MR vary across the web, but essentially MR is an enhanced version of AR in which both digital and real-world objects coexist and interact with each other.

For the sake of colloquialism, I will be using "augmented reality" as a term that encompasses both AR and MR.

audio, interactivity, animation, a combination of 3D models and 2D assets, the ability to embed experiences within experiences, and more. AR can be intentionally experienced within the context of a physical space or object, or it can be experienced anywhere and act as an independent experience from anything in the real-world. AR experiences allow for a multitude of graphic design specialties such as print, motion graphics, typography, 3D, UX/UI, and more to clash and combine in ways like never before. When combined with other industries like fitness, game design, pedagogy, construction, healthcare, entertainment, etc., it's clear that designers will play a huge role in refining and creating experiences for users in this space for years to come.

AR technology and its interfaces are still very young, so unfortunately many experiences are still being accessed via phone which is often an awkward and unnatural way of experiencing AR. The phone is just a small frame to look through, and many folks that I've seen first-hand still try to interact with it as though it is a typical 2-dimensional phone experience. It's also clear how far XR hardware has to go because the graphics in, say, Meta's metaverse currently pales in comparison to experiences on PCs or video game consoles in which some games showcase a near one-to-one recreation of the real-world. I expect these hitches to be worked out as impermanence runs its course and engineers refine XR tech, including AR glasses, enough to become more powerful and more widely accessible. However, XR

needs some kind of must-have experience that demands widespread adoption of its technology—akin to what *Halo* did for the Xbox and multiplayer gaming, or what iPhone and its app store did for smartphones. Many people have ideas for XR's capabilities, so to quote designer Neri Oxman, "Technology catches up with the imagination..." (Neville 2019).

Augmented Reality in Practice

Let's take a look at some examples of applied augmented reality, both theoretical and actual, so we can get a better idea of its potential.

In fitness, a company called Ghost Pacer is releasing their own athletic pair of smart glasses that allow runners to race against a digital avatar (Ghost Pacer n.d.). Users can set the avatar's pace, whether it's their current personal record or it increases speed incrementally across several sessions. It can also connect with friends' data so you can race against an avatar representation of their pace on a certain course. This is an excellent visual aid to tap into the competitive drive inside us. My brother, a personal trainer, could use this tech with his clients. Currently, his studio has their own app in which they prescribe at-home movements for those recovering from injury or entire workouts that supplement group classes. Those exercises currently exist as videos on the app and were filmed at multiple angles for comprehension. Imagine, instead, an AR avatar performing those moves alongside you, that you can view from any angle,

as if your trainer is present? Or maybe my brother is a hologram demonstrating, opening up increased comfortability with virtual training, a method of coaching which they were forced to adopt over the course of the pandemic and beyond.

What happens when we combine game design, pedagogy, and augmented reality? Let's say for example, students are given an AR experience in the classroom that places planet Earth right in front of them as well as a number of buttons or tools that modify aspects of the planet such as its atmospheric composition. What happens when students start pumping loads of carbon dioxide and methane into the atmosphere? They would be able to see a simulation of Earth's temperature increasing, how that affects oceans, agriculture, humanity, and other life on the planet right before their eyes. Lessons in school that use AR can easily be gamified and give students the ability to play and discover the consequences of their actions as they go. Pair this with a teacher's guidance and I can guarantee these lessons will be more effective than a textbook reading or PowerPoint presentation. In fact, Microsoft worked with Case Western Reserve University and provided classrooms with HoloLens 2 devices. Students used these in dissections, in med labs, to learn anatomy, and more. According to a professor at the university, students in the HoloLens lab scored 50% better than the rest of the med school class (Microsoft n.d.).

Meshing the past with the future, print and its com-

bination with AR opens up many unique opportunities. Type can literally fly off of posters, childrens' books can be given new life as characters dance across the page, the Z-axis in AR allows secrets to be hidden behind layers of an illustration, messages in the physical realm can

Image of Rajshree Saraf's work, *Hallucinating Type* (Hingley 2022).

say one thing while launching the AR companion experience can transform that message entirely, fantasy novels describing a protagonist's sword can have an AR experience that shows the 3D model of it in all its detailed glory…. possibilities are endless. Creative Rajshree Saraf's project "Hallucinating Type" is an example of how AR allows us to approach art and communication differently, in which her print posters are paired with an AR "type sculpture." Her angsty artwork was her version of screaming out loud in public, but thanks to AR, her profanity remained invisible to the unaided eye. Nonetheless, her messages are plastered around New York City (Hingley 2022).

AR technology has plenty of opportunities for us designers to explore and experiment. There are so many possibilities for us to create, to communicate, and to educate. I believe it will become more widely accessible through more powerful and less expensive hardware, and designers will have a major role to play in this realm. For that reason, it is important to start exploring outside your current tools and skill set. Exploring this technology now will not only help define how it is used in the future, it will also allow you to be fully prepared and contemporary as society shifts over time.
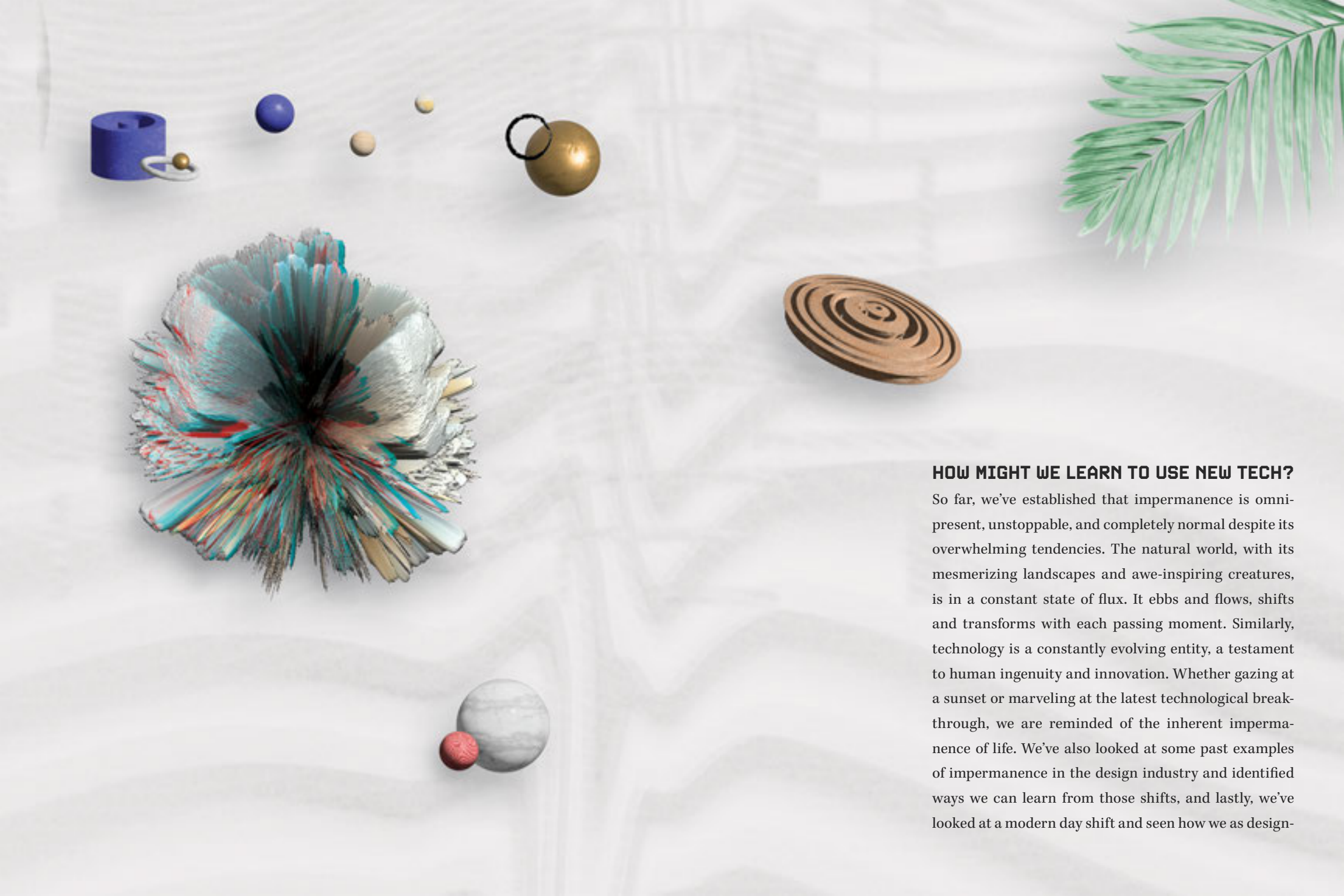
HOW MIGHT WE LEARN TO USE NEW TECH?

