WAGNER JAMES AU

MAKING A METAVERSE THAT MATTERS

FROM *SNOW CRASH* & *SECOND LIFE* TO
A **VIRTUAL WORLD** WORTH FIGHTING FOR

WILEY

Making a Metaverse That Matters

Making a Metaverse That Matters

From *Snow Crash* & *Second Life* to a Virtual World Worth Fighting For

Wagner James Au

WILEY

Published by John Wiley & Sons, Inc., Hoboken, New Jersey.
Published simultaneously in Canada and the United Kingdom.

ISBNs: 9781394155811 (hardback), 9781394156177 (ePDF), 9781394155828 (ePub)

Library of Congress Control Number: 2023937908

Cover Images: © Just_Super/Getty Images, IanGoodPhotography/Getty Images, imaltsev/Getty Images, sdominick/Getty Images, IvanNikulin/Getty Images, edge69/Getty Images

Author Photo: Photograph By Brooke Erdmann
Cover Design: Wiley

To my beloved Brooke, who, through all my flights of virtual world fancy, keeps me fastened to the offline world with her heart.

Contents

Preface

The Metaverse is a vast, immersive virtual world simultaneously accessible by millions of people through highly customizable avatars and powerful experience creation tools integrated with the offline world through its virtual economy and external technology.

(If some or most of that sentence seems obscure to you, don't worry: I wrote this book in part to explain what it means.)

This is the story of the people who have worked to realize something like the vision contained in those words since at least 1992 and still strive to bring it to full fruition.

For at least the last two decades, they have been building metaverse platforms with nearly all the aforementioned features.

They are tantalizingly close, at last, to entirely realizing that goal.

But this preface is mainly intended for you, dear reader, who isn't quite convinced the Metaverse is even worth your time.

So if you are wavering on that topic, may I tell you at least seven things to know about the Metaverse, even if you read no further?

Most of what you have probably read or heard about the Metaverse across media in recent years is somewhat or completely wrong, often deceptively so.

- The Metaverse is not for everyone. Chances are you've seen more than several tech evangelists across various media outlets insist that we'll all soon be in the Metaverse. I can tell you from painful—but also amusing—experience that this is unlikely ever to be the case. And, no, you probably won't wear a VR headset on a regular basis, either.
- That said, it's also safe to say at least one in four people with Internet connectivity will be part of the Metaverse on some level. And the many side applications likely to spring out of the Metaverse are powerful, potentially impacting most everyone.
- At a very conservative estimate, over half a billion people worldwide already use one or more variations of a metaverse platform now, from Minecraft and Roblox to Fortnite, VRChat, and Second Life. That's about 1 in 10 of the 5 billion people across the planet who use the Internet. While you may not personally use a metaverse platform, you almost certainly have many friends, colleagues, neighbors, relatives, or children who do. (As to *why* so many of them do so, read on to the Introduction.)
- Despite what you may have heard, and no matter what its company name change from Facebook might imply, Meta is not and never has been at the forefront of metaverse development. In fact, I would love to tell you about the many fascinating ways Meta is repeating errors made by many of us over the last 20 years (despite several direct warnings made *by* some of us).
- Meta is hardly alone in repeating past mistakes. Many of the major tech and media companies and venture capitalists of the world are currently spending tens of billions building *their* conception of the Metaverse. Most of them are also making profound (and avoidable) design, policy, even philosophical mistakes that may destine their efforts to disaster.

- And because so many companies are making an assortment of tragic errors, while most government and community organizations remain largely oblivious of the technology, it's important that we understand the Metaverse, the people who make it possible and worthwhile, and what we can learn from their failures and successes.

Because more than any other technology that's come before it, the Metaverse is shaped by the user communities that thrive in it. *Making a Metaverse That Matters* is ultimately their story.

The introduction explains why we should even want a metaverse that matters. This book is told in four parts:

- **Part I, Conception**, tells the untold story of the Metaverse's origins in and around Neal Stephenson's classic novel *Snow Crash*, and the first fully realized attempt to create it, with Second Life—and what we can learn from the near-disaster that followed. It closes with the Metaverse's rebirth as an idea championed by Facebook (now Meta) and how its many missteps have confused the underlying concept.
- **Part II, Realization**, includes snapshots of several metaverse platforms that evolved, often in unexpected and surprising ways, to reach mass market prominence/mainstream awareness: Roblox, Fortnite, VRChat, and Lamina1, the platform co-created by Stephenson himself. Their successes and user communities help show us how the technology might evolve for the better—just as their shortcomings warn us how that evolution can sometimes go awry.
- **Part III, Promises and Perils**, explores the many ways that metaverse technology might evolve beyond its origins in gaming, and the upcoming roadblocks that prevent it from reaching full flower. It's here that I also address the many

myths commonly held among Metaverse advocates and the technorati—but which I believe tend to take us in fruitless directions.

