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virtual interiorities

BOOK ONE
when worlds collide

virtual interiorities

book one: when worlds collide

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virtualinteriorities.org

This book was produced with Pressbooks (https://pressbooks.com) and rendered with Prince.

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acknowledgements

foreword

Graham Harman

In the academic world it is an open secret that a certain percentage of edited anthologies are doomed to sink quickly beneath the waves, never to be heard from again. Often amounting to repositories for well-meaning conference papers, such books are those that fail to gain traction with the reading public, whether through a lack of internal unity of their various chapters or for purely accidental reasons. This three-volume collection now before you is something much better than that, and thus deserves a more glorious fate. Its title, *Virtual Interiorities*, should be read in a surprisingly literal manner, for its chapters discuss nothing less than the possible transformation of our conception of space (and even time) by way of a number of challenging technologies, ranging historically from amusement parks to the latest video game interfaces. In the introductions that follow for each book, the editors give a fine chapter-by-chapter overview of the individual contributions that form this collection. Here I will do something different, providing a general philosophical framework to assist the reader in grasping the possible stakes of *Virtual Interiorities*.

One common way to think of space and time is to view them as stable, empty containers within which things and events are located. At least prior to Albert Einstein and his general theory of relativity, which speaks of the distortion of space and time by mass, the empty container theory was the dominant one in modern physical science. The locus classicus of this concept is the Principia of Isaac Newton, where we find the following emblematic words: "Absolute, true, and mathematical time, of itself, and from its own nature, flows equably without relation to anything external . . . Absolute space, in its own nature, without relation to anything external, remains always similar and immovable."[1] It could be said that the chief philosopher of the modern era, Immanuel Kant, retained this theory in his own system of thought.[2] True enough, Kant treats time and space as universal forms of human subjectivity rather than as objective containers found in the outside world. Nonetheless, both continua remain constant for Kant as well as for Newton: no stretching, bending, or twisting of time or space is conceivable for either of them.

Long before Kant this theory was defended on Newton's behalf by his ally Samuel Clarke in a famous debate with the philosopher G.W. Leibniz that ended with Leibniz's death in 1714.[3] Famously, Leibniz challenged the Newtonian conception of time and space by offering a relational alternative: space and time do not exist independently of the entities that occupy them but are defined by those entities in the first place. Among other rhetorical strategies, Leibniz ridicules the possibility that God might have created the universe ten minutes earlier than he did or one mile further to the west, since neither earlier/later nor east/west could have any meaning at all prior to the creation of the universe. Hence, space and time require a purely relational structure in which all temporal and spatial conceptions make sense only when entities are measured against one another. Given that relationality is highly fashionable in today's intellectual atmosphere, few will resist the chance to snap at the bait of Leibniz's argument. For reasons lying beyond the scope of this foreword, I am inclined to push

1. Isaac Newton, *Philosophiae Naturalis Principia Mathematica*, Book One, trans. Andrew Motte (Berkeley, CA: University of California Press, 1934), 6.
2. Immanuel Kant, *Critique of Pure Reason*, trans James Ellington (Indianapolis: Hackett, 1996).
3. *G.W. Leibniz & Samuel Clarke, Correspondence* (Indianapolis: Hackett, 2000).

back against relational ontologies of this sort. Yet that is beside the point, for more relevant to us here is the implication that far from being stable backgrounds for events—as even quantum theory still assumes—the Leibnizian model entails that our spatio-temporal framework is changeable. It was Albert Einstein who developed this possibility, in both the special and general theories of relativity, in which velocity (special) as well as mass and acceleration (general) play a previously unknown role in distorting one or both of the background continua we inhabit.

But, instead of these famous discoveries in physics, the three books of *Virtual Interiorities* discuss the possible role of technology in warping our usual sense of space and time. In a sense, this far predates what we think of modern technology. Ancient empires are known to have used gigantic statues and related techniques to terrify their enemies. Indeed, architecture itself might be viewed as a method of distorting natural space into something more emphatic or even psychedelic, with torch-lit inner chambers or distressing pyramids and ziggurats bringing a disoriented awe to those who visit them. The present work, however, focuses on more recent history, beginning with the pioneering amusement parks of the early twentieth century. Other chapters focus on advances in video game technology, including certain engines that allow players to explore worlds where the customary laws of physics are violated. While there may be limits to how much space and time can be modified without neurosurgical tampering, the still-young field of virtual reality is already capable of producing vertiginous effects in its users.