So far, we've established that impermanence is omni-present, unstoppable, and completely normal despite its overwhelming tendencies. The natural world, with its mesmerizing landscapes and awe-inspiring creatures, is in a constant state of flux. It ebbs and flows, shifts and transforms with each passing moment. Similarly, technology is a constantly evolving entity, a testament to human ingenuity and innovation. Whether gazing at a sunset or marveling at the latest technological break-through, we are reminded of the inherent imperma-nence of life. We've also looked at some past examples of impermanence in the design industry and identified ways we can learn from those shifts, and lastly, we've looked at a modern day shift and seen how we as design-

ers have reasons to be excited. So, how can we approach this shift and subsequent ones in the future? How can we surf the waves instead of fighting them?

Do I have *the* answer of all answers on how we should tackle each major change in the way we work? No, of course not. But I do have one way. As discussed before, exploring impermanence has always been part of my design methodology, and, more recently during my time at VCFA, I've pursued the usage of 3D tools and augmented reality as a graphic designer, excited by their potential. What I can do is give you a breakdown of my mindsets and methods on how I've gone about this so far, and what has worked for me might also work for you. There are five key aspects to my design methodology: Exploration & Discovery, Curiosity, Experimentation, Failure, and Reflection. I intentionally didn't call these "steps" because they don't necessarily happen in such a nice, neat order. Sometimes they happen simultaneously or not at all. These words have already come up numerous times in this book, but here I will demonstrate how they have played a role in my life and directly impacted my methods of making.

Exploration & Discovery

Strap on your hiking boots, we're going exploring. One thing I've learned is that literally anything can be a relevant resource to your design practice. As Rick Rubin writes in his book, *The Creative Act: A Way of Being*, "The universe is only as large as our perception of it. When we

cultivate our awareness, we are expanding the universe. This expands the scope, not just of the material at our disposal to create from, but of the life we get to live" (Rubin 2023, 21). Exposing myself to a wide range of diverse content and experiences has been a great way to cover my bases, expand my awareness, and start making connections back to my own life and work. I've found it useful to have reliable resources that cover a broad range of topics, design-related or not, that allow me to pursue random branches of knowledge that interest me. Sure, a lot of what I consume has been useless to my design practice, but oftentimes I'll find a nugget that comes in handy either right away or somewhere down the line— even years later. Just being aware that something exists or that something is possible is a massive step forward. If you don't know content-aware fill exists in Photoshop, you will continue to use the clone stamp tool and suffer the inefficiencies without realizing it. With no awareness, there is little hope for improvement.

Additionally, while using the same reliable sources can be great, every so often I need to plant my boots in the middle of nowhere and just wander. Get lost. Throw a wrench in my routine and try to surprise myself with new experiences. Doing so can yield unexpected yet welcomed results. As Scott Belsky, co-founder of Behance, said "It is essential to get lost and jam up your plans every now and then. It's a source of creativity and perspective. The danger of maps, capable assistants, and planning is that you may end up living your life as planned.

If you do, your potential cannot possibly exceed your expectations" (Ferriss 2016, 360)

In 2019, I resolved to quit my first full-time job at an agency to go work for a summer camp called Camp Echo Lake. After an undergrad jam-packed with advertising experiences, I knew it would be healthy (and fun) to do something wildly outside my comfort zone. The program I worked for at Echo Lake was unique; after 2 weeks on camp in Warrensburg, NY, us counselors and campers went on a 4-week trip out west to Colorado, Utah, Arizona, Nevada, and California. All of which were brand new places for me. While out west, we visited the most beautiful places in the country—and perhaps on Earth: Rocky Mountain National Park, Maroon Bells, Arches, Zion, Bryce Canyon, Lake Powell, Grand Canyon, and a drive up Highway 1 through Big Sur, California. All of this is to say: this wrench I threw in my life, this exploration, was profoundly transformational for me. It boosted my confidence, my leadership skills, teamwork skills, and even though it seems a far cry away from the world of design, this experience continues to influence my work to this day.

As the trip's photographer, I took thousands of photos and each snap of the shutter was one small step toward being a better photographer. I also got very familiar with Lightroom CC, and because of our unique working situation of having to upload thousands of photos back to camp headquarters in a time-efficient manner often from remote locations, I entertained several options on


Natural Bridges State Beach, CA

Grand Canyon National Park, AZ

My time in the parks inspired me to take a shot at developing this educational AR experience on Yellowstone National Park. It's a stylized map in which tapping on the landmarks and animals brings up more info about them.

It was a big undertaking, and I wouldn't have been able to do it without spending a lot of time on much smaller experiments that I never intended to be final products.

I learned a lot about interactivity, audio, basic 3D modeling, animation, troubleshooting in AR, and more. Reflecting on this piece, it was a bit text-heavy, and doesn't make the best use of what AR has to offer, but it all informs the next attempt.
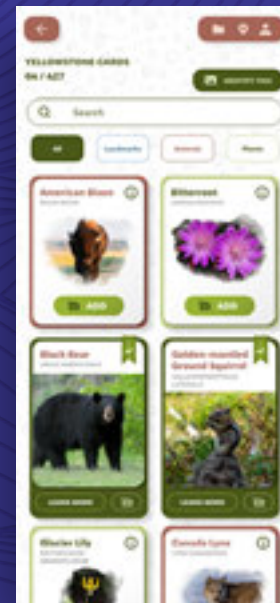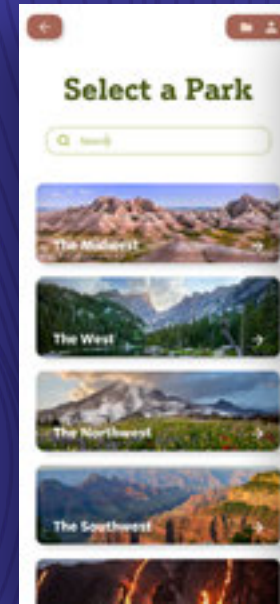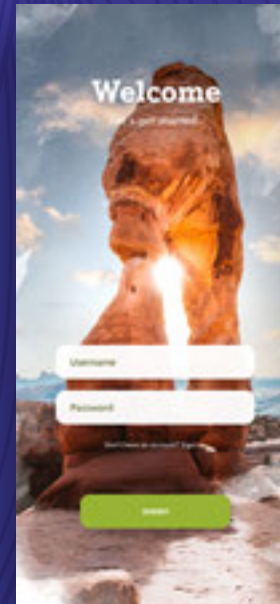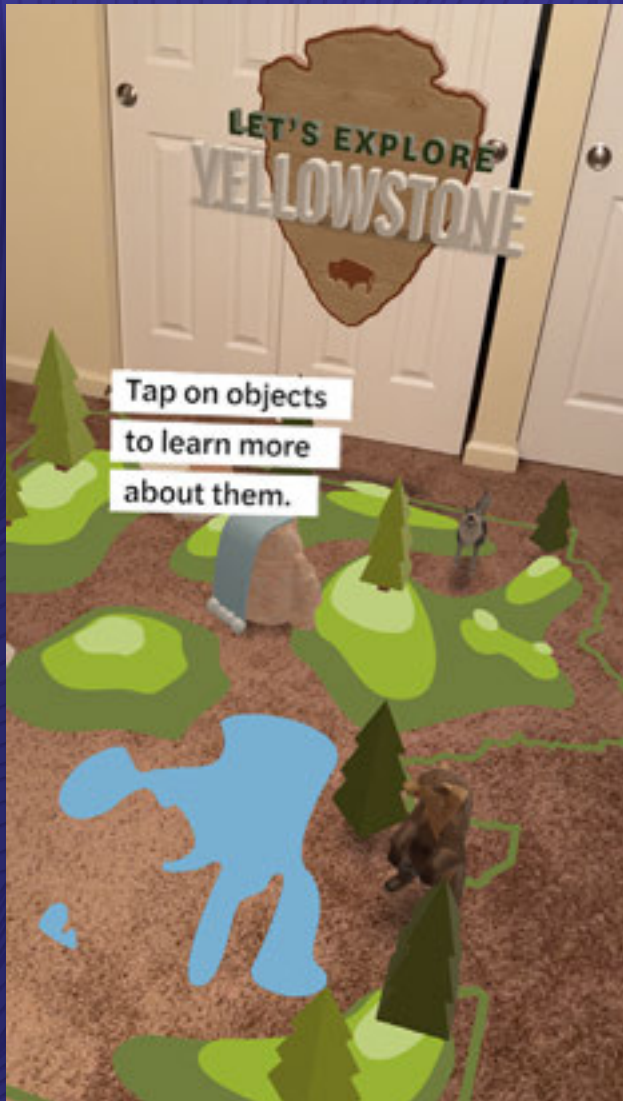
In my second semester I wanted to develop and practice my user experience skills. I had an idea for an app in which you collect flora and fauna found in a park by photographing them and uploading them to the corresponding card. Doing so would provide more information on the subject.

Landscape Arch, Arches National Park, UT

Maroon Bells, CO

how this could be done most efficiently. I kept chipping away at ideas until I found the perfect one that was near painless. Additionally, this newfound love of nature photography led to my usage of such assets in later work. Further still, this trip left me with an utmost love and respect for nature and the national parks. Much of the work I've done in this program has involved the parks in some way, to the point where an alum said to me recently, "Oh yeah, you're the parks guy!"