- **Part IV, A Metaverse Worth Fighting For**, is a vision for metaverse platforms that can continue to grow as businesses *and* as cherished virtual places for real communities, where grassroots creators can benefit from their inventiveness and artistry as much as the platform owners themselves. It is a guide to a Metaverse that has the best chance at being worthy of its highest aspirations—and in that process become the next great Internet medium.

As that last part suggests, there *is* a fight for the Metaverse's future, with the outcome far from certain.

This conflict will enmesh companies and the user communities who depend on each other, and draw the current Internet giants into the fray. It will finally ensnare whole societies and world governments, who scarce grasp the barest outlines of the alternate reality already emerging beneath our screens. *Making a Metaverse That Matters* tells that story too.

The "matters" of the book title comes with a hidden double blade. I believe the Metaverse will transform us, on balance, for the better. But it will also introduce dark old troubles in a new context and new dangers that we as a society are hardly ready to understand; I have seen too much of that side of things to avoid telling the full story.

The primary focus of this book is not on the technological and business components required to operate a metaverse platform. For that, I highly recommend *The Metaverse* (Liveright, 2022) by Matthew Ball, who has done essential work on that front.

Making a Metaverse That Matters is fundamentally about the *people* behind this technology, both as creators and as users. More than anything, their experiences explain why this concept, drawn

from a relatively little-read sci-fi novel, has so much power. I've seen firsthand how the Metaverse can transform lives and enable human flourishing.

Making a Metaverse That Matters is also, finally, *my* story—one that I've been writing in one form or another for roughly 20 years, since around the start of my writing career.

In 2003, a publicist's email led me into the office of Linden Lab, the creator of Second Life, for a demo that went on to transform *my* life.

Hired as the startup's official "embedded journalist" in the virtual world, I began in 2003 to interview Second Life users as a roving avatar reporter wearing a white suit (my somewhat pretentious tribute to Tom Wolfe), impertinently asking them about everything—from virtual sex to ambitious collective art projects to savvy virtual business ventures that turned their founders into literal millionaires.

During that time, Second Life became the first metaverse platform to reach mainstream awareness. After leaving the company in 2006 to write *The Making of Second Life* (HarperCollins), I was shocked and saddened to watch as Second Life failed to realize its potential for many strange, aggravating, and tragically hilarious reasons—and feel some personal blame for what went wrong.

At the same time, I have learned from the ongoing story of Second Life, which still generally flourishes against all odds, what aspects of the Metaverse are truly compelling. So *Making a Metaverse That Matters* is also about watching the dream re-emerge and vowing that *this* time, everything possible must be done to ensure that it scales to the benefit of all.

A few housekeeping notes:

- A back Glossary includes dozens of definitions for technical or insider terms used throughout this book that might not be fully unpacked in passing for the sake of space.

- My blog *New World Notes* (nwn.blogs.com) is essentially a 20-year archive of stories and footnotes that went into *Making a Metaverse That Matters*. If you are interested in following up on references throughout, I welcome you to use the Google Search widget there to explore.
- Throughout this book, the "Metaverse" (with an uppercase *M*) is the original vision depicted in *Snow Crash* and refers to the industry as a whole that's attempting to develop a fully realized version of it. However, "metaverse platform/startup/etc." (lowercase *m*) refers to an individual startup, company, or platform within that ecosystem.

Now, keeping in mind the Metaverse definition that started this preface, let us begin.

Introduction: Five Stories about Five Core Metaverse Concepts

As I write this in early 2023, over 500 million monthly active users inhabit online platforms that fit the broadest outlines of the definition of the Metaverse at the start of this book. That's roughly one in ten of the entire global population connected to the Internet. (As to that definition's particulars, I'll tell that story in Chapter 1.)