It was the great merit of Jakob von Uexküll to explore in empirical detail how the environment of each animal is determined by the limits of what it is able to perceive.[4] Although his most famous example is that of the tick, I am even more struck by his observation that different animals are capable of seeing the same flash of light a differing number of times per second. For instance, a snail is able to see just three or four flashes per second; more than that and it sees a steady light instead. A human is capable of seeing more than three times as many flashes per second as

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4. Jakob von Uexküll, *A Foray into the Worlds of Animals and Humans: With A Theory of Meaning*, trans. Joseph O'Neil (Minneapolis: University of Minnesota Press, 2010).

snails, but fighting fish turn out to be even more gifted in this respect.[5] Of course, it is well-known that dogs hear in different registers from humans and that many animal species feel storms coming even while humans experience nothing but the blue sky above, however, the coming technologies might eventually put these animal talents within human reach. In his interesting book *Discognition*, Steven Shaviro further explores the cognitive difference between humans and such exotic creatures as slime molds,[6] but theorizing such topics in books is one thing and enabling journeys into these theorized alternate worlds is quite another. What the contributors to *Virtual Interiorities* succeed in doing is making us feel closer than ever to a technological era in which such questions as Thomas Nagel's famous query "What is it like to be a bat?" are not just philosophical thought-experiments but possible advertising slogans for products that enable customers to find out for themselves.[7] If there is anything I envy in the young, it is the fact that the power of space-time manipulation might be technologically within reach during their lifetimes, though probably not in my own. *Virtual Interiorities* improved my imagination by giving an early sketch of how such a thing might happen.

Long Beach, California
September 2022

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5. See Graham Harman, "Magic Uexküll," in *Living Earth*: *Field Notes from the Dark Ecology Project 2014-2016*: 115-130 (Amsterdam: Sonic Acts Press, 2016).
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introduction

Gregory Turner-Rahman

> As the forces of biology are reproduced in machines and the forces of computers are reproduced in bodies, the interplay of "ideality" and "reality" anticipated in philosophical theories and artistic practices can be discerned throughout what was once called "nature." This transfiguration of the material and immaterial infinitely extends processes through which reality is virtualized and virtuality is realized.
>
> —Mark Taylor [1]

Virtual Interiorities was originally a conference to be held at Florida International University in the summer of 2020. When the conference was canceled due to the COVID-19 virus outbreak, this three-volume collection was born in a moment of necessary virtuality. The co-editors met online and decided to, in turn, produce a book or series of books based on similar themes while borrowing from the conference title. However, the notion of what the collection could be was amorphous. It was apparent that we approached our new, online lives differently. The virtuality of never-ending Zoom meetings and Netflix binges had forever altered our sense of what it meant to be stuck between a hard physical reality and a sometimes inadequate digital world. Our seemingly virtual lives had

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1. Mark Taylor, *Hiding* (Chicago: University of Chicago Press, 1997), 324.

become strange and complicated during the pandemic. As we considered our moment of transfiguration, we wondered if we should (re)address our research in light of our situation—could we develop new perspectives? Each of the editors brought to the project their own ideas, interests, experiences, and, most importantly, a list of potential contributors whose ideas we wanted to hear. We compiled a master list of researchers and writers who were exploring a unique aspect or overlap of the key disciplines but who were all investigating some particular quality of virtuality.

We used our quarantine and stay-at-home moments to start in earnest, yet the true virtuality of the early project was the moment we engaged the authors. There was the usual email exchange and, in several instances, a video chat. Surprisingly, online meetings were a moment of respite and hope in an otherwise dreary 2020. Many of the contributors seemed eager to start a project, to talk about their work, and to connect to something beyond an insular life during lockdown. And perhaps that is why we have such a rich collection of writing in this collection. Virtuality is always set in contrast to the actual, the physical. Each contributor learned intimately the nuances of being stuck in a liminal space, relying on technological connectivity and fictional story spaces to make sense of their situation. While it may date some of the content herein, the COVID lockdown required us to understand new ways to think about the spaces we all study. Additionally, we have worked diligently to outline how this collection will expand our understanding of the issues pertaining to virtuality across media and disciplines. The result is three distinct books which introduce, inspect, and connect all facets of virtual experiences.

Contributors to *Virtual Interiorities* are recognized experts in their particular fields, rather visible and widely published. Others are promising younger scholars who have found excellent research networks within which to collaborate. Some writers will be returning to earlier ideas to bring their polemic in line with current states of virtuality, making this book a timely and forward-looking volume describing not only present but also potential futures. Others will be presenting entirely new ideas and investigations.