One of the beautiful things about our profession is that we have the ability to design content about anything. So, that makes everything potentially relevant to our work. Get out and explore, you never know what you'll fall in love with next. However, I also want to be clear that exploration doesn't have to be as profound as falling in love with a massive subject. It can be something very small that leads you to say, "Oh, I didn't know Illustrator could do that!" Even that little discovery can go a long way.

Curiosity

Curiosity, I believe, is one of the most important qualities one can have. This can go hand in hand with your ability to explore and discover, but I wanted to call it out and give it its own section. One can explore, discover, and be aware of something, but that doesn't necessarily mean they are curious about it. It's also okay to *not* be curious about something. I'm not curious about accounting. However, curiosity has immense power to

become action. Curiosity combats complacency. Curiosity, of course, naturally encourages you to dive deeper into a subject and learn more about it, but it is also a magnificent tool to connect with and learn from people.

In my experience, people love to answer questions—more than one might think. Especially when those questions are about themselves and how they think or work. As I mentioned in my design "origin story," talented people played an integral role in my education. I was intentional about who I talked to and what questions I asked them. Through explorations, I came across content from masterful interviewers like Cal Fussman and Tim Ferriss, and I learned how to ask better questions from them and applied those lessons to my own interactions with coworkers.

As an intern I'd find respectable, talented people in the company and ask them a couple questions about their work. Usually by my next visit I'd ask them to lunch and make it clear I wanted to pick their brain further. These conversations serve two purposes: 1. I'm learning more about their talents, projects, and methods of working and how I might apply their advice to my own work, and 2. I'm establishing a rapport with a senior-level person (who isn't my boss), and suddenly I'm on their radar. This senior-level employee might begin to talk about me in various encounters with peers or higher-ups, and could put me top-of-mind for upcoming projects. Now, the way I'm phrasing all this might sound conniving, but keep in mind that I was not using people nor expecting

anything from them. I was coming from a place of genuine curiosity. I just wanted to learn from them and be better at my job. After all, those conversations were the best my design education could get (remember, I didn't have design classes or design professors). I have found numerous tools and resources simply by reaching out, so be curious and ask questions—no matter how dumb you think they might sound. You never know where those answers might lead you.

Experimentation

Okay, so through your explorations and curiosity you've got a list of new tools, resources, and ideas to try. Now it's time to play. Whenever I start learning a new tool, I usually begin with a tutorial. Nowadays, most apps are good about onboarding newcomers, but YouTube can still be your next best friend. I start with learning how to navigate. Especially with 3D apps for example, each one has different camera controls which can be confusing. Just get your bearings in the new tool to take away the initial overwhelming shock of fifty-two unknown buttons and seventeen confusing panels whose information might as well be in another language. And remember, we *can* learn to surf the waves of impermanence.

Once you have some level of comfortability, try to reinforce the lesson by making something of your own with what you've learned. Or, move on to a more advanced lesson and follow along as it plays. Personally, I've never been able to retain the information by simply

watching and trying to put it all into practice later. I have always found better retention if I perform each and every step along with the tutor. It's also likely you'll run into some sort of different view or panel along the way and get confused, so it's better to work out that snag in the middle of the lesson than try to figure out where you went wrong later.

At some point, I recommend ditching the tutorials. Not necessarily permanently, but allow yourself the time and space to reinforce the tools' behaviors and to just start making and experimenting. Push buttons that you don't know and just see what happens. What have you got to lose? This isn't a client project, and CMND+Z almost always saves you. If you're truly that worried, save a copy of the file. But really, don't be so precious with your work. I constantly have to remind myself of that concept. This is your time to play, experiment, hack, and break things. Many, many experiments lead to accidental discoveries. I can't tell you the number of times I've fat-fingered a key and accidentally discovered a new hotkey. I just did it today actually (CTRL+LEFT/RIGHT ARROWS swaps to a new desktop, Mac users).

Rafael Lozano-Hemmer is a great example of an artist who approaches new tools and tech with a deep curiosity and experimentation. One of his most profound works, "Vectorial Elevation," was an interactive web-based project that allowed users to create their own light patterns in the sky over Mexico City. Participants could submit their own designs via Lozano-Hemmer's
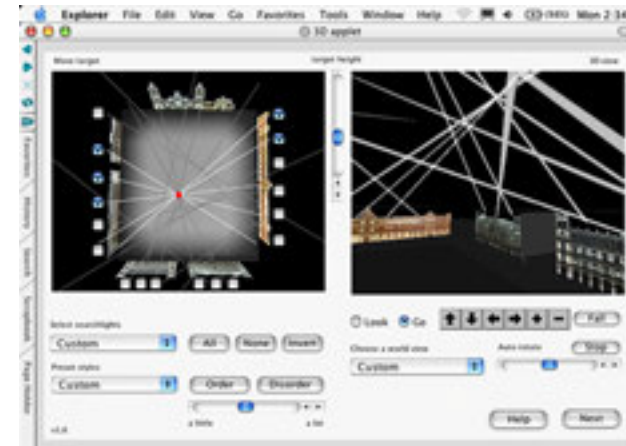
Images of Rafael Lozano-Hemmer's work, "Vectorial Elevation, Relational Architecture 4", 1999.

Top: Zocalo Square, Mexico City, México. An example of Lozano-Hemmer's user interface to position the spotlights and queue up the design. Photo by Antimodular Research.

Bottom: Zocalo Square, Mexico City, México. Photo by Martin Vargas. (Lozano-Hemmer 1999).
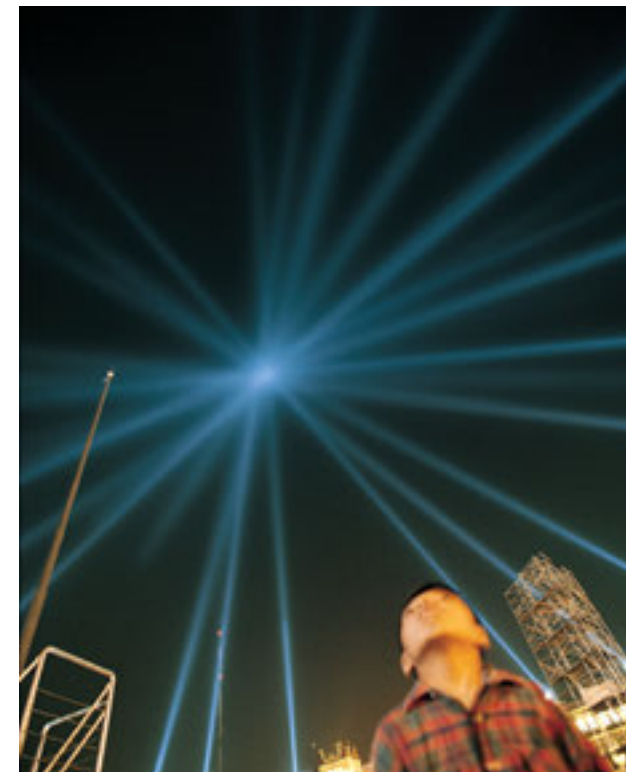
custom web interface, which were then projected onto large searchlights placed on top of buildings surrounding Zócalo Square. The result was a stunning display of light patterns that could be seen from miles away. People left messages ranging from love poems, to football scores, to marriage proposals. This project, created in 1999 to welcome the new millennium, helped push the boundaries of what graphic design was and could be by embracing new technology (Lozano-Hemmer 1999).

In a contrasting example, Chris Martin of Coldplay talks about how he approaches experimentation on the podcast *Conan O'Brien Needs a Friend*. Martin says he intentionally tunes his guitar differently or plays piano with his eyes closed so he doesn't know what he's doing, but even if what he plays is "incorrect" he simply listens to whether or not he likes what he's hearing. He recognizes that he will not be the fastest guitarist, the greatest singer, or be able to dance like Tina Turner, but he says his limitations can be his strengths by creating things that are "weirdly me... I don't claim it's the best but it's definitely the most 'us'" (Martin 2023). In Martin's case, he is taking familiar tools but is experimenting with them in new and unfamiliar ways to yield unexpected results. Whether you're working with a tool you just picked up last month or you're using Illustrator for the 12th year in a row, perhaps take Chris Martin's approach and find a way to "break" what you're using. Break free of any preconceived notion of right or wrong and identify how you might be subconsciously inhibiting

yourself. Tweak your tools in unexpected or uncomfortable ways and listen when your gut tells you the output is interesting.

After playing with tools for a bit, before you know it, you'll have something pretty cool on your hands that *you* made. If you used a 3D app, congratulations, you're now a 3D designer! If it was a motion graphics app, congratulations, you're now an animator! That's all it takes, and you can start identifying as an animator/3D designer/AR creator, etc. Believing in that identity can really give you a confidence boost to keep moving forward and keep creating. Momentum and routine drill the new tools into your head until they become second nature. This part of the process should be fun, but it will also be frustrating at times. If you're not having fun, power through the adversity for a bit. If you're *still* not having fun after some more time, feel free to try a different app that serves a similar purpose or pursue another one of your curiosities.