Most of the leading metaverse platforms are outlined in the following table:

The Metaverse Platform Landscape, 2023—Market Leaders

Platform	Monthly Active Users	Accessible Devices	Notes
Roblox	250 million	Windows, macOS, iOS, Android, Xbox One	See Chapter 4.
Minecraft	174 million	iOS/Android, Windows, Mac, consoles	See Chapter 4.
Fortnite	83 million (2021)	Windows, Mac, Android, consoles	See Chapter 5.

Platform	Monthly Active Users	Accessible Devices	Notes
ZEPETO	20 million (2023)	iOS/Android	Company reports that 60% of users are in Asia; 15% in the Americas; 15% in Europe; and 9% in MENA.
Rec Room	10–12 million	Windows, Meta Quest, iOS/Android, consoles	In April 2022, company reported 3 million MAU accessing through VR, most via Meta's Quest 2.
VRChat	7–9 million	Windows, Quest, Steam VR, HTC Vive	See Chapter 7.
Avakin Life	7 million (2023)	iOS/Android	Developed by UK-based Lockwood Publishing, which in 2020 raised $25 million in Series A funding led by China tech giant Tencent.
IMVU	5 million (2023)	iOS/Android, Windows, Mac	Company reports 200,000 monthly active creators, $1 million paid out per month to creators (Feb 2023).

Platform	Monthly Active Users	Accessible Devices	Notes
Second Life	600,000	Windows, Mac	See Chapter 2.
Horizon Worlds	200,000 (2022)	Meta Quest	See Chapter 3.

Numbers in parentheses represent dates of public statements by the platform company or from major news/industry publications. Other figures represent estimates or third-party counts from New World Notes, along with RTrack and Metaversed. consulting.

Anyone not already within this proudly geeky half-billion–sized cohort may wonder why these platforms and their largest representatives—Roblox, Minecraft, Fortnite, and so on—should have any relationship to the Metaverse. Aren't they just online games?

They are *also* online games, yes, but their potential extends far beyond that category. All of them share five core features that are integral and unique to metaverse platforms. Taken together, these features offer a new and largely better way to experience the Internet—and an advance to the kind of Internet experience that the remaining nine in ten people online have grown accustomed to.

But rather than discuss these core features in the abstract, let me tell you about five *people* whose lives have been changed by them.

Fran and the Immersive Virtual World

One day Fran, a senior citizen in Southern California, noticed it had become difficult for her to stand from a sitting position or maintain her balance while upright—the first indications of Parkinson's disease, a degenerative disorder of the central nervous system that afflicts millions around the world.

Fran was also an active Second Life user at the time, enjoying it as a fun way to socialize with her daughter, Barbara. Sometimes

for fun, she'd have her avatar practice tai chi, a nice visual reference while meditating herself.

Then Fran noticed an odd thing: She seemed to be gaining significant recovery of physical movement—apparently, *as a direct consequence* of her activity in Second Life.

"As I watched [my avatar]," she told me in 2013, "I could actually feel the movements within my body as if I were actually doing tai chi in my physical life, which is not possible for me."

For a year up to that point, she sat and even slept in a motorized lounge chair.

After weeks of watching her avatar practice tai chi, however, "I could feel that my body had become stronger."

Until a day came when she was able to stand without motorized assistance.

"Now," she added, "I can go from a sitting to standing position without even using my arms to push against the arm rests. This has been absolutely thrilling for me."

Using a virtual world, in other words, seemed to abate her Parkinson's symptoms.

Fran's story first came to me through Tom Boellstorff, professor of anthropology at UC Irvine. Author of *Coming of Age in Second Life* (the echo of Margaret Mead is intentional), he's among the most well-respected academics studying the social implications of virtual worlds. Tom met Fran and Barbara offline, recorded video of Fran's physical recovery, then went on to receive a National Science Foundation grant (with his colleague Dr. Donna Z. Davis), to study virtual worlds and people with disabilities.

Though Boellstorff and Davis are anthropologists by training and not medical experts, they have a theory about the nature of Fran's recovery, and hope it can be researched further.

"We believe that Fran's experience may be similar to results in other current research being conducted with individuals with

brain disorders or injury," Dr. Davis told me back then. "Where, by watching yourself—or your avatar—you are essentially retraining the mind to function."

While the implications of this have yet to be studied to their furthest potential, they are likely to be profound—especially in the face of a rapidly aging population around the globe. From what we can tell, they are made possible because this happened in *an immersive virtual world*.