How then do all the topics relate to one another in such a collection? Each author scrutinizes the notion of the virtual in a socio-spatial context, thus this collection pertains to film, theme parks, video games, virtual reality, architecture, narrative, branding, placemaking, cultural studies, and various combinations of all of these concepts. Each article presents a context for and an application of virtuality, and when taken in total, the entire collection begins to theorize virtuality in its own way, its own ontological direction. In its simplest form, *Virtual Interiorities* is a rough guide to exploring the connectivity of virtual and physical spaces.

However, as these chapters have arrived in the *Virtual Interiorities* inbox, each one has expanded our definitions of the virtual, resulting in a bit of a dilemma amongst the editorial team as we each approached ferreting out meaning from the collection quite differently. Ultimately, we made the decision to parse them as such:

Book One: When Worlds Collide
Book Two: The Myth of Total Virtuality
Book Three: Senses of Place and Space

Every chapter, in all three books, brings us back to these fundamental questions: How does virtual media historically frame, filter, manipulate, and alter our perceptions of the built environment? How do our moments in varying virtualities (re)construct our understanding of experience? What happens when the material and immaterial collide and collude? To address these haughty questions, each book provides its own con-textualization, introduction, and focus. Each book presents a collection of essays that bears some thematic relationship to one another. Every chapter, however, provides a somewhat different theoretical grounding and method of investigation: some authors provide a historical account while others favor a more theoretical or even case-study type of analysis. We asked that authors avoid technical descriptions of designed projects and instead focus on broader theoretical accounts of compelling work that might alter our audiences' understanding of what it means to live, work, and play within immersive, mediated environments. All the authors address a unique aspect of our experience with these environments and, again, highlight some sort of connectivity to the volume theme. Some

authors probe how the virtuality of themed environments and game spaces overlap and interact; others challenge our notions of what heritage, history, and nation building mean through that lens of the mediated story.

All the chapters in Book One scrutinize the physical and virtual continuum in some way and, by default, explore the meaning of liminality between those dipoles. Book Two centers on themes of (dis)embeddedness—such as the designs of visceral, immersive productions and commoditized virtualities of transmedia storytelling and branding—that expose the myth of total virtuality. The chapters in Book Three expand on the notion of virtual non-place, thus investigating a sort of virtual ontology and playing with post-human interactions, such as novel game interfaces and the role of drone technologies.

For *Book One: When Worlds Collide*, it is paramount to describe how our authors explicitly address the notion of liminality, connectivity, and the transfiguration of the virtual and the physical. Each author pointedly addresses the proverbial elephant in the room: more and more of our spatial experiences—which touch every element of our lives—are not conceived of architecturally, nor are they designed by architects. Many don't even exist within what is traditionally called the "built environment." Furthermore, the variety of mediated experiences has expanded and combined to produce referential moments that are situated squarely between the real and virtual.

In "Building the Theme Park of Your Imagination: Virtualizing the Theme Park Experience in Digital Games," Péter Kristóf Makai describes how aficionados use electronic games and long-form video essays about decommissioned and demolished attractions to create novel virtual experiences. Makai explains how electronic games as "ultimate ersatz experience machine[s]" challenge the theme park. He goes on to outline how such games allow players to construct their own renderings of the rides, fostering a different, but no less authentic, theme park experience. To Makai,

theme parks are intermedial cultural products that can be reclaimed by virtual re-creation, which abstracts and idealizes the actual park. That idealization, in many ways, mirrors the themed virtualization of the original referent physical theme park.

Stefan Al, in "The Strip as a Movie Set: Immersive Experience Design in Las Vegas," describes how Las Vegas works as a movie set. He breaks down the qualities that reveal a set-like structure: false-front architecture, immersive interiors, and digital screens. Together, those aspects produce an experience that amplifies both a sense of virtuality and a shared sense of symbolism with Hollywood. The result is a thoroughly designed environment that rests firmly in between real and fictional references.

In "Imagining Cities Through Play: Immersive, Playful Video Game Experiences and the Liberation of Civic Imaginations," Konstantinos Dimopoulos addresses the role that games play in informing our understanding of the built environment, urbanism, and society in general. His argument is that, as spatialized media becomes unmoored from physical space, video games can provide a unique utopian image of the urban environment. Dimopoulos describes the complexity inherent in using the video game as a model of civic imagination and goes on to champion the noble goal of enhancing popular impressions of the built environment.