Failure

On the topic of frustration and adversity, failure is a major part of this process. The idea of commending failure is nothing new, but I strongly believe that our corporate cultures rarely put healthy concepts of failure into practice. So, I feel like it's worth talking about here because those 40+ hours/week we spend in those toxic offices tend to revert our viewpoints on failure back to condemnation of it. In the words of Ed Catmull,

co-founder of Pixar:

> *Mistakes aren't a necessary evil. They aren't evil at all. They are an inevitable consequence of doing something new (and, as such, should be seen as valuable; without them, we'd have no originality)... acknowledging this truth is not enough. That's because failure is painful, and our feelings about this pain tend to screw up our understanding of its worth. (Catmull 2014, 108)*

Catmull goes on to discuss a satirical award that was created to call out particularly wasteful government-funded research projects. While cutting down on wasteful spending sounds like a good idea, this award ultimately changed the way in which scientists chose projects to pursue. It implied that researchers should know *before* they conduct their experiments whether or not the results would have any value; therefore, they started pursuing less risky topics. "The politics of failure, then, impeded our progress" (Catmull 2014, 110).

In the realm of creativity, experimentation and risk-taking are imperative to combating unoriginality. When you fail, it may seem that you just wasted a bunch of time trying to make something work, but in reality that experiment was productive. It informs your decisions on what to try or not try next; in that way, it is akin to the scientific method. Or, perhaps your failure can be reframed as a creative accident. There were numerous times when I'd have models break after bringing them into augmented reality. I'd spend hours troubleshooting to no avail, and finally my advisor helped me realize

Right: a 2D image converted into a 3D depth map sphere using Photoshop, then brought into Aero for AR. This is an example of my intended result.
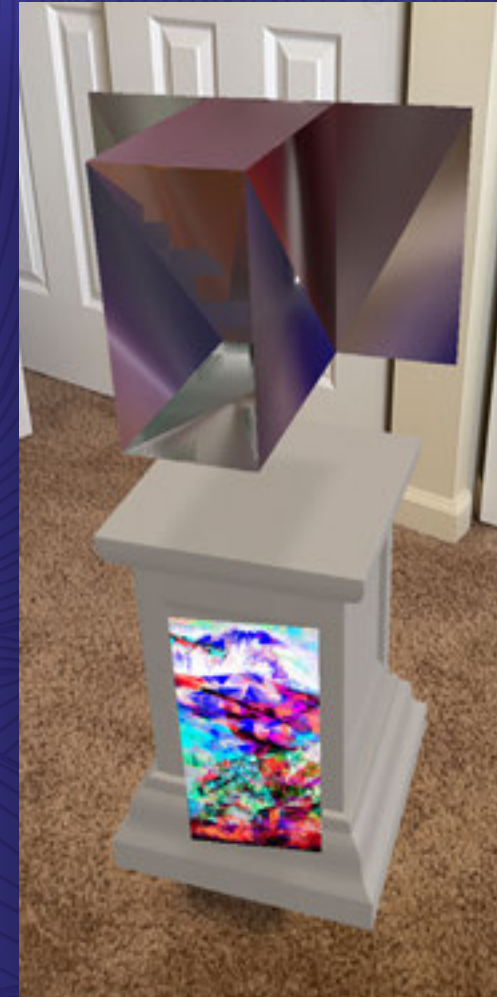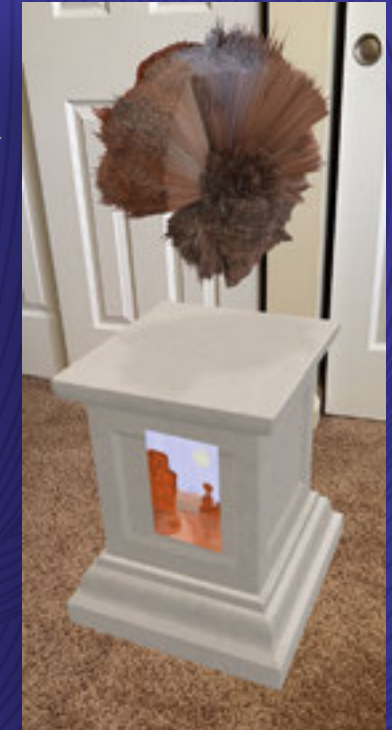
Left: the same concept as above—another 2D image converted to 3D. But when brought into Aero, the model is inexplicably broken. It is box-shaped and flashing various colors. I thought it was a failed attempt, but, viewed through another perspective, I had created something completely original. Randomness was an element I was intentionally welcoming for the depth map models anyway.
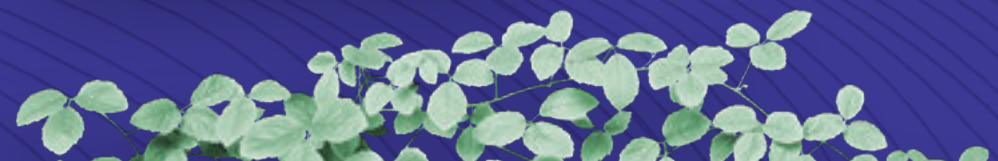
that these broken models came with their own unique aesthetic. They kind of looked like portals. I had no real control over them or over creating new ones, but nonetheless I had created something completely original, but I hadn't even realized it because I was labeling it as a "failure" instead of seeing it for what it was.

Being too risk-averse causes many to stop innovating and to flat out reject new ideas, but this attempt of trying to stay "safe" counterintuitively can lead to demise. "To be a truly creative company [or individual], you must start things that might fail" (Catmull 2014, 118). I will also add that this doesn't mean you should start taking any and all risks. Take calculated risks. Go outside your comfort zone just enough to expand it; too far too quickly, and it might have the opposite effect. In the context of methods of making, there usually isn't much to lose—but there could be everything to gain.

Reflection

At the end of any experience, successful or not, it is important to reflect. An absence of reflection is a way to be overcome by impermanence and complacency. What went well? What could I have done differently? Why did this work? Why did this fail? We are not dwelling on the past, we are only seeking to learn from it. In your explorations, what paths did you go down that excited you? What frustrated you? Can you turn to a resource to overcome those frustrations? Can you spin your failure into a success? This part of the process is for question-

ing. This helps you compound your successes, make adjustments to your errors, and, by honing in on your feelings, you may find some guidance as to what you want to try next or what you want to avoid. The value of failure is lost without reflection.

As a personal example, I had designed an augmented reality experience that involved a 3D stylized map of Yellowstone. I made it interactive. Users were meant to walk through the map amongst the models of landmarks and wildlife, tap on them, and listen to or read about them. Early on, I handed this experience to my family members and almost all of them pinched to zoom in on something instead of walking up to it. Of course, this is due to their lack of experience with AR, but is there something I could've done to educate them on the mechanics? Could I have changed the vocabulary in my directions? Could I have animated something to indicate one should walk forward? In addition, all of the cards of information floating in the experience were densely packed with small text. I realized this is hardly a good user experience and a waste of AR's capabilities.

Yes, a great way to get feedback is to put your design in someone's hands, but reflection doesn't have to involve others. I often don't. I've found writing to be immensely helpful to digest what I've learned, think "out loud" about ideas I potentially want to try next, and, in the process, document those ideas for later when I inevitably forget. Just a few sentences makes a big difference for me. Ultimately, our goal here is to surf the waves of