Immersion is the sense of feeling so situated within a 3D virtual world, your awareness of the surroundings beyond your digital screen mostly melts away. Immersion powers the success of videogame consoles, PC games, and even 3D titles on mobile, especially titles in the category called "AAA"—big budget, action-oriented games with highly vivid 3D graphics, such as *Call of Duty: Modern Warfare*, *Red Dead Redemption 2*, and *Grand Theft Auto Online*. Each has sold tens of millions of copies, earning revenue that puts them in competition with Hollywood's most successful movies.

Immersion is also what first brought me, through many lateral moves, into the metaverse industry. I specifically credit the astoundingly influential PC game *Thief: The Dark Project* (1998) for achieving a sense of immersiveness that felt like a fundamental shift. In this story of an antihero cat burglar in a nameless steampunk city, the player progressed through careful awareness of the world, learning to stealthily blend into its shadows. *Thief* and its many successors convinced me that immersion could elevate interactive experiences beyond mere arcade games into something more profound.

The growing popularity of immersive *online* virtual worlds, first seen in sword and sorcery MMOs like *EverQuest* (1999) and *World of Warcraft* (2003), expanded my excitement; now, other people were part of a virtual world that you simultaneously shared together. Typically, these worlds are fanciful but

recognizable simulations of our offline world, with mountains and oceans and cities and the like, visually appealing and varied enough that many people would want to explore and interact within them together.

"For me the foundational thing is that virtual worlds are shared spaces," as Tom Boellstorff puts it. "They are places online and that's what makes them different from email or Twitter. And you even see this in English with prepositions, where people say you go *on* Facebook, but you go *in* Roblox or in Second Life or whatever." And it's how Fran happened to come across an inviting meadow with a community meditation space for practicing tai chi in Second Life, which ended up changing her life.

Fran is hardly alone. Drawn to this "you are there" quality, a large contingent of people enjoy digital immersion, whether in single player games or shared multiplayer spaces. Steam, a top online distributor of immersive PC games, has about 125 million active users; one in five global consumers reportedly owns a videogame console boasting immersive graphics and audio capability. Hundreds of millions play 3D games on mobile; one title alone, the mobile version of *PlayerUnknown's Battlegrounds* (PUBG), attracts over 50 million daily users at peak.

By my estimate, the existing audience for immersive experiences is about one in four people with Internet access worldwide.

Nick and the Power of Virtual World Avatars

Immersiveness creates a metaverse platform's sense of social presence; avatars create the sense that you are part of that world and can be perceived by others in it at the same time.

Taken from the Sanskrit word for "godly incarnation," the avatar is your emissary in the virtual world, responding to your commands in near real time. Typically you view your avatar onscreen as if you were its angelic conscience, hovering just

behind it, or see through its eyes from a first-person perspective. As you interact with other users through their own avatars, the sense of immersion is enough to create a real-time social context from the ephemera of pixels.

That effect can best be demonstrated by a surprising discovery:

One day, a graduate student at Stanford named Nick Yee wondered what kind of relationship the average person has with their avatar. To test this, he brought male and female volunteers into a lab and had them control their own avatars in the same virtual world; the volunteers could freely move their avatars around in this simulation, standing as close or as far away from each other as they preferred. If they wanted, they could also command their avatar to make virtual eye contact with another avatar.

What happened next was unexpected:

The avatars, Nick discovered, eerily imitated our unwritten rules of social distance and eye contact. In other words, these volunteers' avatars maintained the same relative distance in the virtual world as they would were they strangers standing near each other in the real world.

Our unwritten rules of gender dynamics and sexuality were also mirrored in this experiment. For instance, when avatars of two straight male volunteers talked with each other, as Dr. Yee explained in his paper on this study, "they were less likely to maintain mutual gaze than female-female dyads and mixed dyads." They also tended to position their avatars so that they stood side by side with each other while looking away—eerily and unconsciously replicating, for example, how heterosexual men tend to stand next to each other at a bar.

No one told the volunteers to behave this way with their avatars in a virtual world. Indeed, it's unlikely anyone told them about the rules of eye contact and social distance *in the real world*. Yet somehow, they felt such an intuitive connection with their

avatars' perspectives that they re-created these unconscious social rules, as if these avatars really were an extension of their real-life selves.