"Resurrecting Defunct Theme Park Attractions: Fan Preservation in Virtual Worlds" by Bobby Schweizer takes us to Defunctland and probes the values underlying the re-creation of decommissioned theme park rides. Schweizer explains how DIY preservationists use the modeled theme park experience to capture more than the mechanical aspects of long-gone theme park rides; they capture a broader experience and thus give viewers an opportunity to revisit old feelings and modes of interaction. The result is something that augments our memories of in-person experiences.

The second part of this book is focused on the experience of liminality. Giuliana Bruno, in "Surface Encounters: Empathy and Intermediation," describes the relationship between the material and virtual and the experience one has interacting with the built environment. Bruno parses out

a richer understanding of our mediated moment by asking us to address these surfaces, providing us with rich examples where surface in the built environment supplies the basis of our aesthetic experience. Tensile projections, screens, and membranes thus all mediate between actual and virtual spaces.

In "Design at the Border," Laura Hollengreen and Rebecca Rouse outline "an emergent typology of liminal design" using three examples from different periods in time and different locations in the world. What results is an expanded definition of liminality. Hollengreen and Rouse's analysis of mixed reality experiences offer insight into the design of interactions with mediated environments. The result resonates beyond experience design strategies and instead offers creators a "historically informed way to consider…interior transformation of the participant."

Finally, Ulrich Götz, in "Spaces of Possibility—Spaces of Purpose: The Emergence of Narrative Space in Theater, Film, and Games," describes narrative space as the key shared spatial context in film, theater, and games. This chapter outlines a variety of definitions of space—from Deleuze and Guattari's ideas of smooth and striated space to the Situationist's psychogeography—to put us on the trajectory to corporeal space and, ultimately, narrative spatiality. Needless to say, spatialized media generate new conceptualizations of action and experience. Götz gives us the framework to understand mediated space as something purposeful that can, potentially, create new possibilities for interaction.

The collection of all these chapters, including those in the second and third books, reveals the richness of virtuality beyond the confines of the virtual reality headset. Instead, we see historical precedent and contemporary connectivity across mediated products. Interactivity and narrative are the seeds planted by the stories and descriptions of these authors. The interiority of isolation during lockdown was fertile ground from which colorful new ideas about our virtually augmented lives have blossomed.

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I. PHYSICAL / VIRTUAL CONTINUUM

Building the Theme Park of Your Imagination

Virtualizing the Theme Park Experience in Digital Games

Péter Kristóf Makai

Entry Through the Main Gate: A Virtual Trip to the Theme Park via Games

2020 has been a dark ride for the amusement park business and parkgoers all around the world. At the onset of the COVID-19 global pandemic, all Disney resorts closed down, and some remained so into 2021, like most other amusement parks and theme parks. With Disney Park aficionados orphaned and going into lockdown, it was inevitable that virtual experiences would spring up to bring back some of the magic. Prophetically, Gordon Grice has noted that "virtual experience will soon supplant actual experience and that our everyday environment will become so immersive that the few remaining non-immersive environments will be eagerly sought. At the very least, the words 'virtual' and 'immersive' will need to be periodically redefined or superseded."[1] As the pandemic raged on, virtual experiences did, in fact, become the norm, and soon everyone came to lament the loss of the physicality of socialization and memorable embodied experiences, like themed entertainment venues.

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1. Gordon Grice interviewed (with Filippo Carlà, Florian Freitag and Scott A. Lukas) for "Research Dialogue: The Place of the Future," in Scott A. Lukas, ed. *A Reader in Themed and Immersive Spaces*, (Pittsburgh: ETC Press, 2016), 301–304.

One shining example of the yearning for the good old days of theme parks comes from the Disneyland-nostalgia YouTube channel Defunctland, dedicated to long-form video essays about the history of attractions that were decommissioned or demolished in the constant pursuit of plussing the Disney parks. Besides delivering videos, an offshoot of the project, *Defunctland VR*, vouched to create virtual reality versions of the rides of yore. The amateur project bore its first fruits with *Defunctland VR: 20,000 Leagues Under the Sea*,[2] a full reconstruction of the eponymous ride that opened in 1971 and shut down in 1994, that was released for the Oculus, Vive, and Index platforms, as well as a 3D YouTube video, featuring the original spiel and presentation of the ride.