impermanence through play, exploration, and learning. By taking some time to reflect on your experiments, you're helping to retain what you've learned and providing yourself with guidance to fuel growth.
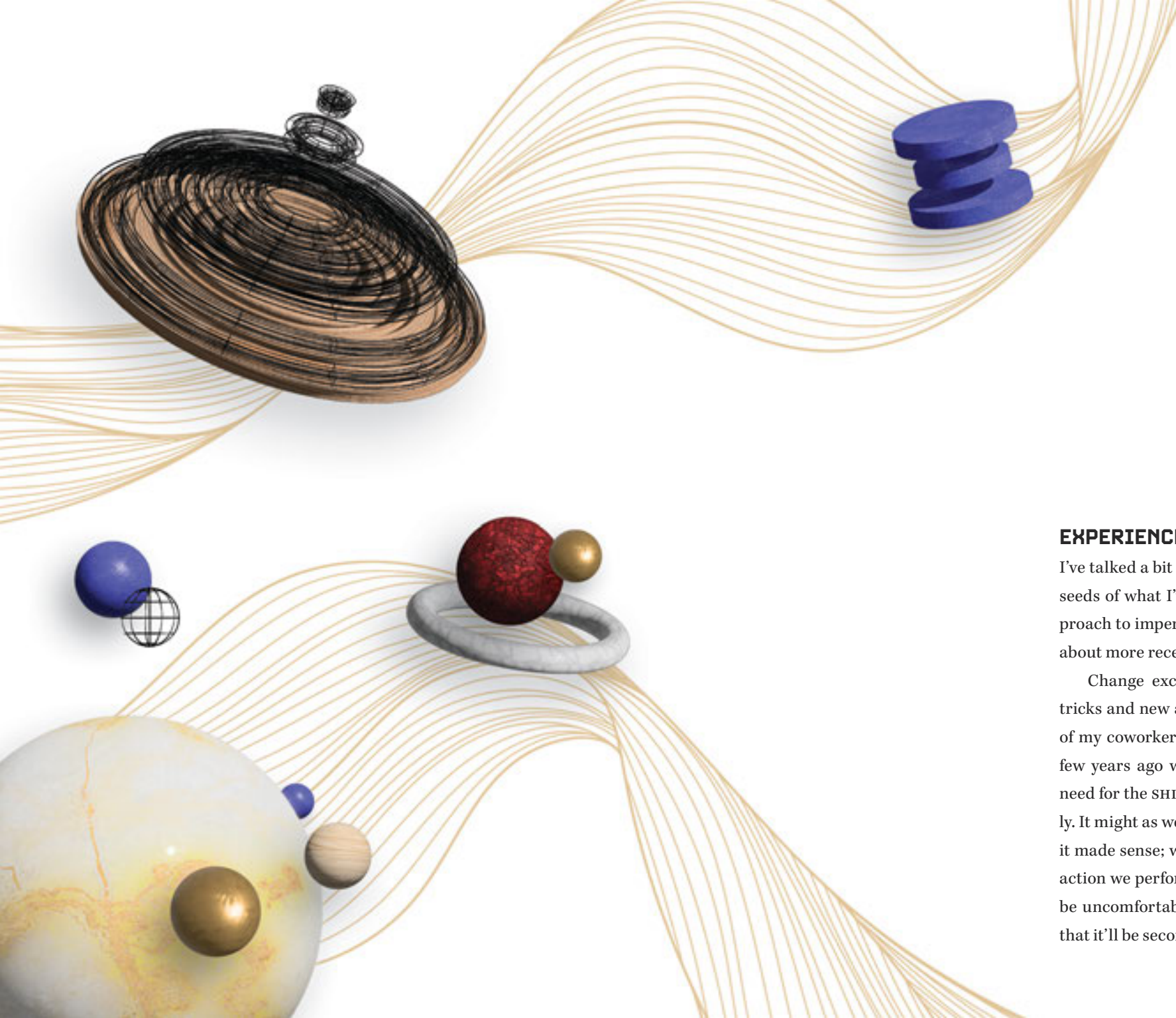
EXPERIENCES AND EXPLORATIONS

I've talked a bit about my design origins, which held the seeds of what I've discussed so far, and my general approach to impermanence and learning, so now let's talk about more recent years and specific experiences.

Change excites me. Software updates, tools, tips, tricks and new apps excite me. In my experience, many of my coworkers dread Adobe's updates. I remember a few years ago when Photoshop decided to remove the need for the SHIFT key to scale something proportionally. It might as well have been the end of the world. To me it made sense; why require an extra modifier key for an action we perform way more often than its inverse? It'll be uncomfortable for a couple of weeks and then after that it'll be second nature just like the SHIFT key was be-

fore the change. We'll get over it, and we'll be better off for it. That's generally my approach to impermanence. What helps is to explore open-mindedly and be curious about the change you're experiencing. Especially if it's with regard to something you use every single day, then it's worth taking the extra time to educate yourself. For us designers, it's Adobe products. Five minutes reading those educational popups upon launching an app could potentially save you cumulatively hours worth of work. You'll also be less blindsided the next time they change a hotkey on us.

Having a thorough understanding of brand new features has been beneficial for me in many ways. One of which is that I've been able to teach these new things to the rest of my team, to help spearhead movements bringing them into our workflow, and to ultimately make our jobs more efficient and our lives a little bit easier. At my first full-time job, I worked with 3 other designers to churn out weekly circulars for a drug store. These circulars had hundreds of assets that the client loved to change frequently, and every change rendered our InDesign files out of date. We kept templates where we'd update the assets but we'd still have to manually drop in each and every one of those instances into our five already-in-progress circulars. Naturally, mistakes happened. That one out-of-date Buy-One-Get-One icon would slip through the cracks, get printed, and the client would throw a much bigger fit than was necessary (you know how it goes).

The thing that didn't make sense about the SHIFT key change is the fact that not every other Adobe app followed suit, so now some apps require SHIFT and others don't. This is also a good reminder that we are at the whim of companies and their changes, and why knowing a variety of tools is important. If Adobe were to suddenly disappear, what would we use to do our jobs? Exploration builds versatility and, therefore, preparation.

In this environment, I saw a ripe opportunity to incorporate Creative Cloud Libraries in which we could link all our individual assets to this database, and anytime we had a change, we would update the asset in the library and it would automatically change every instance of that asset in our InDesign files. This saves us time, saves us from tedious, irritating work, and mitigates mistakes. This major change inspired the team to be more open-minded and to generate further ideas to optimize our workflow. In about 6 months, we reduced our work-hours from close to 200 hours per circular down to under 120. Keeping up with impermanence isn't always about making cool new things, there could be real time-saving, monetary value at stake. It also saves you from ripping your hair out in some cases, like it did for us.

The past year and a half in this Master's of Fine Arts in Graphic Design program at VCFA has catalyzed my most productive time period and, in my opinion, the creation of my most interesting work. This program has provided me with, among other things, connections, resources, and accountability. Those three things especially have accelerated my growth and forced me to be disciplined in not only trying new things but sticking with them. My work from the start of this program to now is night and day. It's like two different designers. Not only is it due to a much more expanded, varied skill set, but also due to a total shift in my views on design, what it is, and what it means to produce "good" work.

I'll start with that concept of "good work" and how this program flipped it on its head because I think it is an important first step to applying this method of exploration. Chronologically, it's also one of the major things my first semester addressed. In our design classes and, especially, in our jobs, we churn out project after project. It gets reviewed, often several times, by several people. Every one of them has an opinion on why it's wrong or how it can be better. However, before we even show those stakeholders, we, ourselves, go through rounds of iterations. We generate a lot of ideas, strike out the majority of them and refine the few remaining ones until we think they're good enough to show. We do this over and over and over again. This way of working gets drilled into our heads, consciously or not, and we're left with conviction that we know what good design is or how design should look. When we think we have an idea of how something should be, we paint ourselves into a corner. We become resistant to impermanence.

VCFA provides an environment in which all expectations are dropped. You are strongly encouraged, almost required, to drop your own process of filtering out "bad" work. That's not to say we think all work is good—we are not living in a false reality of sunshine and rainbows—but rather we see immense value in the act of creating and potential value in all creations, at least that's how I see the values of VCFA articulated. There is potential in each creation for it to evolve into something weird, original, and great. Potential for one of your would-be

throwaways to be combined with another one of your throwaways and become something totally unexpected. Suddenly you have this thing you never thought you'd create made with a method you'd never thought you'd use. That shedding of judgment is liberating. It allows you to say "Hey I'm going to try this, I don't really expect much from it, but I'm gonna do it anyway," and the results may be nothing or they could be something. Either way, at least you tried to do something new. Training to adopt this mindset at VCFA provides strong encouragement to explore and experiment with your discoveries.

Joshua Davis is an artist that uses a similar methodology; he is an early adopter of new technology and experiments heavily with its capabilities. One of Davis's most profound works, which also exemplifies the experimental, judgment-free mindset described above, is a website called "Praystation," which was created in the early 2000s. The website featured interactive digital art that utilized Flash and ActionScript, emerging web technologies of the time. Davis used them to create a unique digital experience that allowed users to interact with his art in new and engaging ways (Davis n.d.). His use of dynamic, generative graphics and user participation helped to redefine what a website could be and showcased the potential of these technologies for creating interactive and immersive digital art. Davis shows that achieving originality is catalyzed by extensive experimentation and being open-minded to new tech. Allowing yourself to embrace new tools, combine them

and play with them for the sake of yielding unexpected results, free of judgment, drives innovation. Adopting this uncritical mindset and putting it into practice was not easy for me. It took several months, maybe even a full year, to chip away at my reservations and be truly comfortable making weird things and showcasing them. It's a gradual process with no real end, but taking that journey allows for far deeper exploration and experimentation to take place.

Images from Joshua Davis' s project "Praystation" (Davis n.d.).
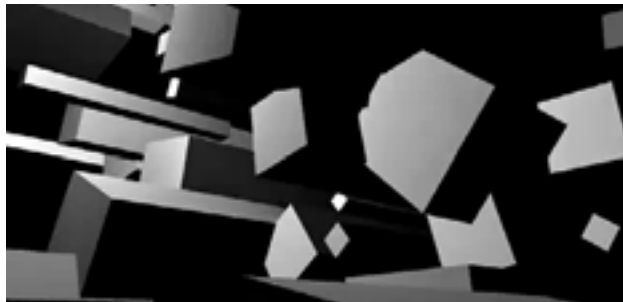
Around the end of my first semester and beginning of my second semester I revisited tools called Adobe Dimension and Adobe Aero. I had messed around with these a little bit a few years ago, but didn't take the time nor have the discipline to do any real deep dive into them until now. These apps were my stepping stones into the realms of 3D and augmented reality, and they became a more prominent part of my workflow in my second semester. Coincidentally around this time, Adobe launched a new 3D suite after their acquisition of Substance 3D. I thought it was a great opportunity to add these tools to my curriculum. This is when I began to play, using all the methods I talked about in the previous section.