While the results of Yee's study ("The Persistence of Nonverbal Social Norms in Online Virtual Environments") may surprise many readers, they are less likely to shock the many hundreds of millions of people who play Minecraft, Roblox, Fortnite Creative, and other metaverse-type platforms. For those of us accustomed to avatars in shared immersive spaces, this phenomenon is part of the magic: the uncanny sense that we are *really there*, in the simulated space, and that we share it with others, even when we are logging in from the other side of the world—they are also, somehow, right by our side.

The sense of avatars as people also seems to apply to the avatars that individual users control. In another series of studies led by Nick and his Stanford colleague Jeremy Bailenson (a pioneer in virtual world/VR research), they found that when a volunteer is embodied in a physically attractive avatar, they are more willing to talk with others and express more open, self-confident friendliness—in both the virtual *and* the real worlds.

Bailenson and Yee dubbed this "the Proteus effect," after the shape-shifting demigod of Greek mythology, and it reinforces the previous finding: Avatars help empower us and connect us in a meaningful way with others in a virtual world. (The Proteus effect can also be abused, often to socially disturbing effect. But more on that in Chapter 13.)

Jeff and the Power of User-Generated Virtual World Content

There once was a tall and rangy artist who wandered the green countryside of Ireland as an itinerant painter for hire, and through various serendipitous twists, eventually wound up as a UI designer at IBM. It is there that Jeff Berg's manager

suggested he try a thing called Second Life that everyone seemed to be talking about at the time.

So he did, exploring the technical and artistic possibilities of the platform. Someone told him it was impossible to build a simulated wheat field in this virtual world, but with some practice, he built one, hand-drawing some of the digital textures, to make it seem all the more real.

Berg dubbed it "The Far Away," and it invited you to stroll through a golden expanse wrapped around a rusty train with tracks lost beneath the seemingly windblown grain. Second Life users, learning about the place, would teleport or fly there in an endless stream of avatars whose incongruous appearance made these settings seem even more surreal—sex vampires and robot furries and supermodels and space commandos and cyberpunk cowboys, all milling about in God's country.

Berg's virtual wheat field, in a word, became famous. He created that place and others to evoke nostalgia for the time before the Internet. He succeeded at that. Tens of thousands of people visited his Second Life installation, moved and made nostalgic for this bygone time.

And then Berg himself, in an ironic turn, also became famous. Or rather his avatar did, whom he named "AM Radio." Ardent admirers messaged him, telling him that exploring his works had saved them from suicide. Two people who met as avatars in the middle of his wheat field wound up getting married in real life. Many fans sent *him* romantic messages. Many pursued AM Radio around Second Life whenever he logged in, wandering the virtual world in a greatcoat and top hat, the way star-struck art mavens from another era might trail after a celebrated painter in Paris.

AM Radio's fame even started spilling out into the real world. Berg was ordering coffee at his local shop, only to overhear the two young women behind the counter talking about Second Life.

As she prepared his order, one barista enthused about a beautiful wheat field she had just visited there. And Berg realized she was talking about "The Far Away." Berg is shy and not exactly outgoing in real life, and this attention was overwhelming.

As he explained to me later: "I grabbed my coffee and thanked them and ran out the door."

Essential to a metaverse platform are creation and editing tools that enable users to reshape and customize the virtual world around them into user-generated content (UGC). There are thousands if not millions of people like AM Radio across many metaverse platforms, acclaimed and even dearly loved for their creativity, made possible by these tools that turn users into creators. You will meet many of them in the coming chapters.

The tools themselves vary wildly from platform to platform; in some they are simple, enabling users to, say, click and drag prefab furniture around their virtual homes. Other toolsets enable creators to customize a user experience so thoroughly that what they build is nearly indistinguishable in quality from immersive content created by teams of well-paid game professionals.

An equally important point here: On a metaverse platform, *all* content can be user-generated content, and *every* activity performed by users is by definition UGC. Even a user's avatar randomly walking around and chatting constitutes UGC; their very presence and social activity contributes to the immersive environment. It might seem trivial to describe avatars socializing and chatting as UGC, but I can assure that it is not. It's why metaverse platforms invariably have a cottage industry of virtual wedding planners, emcees, DJs, and so on who make a decent side income from their social skills.

The power of UGC has already been proven in the early '90s by the modding community—gamers who collaborate online to modify and tinker with a game's art assets and coding to create