Though a stunning achievement by any measure, buried amidst gushing YouTube comments about the fidelity of the video and reminiscing about the actual ride were users who were quick to note the differences between the original and its recreation: "I have vague memories of this ride being heavily crowded and the one escape from the heat so it was always busy in 1992. I was too young to really appreciate it and because of it being SO LOUD in that tin can, I never understood the voice over."[3] Another commenter advised: "For the true ride experience, moisten your chair before sitting down."[4] One even experienced something close to synaesthesia (with a dash of hyperbole): "I swear I could smell the diesel from the moment we arrived on the pier."[5] Exclamations such as these point to something that is inherently lost in migrating a beloved, built, breakdown-prone ride to the virtual realm. Wetness, fuel, heat, crowds . . . all elements that give riders just a touch of unpleasantness, but also an added level of sensory immersion that is lost in the recreation. As Priscilla Hobbs notes, "one of the most essential aspects of Disneyland is that it allows a person to fully embody and be submerged into [sic] fan-

2. Defunctland, "Defunctland VR: 20,000 Leagues Under the Sea," uploaded on January 7, 2021, YouTube video, https://www.youtube.com/watch?v=qQgLOzVkNVU.

3. Mark Machlay, YouTube comment on "Defunctland VR: 20,000 Leagues Under the Sea," https://www.youtube.com/watch?v=qQgLOzVkNVU&lc=UgzdgyKnA5RHlnHfKUR4AaABAg.

4. Jabronie212, YouTube comment on "Defunctland VR: 20,000 Leagues Under the Sea," https://www.youtube.com/watch?v=qQgLOzVkNVU&lc=Ugz7ceEgMyiTqnEd9sZ4AaABAg.

5. Zenon Stacy, YouTube comment on "Defunctland VR: 20,000 Leagues Under the Sea," https://www.youtube.com/watch?v=qQgLOzVkNVU&lc=Ugx0VUiNmMYmJZ_lCXh4AaABAg.

tasy fairy tale . . . This experience of embodiment is a missing element in modern American society."[6] And during lockdown, doubly so. World's fairs, those mighty forerunners of the theme parks, were already prided on giving a sense of being in another world, since at the time, "travel was difficult and expensive, making virtual travel a popular and exciting alternative."[7] Now, for many, it was the only option. Even so, the importance of physical themed entertainment is keenly felt today when we are deprived of both real travel and its next best substitute.

This chapter is devoted to making sense of the role of virtual theme parks and rides at a momentous point in the twenty-first century. Long decried as a site of fakeness and virtualization, the theme park is now challenged by the computer as the ultimate ersatz experience machine, with the oily, wet-seated, overcrowded ride as a stand-in for the authenticity of experience. Theme parks thus become sites of cultural memory that can be reclaimed by virtual recreation, which abstracts and idealises the physical realities of the park itself.

Another common criticism levelled at the theme park is the way it configures the human being to act. They conform to a script written by the designers to give uniform experiences that guests must absorb passively while it requires excessive emotional performances by its employees to bring the magic alive.[8] The question remains: who gets to decide what is an acceptable performance and who can make a meaningful impact on the site of the park? As theatre scholars opine, "the greatest tension in immersive Disney lies in the question of how much agency the tourist

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6. Priscilla Hobbs, *Walt's Utopia: Disneyland and American Mythmaking* (Jefferson, North Carolina: McFarland & Company, Inc., 2015), 38.

7. Cher Krause Knight, *Power and Paradise in Walt Disney's World* (Gainesville, FL: University Press of Florida, 2019), 138.

8. Throughout the text, I frequently use the word "guest" to denote the holidaymaker, tourist, or parkgoer who attends theme parks. The use of "guest" was first instituted by the Disney theme parks but was soon adopted by the whole sector.

possesses."[9] Although touted as "an interactive space where the myths of the guest of the culture can come to life,"[10] theme park patrons seldom get to go wild and upend the orderly life at the park, let alone contribute to the design process.

Which begs the question: who gets to build a theme park and design rides—these most costly of cultural forms—and how would it change if the right tools were given to the hands of the ticket holders? Ironically enough, computer games might just provide a key piece to this puzzle. In 1994, Bullfrog's *Theme Park*[11] gave users the option to create virtual theme parks, but besides laying down paths and placing rides and tracks, these business simulations challenged players to make their parks financially viable, too.[12] Juggling loans and employee wages, purchasing stock for ice-cream vendors and hamburger stalls, setting ride prices and providing amenities such as restrooms and first aid stations, theme park construction and management games have given players the keys to both the kingdom and the boardroom at the same time. Although bilking guests for every last penny has its charms, staying in the black was never the most entertaining portion of these games—the big promise was that you got to design your own rides and scenery. In the most literal fashion, games like *Rollercoaster Tycoon* (*RCT*) (1994) [13] brought the theme park medium to its apotheosis, proving Scott A. Lukas right when he observed that "theme park architecture is no longer merely a form of representation, it is *you*—the most intimate of all cultural possibilities."[14] That is to say, theme park architecture taps into the affective ecology of patrons' ideological subconscious, activating perennial (and perennially