The majority of my second semester was spent expanding the tools in my belt, and it set a strong foundation for me to leap from. I incorporated 3D tools into my one-a-day practice, which is the daily act of creating something usually quick and small just to warm-up and get the juices flowing, and it helped with my comfort levels using the apps over time. I didn't get crazy experimental with the things I was making in this 6-month time period, it was more about increasing fluency and discovering new tools and their capabilities. In addition, I kept thinking of new ideas for augmented reality experiences and did my best to execute those. I ran into many hitches in AR. Things consistently malfunctioned, often inexplicably, so I shopped around for better apps on Google and just asked other designers working with AR on social media what they were using. I never found
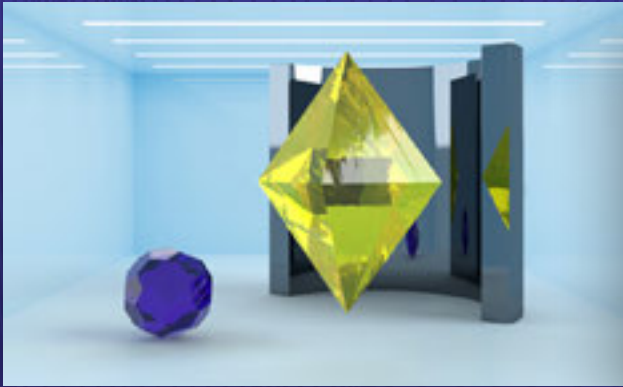
Over time, my comfortability with the apps improved and it became easier for me to create higher quality work faster.

Using Substance 3D became part of my one-a-day routine. This was a time for pure experimentation. The goal was to play without worrying whether the end result was good or not. This acted as both a warm-up for heftier creative work and as a method of discovering new capabilities.
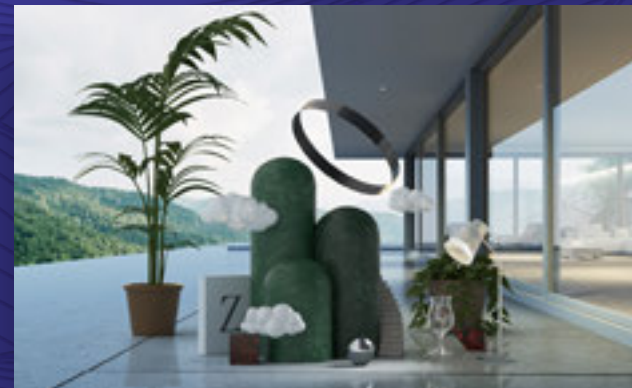
the ideal app to create in AR, so I stuck with Aero and did my best to troubleshoot my way through its mishaps.

After setting that foundation, I was encouraged to take my work a step further by creating things we don't typically see. I had all these new abilities at my disposal, but the things I created thus far largely still fit the mold of what we think of when we think of 3D art. I had played by the rules, and now it was time to start pushing boundaries. Where making is concerned, I had a slow start to my third semester. But by my second month I began iterating on old experiments and I started gaining momentum. The act of creating generated new ideas, and in between creations I continued educating myself with mini lessons on 3D concepts and vocabulary and wrote summaries on them.

A major question I kept on my mind was "how can I take things that are 2D and force them to become 3D?" I applied that question to artwork, photos, the way the light hit my wall, typography, patterns, sketches, etc. I think having that question gave me a clear goal to work toward, and it's also a question that's guaranteed to yield strange results. Given all the practice of being free of judgment for about a year now, I really didn't care what showed up on my screen—the weirder and more unexpected, the better. I used a "deep cut" 3D feature in Photoshop for a lot of these 2D to 3D translations and I brought those models into Substance and Aero. In my explorations I found an animation tool called Mixamo that allows you to apply preset animations to humanoid
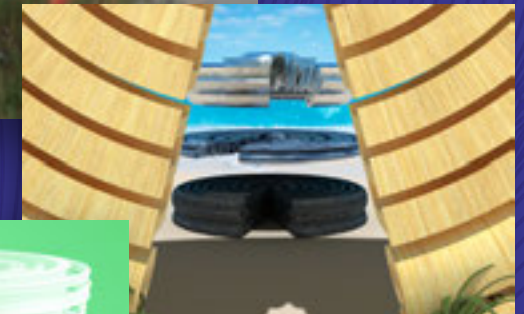
Revolving words (and, to the left, lyrics) onto themselves eventually led to the idea of an entire 3D typeface using the same method. As you can see, this played a big role in the visuals in this book.
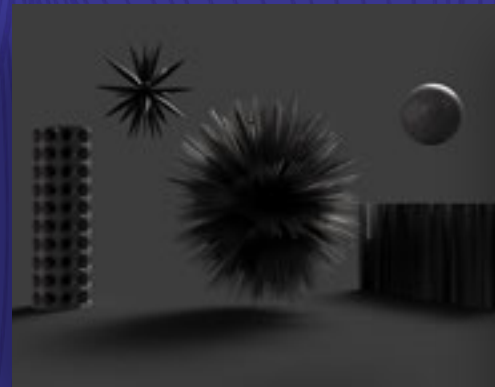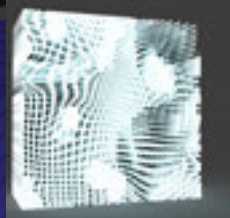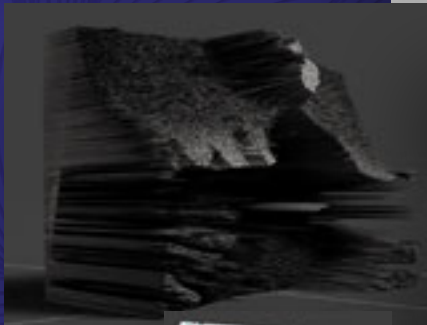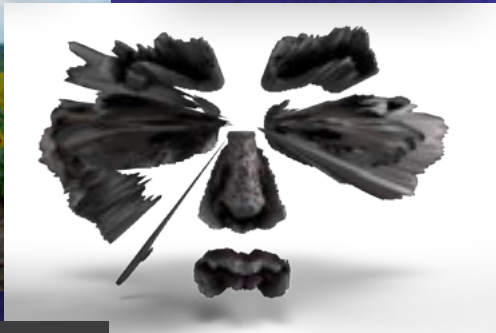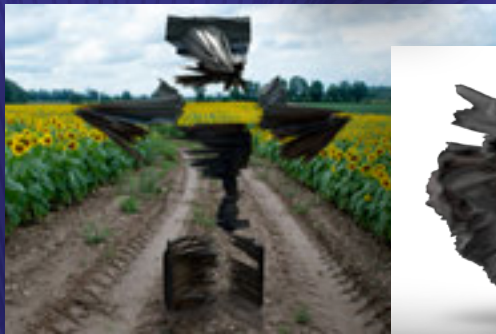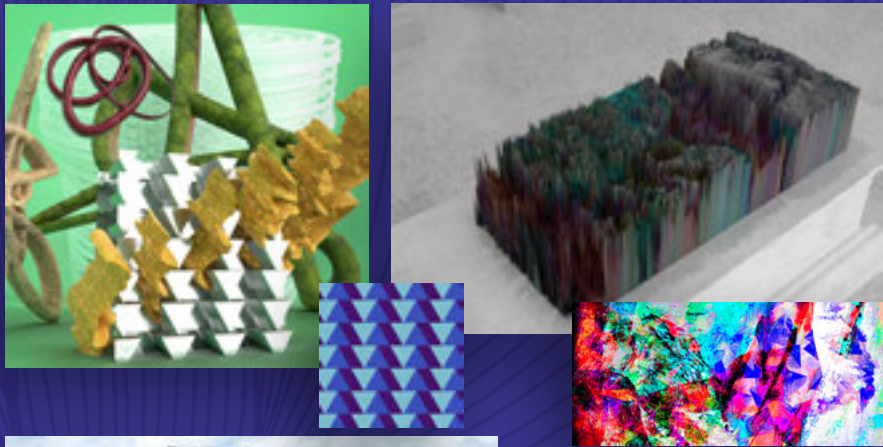
Now that I knew how to use the tools, it was time to "break" them—to use them in unexpected and unintended ways. I started turning various 2D images into 3D objects—from landscape photos to portraits to random artwork.

Meanwhile, as I worked in AR, I found Mixamo, an auto-rigging tool for animations. Sometimes I like to make prototypes to make sure an idea works before taking it further. I quickly drew a humanoid in Illustrator and exported it as a 3D model to use with Mixamo. I successfully got the yellow human swimming through my hallway in AR.