9. Jennifer A. Kokai and Tom Robson, "You're in the Parade! Disney as Immersive Theatre and the Tourist as Actor," in *Performance and the Disney Theme Park Experience: The Tourist as Actor*, ed. Jennifer A Kokai and Tom Robson, (Cham: Springer International Publishing, 2019), 15. https://doi.org/10.1007/978-3-030-29322-2_1.

10. Hobbs, *Walt's Utopia*, 4.

11. Bullfrog Productions, *Theme Park*, Bullfrog Productions, MS-DOS, 1994.

12. For an extended discussion on implementing the business logic of the theme park, see Makai Péter Kristóf, "Three Ways of Transmediating a Theme Park: Spatializing Storyworlds in Epic Mickey, the Monkey Island Series and Theme Park Management Simulators," in *Transmediations: Communication Across Media Borders* (New York: Taylor and Francis, 2019), 164–85. https://doi.org/10.4324/9780429282775-9.

13. Chris Sawyer, *Rollercoaster Tycoon*, Hasbro Interactive, Windows, 1999.

14. Scott. A. Lukas, *Theme Park* (London: Reaktion, 2008), 141, emphasis added.

exploitable) associations with childhood, neotenic shapes, imagined storybook worlds, and novelty architecture in a space that is easily readable and semiotically overdetermined by their association with popular cultural representations of the self-same story structures.

These are the possibilities that the rest of the chapter will explore in greater detail. I hope that, by the end, I can impress upon the reader that playable and designable theme parks create new expressions of the virtual interiorities of this "you," the theme park designers living in us. To do so, I shall begin by outlining what I take the theme park to mean in an intermedial perspective, focusing on our present understanding of "theme" as a unit of meaning that governs the logic of the park. I then proceed to lay down the methodological approach that I will use to make sense of the migration of the theme park from the realm of the physical to the realm of the virtual: an intermedial theory developed by Lars Elleström and his colleagues.[15] I then proceed to analyse *Kinect: Disneyland Adventures* (2011),[16] and how the innovative use of motion-sensing controls involves the player's body in the virtual world of Disneyland, circa 2011. Here, I note how the relatively faithfully recreated exterior landscapes and architecture of the park contrast with the wildly imaginative ludic spaces of the interiors of the rides to make the experience less like a *Defunctland VR* experience and more like an interactive game. Next, I take two modern renditions of the theme park building genre of games, *Parkitect* (2018),[17] and *Planet Coaster* (2016),[18] and first describe them as interactive challenges, then as tools of creativity. As games, I look at the business management aspects that are missing from the likes of *Disneyland Adventures* but are essential to scenario play, which is how most players encounter the software, and I examine the challenge structure and actual creations, which hint at how certain themes are encouraged by the developers to be constructed. Then I showcase how players

15. Lars Elleström, "The Modalities of Media II: An Expanded Model for Understanding Intermedial Relations," in *Beyond Media Borders, Volume 1 Intermedial Relations among Multimodal Media* (London, England: Palgrave Macmillan, 2021), 3–91. https://link.springer.com/chapter/10.1007/978-3-030-49679-1_1.

16. Frontier Developments, *Kinect: Disneyland Adventures*, Microsoft Studios, Xbox 360, 2011.

17. Texel Raptor, *Parkitect,* Texel Raptor, Windows, 2018.

18. Frontier Developments, *Planet Coaster*, Frontier Developments, Windows, 2016.

distill the essence of the theme park when they are given free rein and use the software as a design tool. I discuss how players recreate Disney theme parks—what they keep intact and what they excise—by making recourse to YouTube videos uploaded by players eager to show off their creations, sometimes years in the making. Finally, I tie it all together with a theoretical synthesis of how the intermedial adaptation of physical theme parks into game spaces abstract, customise, and thereby change our thinking of what themed spaces mean for us, in the hope that it will be a source of inspiration to all creators and creators-at-heart.

Themes are my Reality: Defining Themes and Parks Intermedially

The goal of this chapter is not to provide a thorough historical genealogy of the theme park and its antecedent forms, which has been meticulously researched by more capable scholars.[19] For the purposes of this study, I take theme parks to be in their mature forms today, constituting a cross-culturally recognised medium, or rather, an intermedial complex. Therefore, I employ a presentist perspective, investigating how the parks function today.

The theme park is first and foremost an architectural form,[20] using landscaping and the built environment to convey abstract, culturally encoded meanings that situate the guest in physical virtual spaces. Similarly, video game design entails the creation of digital virtual spaces through architectural means.[21] In fact, scholarly discourse on parks frequently uses terminology usually reserved for video games these days, such as

19. Lukas, *Theme Park;* Deborah Philips, *Fairground Attractions: A Genealogy of the Pleasure Ground* (London: Bloomsbury Academic, 2012); Terence Young and Robert B. Riley, *Theme Park Landscapes: Antecedents and Variations*, (Washington, DC: Dumbarton Oaks Research Library and Collection, 2002).
20. Karal Ann Marling, *Designing Disney's Theme Parks: The Architecture of Reassurance* (Paris: Flammarion, 1997).
21. Espen Aarseth, "Allegories of Space: The Question of Spatiality in Computer Game," in *Space Time Play: Computer Games, Architecture and Urbanism: The Next Level*, ed. Friedrich Von Borries, Steffen P. Walz, and Matthias Böttger (Berlin: Birkhäuser, 2007), 44–47; Christopher W. Totten, *An Architectural Approach to Level Design* (Boca Raton, FL: CRC P., 2019); Friedrich Von Borries, Steffen P. Walz, and Matthias Böttger, *Space Time Play: Computer Games, Architecture and Urbanism: The Next Level* (Berlin: Birkhäuser, 2007).

simulation[22] and virtual reality,[23] when talking about the power of the parks to immerse their guests and "transform the whole city into an immense robot."[24] Matthew Wilson Smith describes theme parks as "total works of art that seek to recapture a lost harmony with the natural world through the medium of virtual simulacra."[25] Likewise, critics recognize the centrality of architecture to make such experiences possible, claiming that "architects and urban planners were among the first to celebrate Disney's simulations for their substance instead of surface value."[26] Cher Krause Knight even highlights that the designers of Disney theme parks, the Imagineers, "describe their work as 'an extreme example of immersive entertainment' blending virtual reality and fantasy."[27]

With all this discussion, readers would be forgiven for thinking that the "theme" in "theme park" means the medium's capacity to immerse their patrons in recreations of other worlds. Yet, this notion is only tenable in the short run. As Lukas observes, the use of themes to organize space originates from world's fairs, distinguishing them from other landscaped mass entertainment venues.[28] Today, in themed entertainment, "a central idea or theme is used to create associations between the space and the guest. . . . It can also be seen as a form of storytelling that takes place in a three-dimensional world, [where] the designer acts as a storyteller and creates settings, characters, action"[29] for giving guests a unique narrative

22. Jean Baudrillard, *Simulacra and Simulation,* trans. Sheila Faria Glaser (Ann Arbor: University of Michigan Press, 1994).

23. Marie-Laure Ryan, *Narrative as Virtual Reality* (Baltimore: Johns Hopkins University Press, 2001), 288–290.

24. Umberto Eco, *Travels in Hyperreality: Essays*, (San Diego and London: Harcourt Brace Jovanovich, 1986), 47.

25. Matthew Wilson Smith, *The Total Work of Art: From Bayreuth to Cyberspace* (New York: Routledge, 2007), 186.

26. Knight, *Power and Paradise,* 22.

27. Ibid., 100.

28. Lukas, *Theme Park, 34.*

29. Scott A. Lukas, *The Immersive Worlds Handbook: Designing Theme Parks and Consumer Spaces* (New York: Focal Press, 2012), 68.

experience. When Henry Jenkins discusses game design as a form of narrative architecture, he specifically refers to theme park ride design as an important analogy for their facility of creating evocative spaces for stories.[30]