With that success, I took it much further. I used Polycam to scan myself, I modified the polygons in Blender, prepped the model for AR in Substance, applied animations in Mixamo, and brought my breakdancing-self into my apartment in Aero. The result was bizarre, but chaining all these tools together was an exciting, reassuring process.
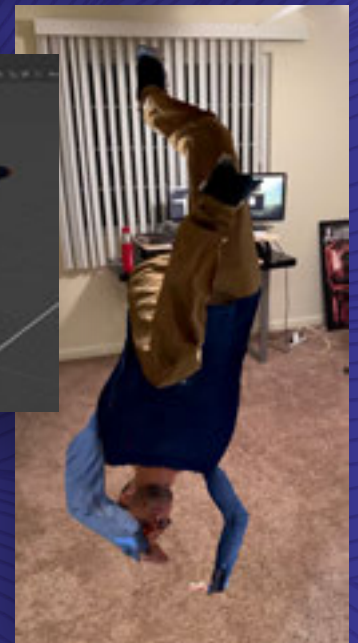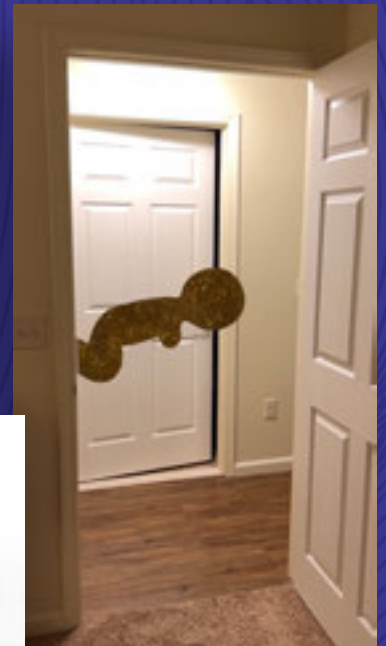
3D models. I tested this on a humanoid I drew and converted to 3D in Illustrator with success.

Throughout these learning processes, if I had an idea, I'd often create a quick prototype version first to see if my theory worked, and then if my experiment was successful, I'd go on and apply it to more practical, grander ideas. The more I became fluent with various apps and the more tools I explored, the more I was able to make connections between them all and allow them to work together, which further reinforced the lessons I had learned in each one. On Instagram, I saw a designer using a high-fidelity scanned model in Aero. I asked what he used and he directed me to a mobile app called Polycam. I had my brother come over one afternoon to scan my body with the app. I brought that model into Blender and Substance 3D to get it properly working with Mixamo, then transferred it to Aero. Before I knew it I had a version of myself breakdancing and leaping throughout my apartment. It was surreal and insanely fun. Was this end result useful? Not to the world, perhaps, but it gave me and my family a good laugh (and I'm sure they questioned my sanity). Nonetheless, I'm now capable of doing this, and these skills can be applied in many more ways that I have yet to think of.

To get to this point of making "strange" work with apps that were new to me took about a year and a half of consistent exploration, creation, experimentation, frustration, and reflection. It took many hours and a lot of patience, and I still don't consider myself all that fluent with these apps. I've barely scratched the surface. The depth of potential that's still there is what excites me about designers' roles in 3D and AR. I encourage all to embrace new tools and harness them—before they become the new norm, push out the old, and leave you reeling. Designers are smart and creative, and I know we'll take this tech and push it to its limits.

TECH MISTAKES IN RECENT YEARS

The nature of impermanence has brought many great improvements, but it does not come without various costs or challenges along the journey. As we, as a society, embrace major shifts in technology, we may easily be swept up by excitement and demand and blindly charge full steam ahead into the new era. However, our work as designers comes with consequences when we ship our products out into the world, so we have a duty to act morally and responsibly. Our positive reception towards tech must be paired with criticality. We should approach our usage of new tools with caution, consideration, and care. Whether we're working with extended realities, social platforms, AI, NFTs, cryptocurrencies, etc. we have an opportunity to bring about change more

carefully than we have in the past. Let's once again dive into our previous years and turn a critical eye on errors we can perhaps learn from as we march forward.

One example of a groundbreaking, widely adopted new technology is social media. Over the last two decades, social media has taken the world by storm. While this tech has brought wondrous new innovations, connected billions of people globally, and built communities, it has not come without serious consequences. The 2020 documentary The Social Dilemma highlights numerous examples of social's dangerous impacts on our culture, mental and emotional health, and even our government. Many words of warning come straight from the designers who created these platforms who say that while they believed they were creating something positive for the world, they were naive about the flip side of the coin. "These things, you release them and they take on a life of their own. And how they're used is pretty different than how you expected" (Orlowski 2020, 2:45) As we embrace the next evolution of the web, in which everyone has access to even more powerful tools and technology, this is especially important to keep in mind. Tristan Harris, co-founder of the Center for Humane Technology, points out that social media evolved away from being a tool and became something more. Harris says tools wait patiently to be used, whereas social platforms demand things from you, seduce you, and want things from you. He says it is "...an addiction- and manipulation-based technology environment" (Orlowski 2020, 30:15). Who's

to say these same things won't happen and be exacerbated in the next stages of AI, extended realities, Web3, the metaverse? Who's to say this isn't already happening?

In one particular example shown in the documentary, Like Buttons are called out for playing a role in the increase in teen depression and suicide. This was a seemingly harmless user experience design decision that came with massive consequences. It was originally intended to spread positivity and love on these platforms. Chamath Palihapitiya, former VP of Growth at Facebook says "...we get rewarded in these short-term signals—hearts, likes, thumbs-up—and we conflate that with value, and we conflate it with truth. And instead what it really is is fake, brittle popularity that's short-term and that leaves you even more... vacant and empty before you did it" (Orlowski 2020, 39:31) So, you seek the next opportunity to get that spike of dopamine back. Users are churned through this cycle in which they equate the dopamine hit with value and social acceptance. This is especially potent with teens because they are constantly fighting for popularity, identity, and acceptance and don't have the proper judgment nor education to know that social media, or a number of likes on a post, is not an accurate nor healthy way to measure such things (or to know that something like popularity shouldn't be measured at all). Data from the Centers for Disease Control and Prevention shows that starting around 2009, when social media was introduced to mobile devices, U.S. hospital admissions for non-fatal self-harm

amongst girls aged 15-19 increased by 62% and 189% for girls aged 10-14 as of 2015. Worse, suicide rates amongst these same demographics increased 70% and 151%, respectively, from 2011-2018 compared to 2001-2010 (Orlowski 2020, 40:52)

Now, let's participate in a thought exercise: how might this translate into our next phase of technology? More specifically, into extended realities? If these 2-dimensional platforms can have such a tremendous, awful impact, how much more potent will 3D immersive experiences be in which our senses and experiences of reality are augmented? What do "likes" look like in the metaverse? Hypothetically, what if likes were visually represented by people's avatars crowding by the post, cheering it on? Imagine high school students walking by their peers' posts and seeing crowds surrounding their content, and then walking by their own content and seeing nobody. How much more overwhelming would that version of the like button be? How many more lives would that experience design decision take? Hopefully, we'd all be wise enough to not make that decision; however, if we do not learn from our past we may be doomed to repeat it.

These design decisions have had tremendous power, and that power only seems to be growing. There are many people responsible for designing tech, not just graphic designers. So I'm not saying we are solely responsible nor are our design decisions the only problem with social, but we undoubtedly play a role in this. We

can learn from our past and act more responsibly in the future.

Another example of recent errors with technology comes in the form of economic and educational disparities, also known as the digital divide. Those without access to technology may be excluded from educational and employment opportunities, as well as from accessing essential services or participating in experiences that have become commonplace in our culture. The pandemic highlighted and exacerbated the digital divide as classrooms shifted online worldwide, further limiting access for those who lack the necessary technology and internet access. According to an article from EdSurge written in January 2021, "When schools closed last March, roughly 16 million U.S. K-12 students lacked access to a working device, reliable high-speed internet or both" (Sullivan 2021). This had a major impact on students' progress in their studies. I mentioned earlier that students using the HoloLens scored 50% better than their peers who were not given access to that technology. As augmented reality technology becomes more mainstream and is further implemented into classrooms, what will this look like on a mass scale in the context of the digital divide? What does this mean for society as a whole? What will we do to prevent widening that gap? As designers, if we can't make the technology more widely accessible ourselves, can we design experiences that are more accessible? Can we design multiple versions of our experiences, one for extended reality and

one that is still accessible using basic web-based tools?

We have a responsibility to design with intention, with care, and with morality at the forefront. As individuals and as members of teams who roll out products, software, and content, it is our duty to raise flags and enact change if we foresee potential consequences or if our goals are at odds with the good of humanity.

HOW CAN WE ACT MORE RESPONSIBLY?

As has been noted earlier in this book, history shows we are bound to fail again with this next wave of technology. Hopefully, we will fail differently, making new mistakes and not repeating or exacerbating our old ones. How can we as designers use and apply these tools and technology more responsibly going forward? How can we "fail better next time?" Part of the answer, I would argue, requires the use and exploration of these tools and technology to acquire an adequate understanding of them, their uses, motives, and potentials. Educating ourselves through experience, not just criticality, will allow us to properly harness, deploy, and regulate them responsibly (and hopefully prevent another Senator-we-run-ads type of conversation (NBC News 2018)).

In *Positive Computing: Technology for Wellbeing and Human Potential*, the question is asked "If a technology doesn't improve the wellbeing of individuals, society, or the planet, should it exist?" (Calvo and Peters 2014, 1). The book also discusses how Apple CEO Tim Cook opened the annual developers conference circa 2014 stating that Apple asks of their technologies: "Will it make life better? Does it deserve to exist?" Asking these questions from the outset is an important step to be taken when developing any product or experience. The root of our problems can't be solved by more algorithms. We must first identify and acknowledge these problems, and then approach them from a place of wanting the greater good for humanity.

The Center for Humane Technology, whose mission "is to align technology with humanity's best interests," and envisions "a world with technology that respects our attention, improves our well-being, and strengthens communities" (Center for Humane Technology n.d.), has created a free online course titled "Foundations of Humane Technology." What this comes down to is ethical education. Technology has evolved far faster than our brains and our ethical standards, so it's time we step back from the machines we built and try to catch up from an ethical standpoint. Ask ourselves: How can we design this mindfully? Are we designing to encourage addiction or are we designing to create a quality experience that genuinely makes the user's life better? How might this play out in the long-term? Are we viewing the user as an opportunity for profit or are we seeing them as a human being?

Learn about new tools and tech, use and explore their capabilities, and ask these kinds of questions to ourselves and to our teams. If no one else seems to be sharing the same beliefs, concerns, and moral standards, maybe it's time to find a new team. Going forward, our tech problems are only going to grow more complex, so it is important that we are not complicit in their growth. We'll need everyone in the fight against extractive practices, from software engineer to CEO to graphic designer, to work toward a world in which technology works for us.
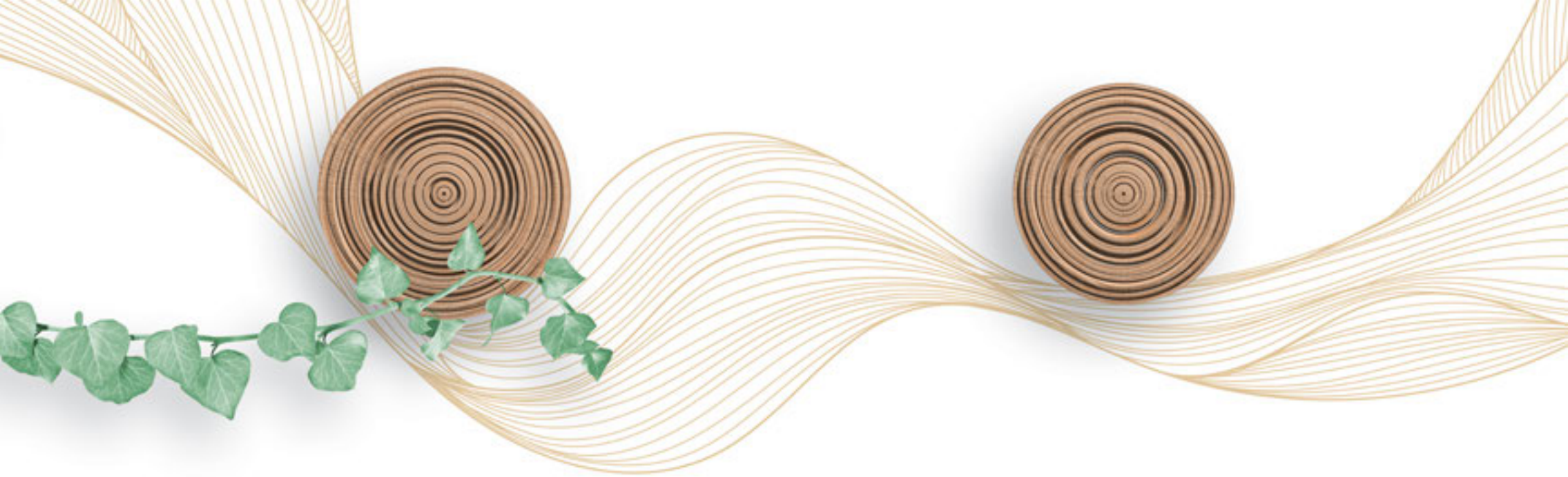
I've spent a great deal of time with my grandparents over the years. They often reminisce, and I'm happy to listen and learn about their experiences. I try to imagine them in those days; ice skating, renting canoes down at the lake, attending dances... sometimes I'm envious of their analog days. I'm often reminded about how much change they've witnessed from the 1930s to now, and it's difficult to wrap my head around. Going from radios to the Moon Landing, to computers, the internet, artificial intelligence... All in less than a century. I was born in the 1990s. I can't even imagine what the world will look like in that same time span.

Impermanence can be scary, and we have a natural response to reject the new and intimidating and attempt to keep things stable and secure. It takes constant effort to keep an open mind. In author David Foster Wallace's 2005 commencement speech "This is Water" at Kenyon College, he touches on the idea that every one of us has a "default setting" in which we only experience the world from our own perspective (Foster Wallace 2005). Going through the motions. Lacking empathy, curiosity, and kindness. He encourages the audience to approach life with awareness, to make conscious decisions about how to think and what to pay attention to. To ask questions and think beyond ourselves. This all requires effort.

As designers, we can go through the motions, continue to churn out work and pretend impermanence isn't taking place, but that's not reality. Eventually things will have changed so drastically since you last looked up from your desk that you will be shocked and

overwhelmed by it all, and you will be more resistant to change than ever. However, it's never too late to start exploring. To pick up something new and start playing just for the sake of seeing what happens. Start small and slowly but surely expand your comfort zone. If you have to, schedule exploration time as part of a daily or weekly routine. Of course, schedules can fail due to life's inevitable wrenches, but to combat this, James Clear, author of Atomic Habits, suggests reducing the scope of what you had planned but sticking to the schedule (Clear n.d.). In other words, if you had an hour-long tutorial planned but your daughter's soccer game went into overtime and now you only have 20 minutes, maybe just create something small within that 20 minutes to retain your schedule, reinforce that habit, and save that long tutorial for another day. It's all about exploring consistently, whether the results are profound or seemingly trivial.

Change is omnipresent. "You can't step into the same stream twice because it's always flowing. Everything is," Rick Rubin writes in *The Creative Act.* "There will always be something new to notice. It's up to us to find it" (Rubin 2023, 56). Impermanence provides an endless source of possibility, we just have to be willing to explore. When our minds are at ease with impermanence and when we explore it with curiosity, our creativity is liberated. We have the power to enact real, meaningful change by utilizing new things with criticality, compassion and with a mindfulness that is missing from many of our technologies today.

Lace up your hiking boots, follow your curiosities, maybe get a little lost, and discover something new! The world is waiting to see what you create next.

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Some images in this book were made in collaboration with Midjourney and Adobe Firefly.

COLOPHON

Kepler 3 Variable Font

Designed by Robert Slimbach from Adobe Originals. Robert Slimbach began his journey in type and calligraphy at Autologic in California in 1983. He joined Adobe in 1987 and has since focused on creating typefaces for digital technology, drawing inspiration from classical sources. In recognition of his exceptional work, he received the Prix Charles Peignot in 1991 from Association Typographique Internationale. Currently, Slimbach is the director of Adobe's type design program. (Adobe Fonts n.d.)

In 1989, Adobe established the Adobe Originals program, which served as an in-house type foundry. The program's purpose was to develop original typefaces that displayed exemplary design quality, technical precision, and enduring aesthetics (Adobe Fonts n.d.).

VIDEO

Designed by Patrick Griffin from Canada Type. Patrick Griffin is a founding partner and creative director at Canada Type, a font development studio based in Toronto. His professional focus revolves around type design, teaching, writing, and assisting others in the field of typography (Adobe Fonts n.d.).

"Although it boasts plenty of the traits of its origins (early screen technologies), Video maintains a balance between the elements of its 1970s roots and the mechan-

ical yet transparent late 20th century techno/pop design" (Adobe Fonts n.d.).

Bitcount Mono Single

Designed by Petr van Blokland from TYPETR. Petr van Blokland, born in Gouda, the Netherlands in 1956, graduated with top honors from the graphic arts program at the Royal Academy of Fine Arts (KABK) in The Hague in 1980. Alongside his partner Claudia Mens, he co-founded a design studio where he dedicated over thirty-five years to his craft. Van Blokland's skills encompass sketching, model-making, and programming in various languages. He has a particular expertise in systematic design, focusing on corporate identities, form systems, online publications, and tools for type design (Adobe Fonts n.d.).