No matter how theorists approach it, theming is always multisensory and intermedial, operating "through multiple architectural, cognitive, cultural, performative and aesthetic levels"[31] to produce "a sort of three-dimensional, moving, multi-sensory cabinet of curiosities."[32] And every cabinet of curiosity has an interior, at least figuratively. Among theorists of urban space, the notion of "public interiority" has gained acceptance as a way of discussing even open-air spaces as having some sense of virtual interiority. Teston claims that it is possible "to have a place that feels like an interior, without the constraints of architectural form. Or an interior-feeling place that is primarily delineated by atmospheres, and merely supported by architectural form."[33] The latter, to my mind, is as good a definition of a theme park as any. In Teston's thinking, these interior-feeling places are separated by invisible planes, and we could easily associate themed "lands" with these virtual interiors, whose imaginary boundaries form "a membrane between interiority and exteriority only understood through the haptic senses,"[34] for example, by passing through the walkways separating Adventureland from Frontierland. The dual nature of inside and outside is also touched upon by J. P. Telotte. In his exploration of Walt Disney's contribution to the 1964–65 New York World's Fair, he remarks that Francesco Casetti names the "immersive gaze that gives the impression of being inside the seen world, but which at the same time maintains the sense of distance" as a lasting legacy of 20th century modernity.[35] Such a liminal conception of living cinema

30. Henry Jenkins, "Game Design as Narrative Architecture," in *First Person: New Media as Story, Performance, and Game*, ed. Noah Wardrip-Fruin and Pat Harrigan, (Cambridge, MA: The MIT Press, 2004), 123–124.
31. Lukas, *Theme Park,* 70.
32. Lukas, *Theme Park,* 73.
33. Liz Teston, "On the Nature of Public Interiority," *Interiority,* no. 3 (January 2020), 62.
34. Teston, "Public Interiority," 75.
35. J. P. Telotte, "Disney and 'This World's Fair Thing,'" in *Meet Me at the Fair: A World's Fair Reader,* eds. Laura Hollengreen, Celia Pearce, Rebecca Rouse, and Bobby Schweizer (Pittsburgh, PA: ETC Press, 2014), 421. https://doi.org/10.1184/R1/6686831.v1.

is a part of theme parks' mission statements: to create a spect-actor-ial space where guests can marvel at the virtual interiors of the various lands—inside the park, among 3D film sets, but out in the fresh air and at its rides—inside a building which often gives the impression of the outside world, but where the guests maintain a safe distance from the illusion of the designed world. This is what Lukas calls the "amusement park world picture," a representational regime of juxtaposition of otherwise incongruous elements, made possible by the medial affordances of the park, in which "an order of synaesthetic potential was created" through "movement and architectural performance."[36]

Themes are therefore intermedial assemblages that use different modalities of media—as interpreted by guests—to foster participation in an ever-evolving, but oftentimes heavily scripted, performance of guests and employees, with cues taken from exotic places, popular cultural genres, and intellectual property franchises, to construct environmentally embedded stories, which guests desire to experience. In this definition, I rely on Lars Elleström's updated model of intermediality[37] with which we can describe the theme park as a qualified medium. They are historically situated, spatially expansive, commercial built environments for the purposes of entertainment, segmented as architecturally distinct lands. Temporally, they are designed for visits lasting from days to a week, usually, with individual rides optimized for 10 to 30-minute shows. Materially, they utilize every known medium to create three-dimensional environments through landscaping and architecture that is more coherent at the local level but more incongruous on the park level. Sensorially, they deliver audiovisually and kinaesthetically cued storytelling with appropriate olfactory, gustatory, and haptic stimuli which congeal into a semiotic unity—the theme—activating guests' prior experiences and expectations with the semiotic field being communicated to give a framework for the reception of the themed environment.

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36. Lukas, *Theme Park,* 54.
37. Elleström, *Modalities and Media II.*

Note that, due to the fact that the intermedial model is most capable of working with qualified media that depend on a clear delineation between creator and audience, one aspect that is curiously undertheorized is the performative or agential aspect of media reception, or co-creation. However, the agency of the interactor is central to games of various guises, which prompted theorist Ida Kathrine Jørgensen to further develop the intermedial model by including an agential modality, described as "the way in which the game (and all its modalities) is experienced, interpreted and performed by an agent (the player, the spectators, etc.)," which enables her to highlight "the set of actual actions that the player performs during the game."[38] This will be essential when we begin our discussion of how the potentialities of video games are being utilized by players to rehearse and reconfigure received notions of what constitutes a theme park. However, she is quick to stress that all media objects are operated somehow, and that the agential aspect is complemented by embodied and mental aspects of interaction.[39] This is all the more important, even for physical parks, because "in the modern theme park the corporeal machines . . . are minimized. The effects of amusements on the body [. . .] are lessened in favour of effects on the mind."[40] Clearly, this extends to the video game theme park, which does not offer the same kinaesthetic thrills as an actual roller coaster, nor the splash of the water waiting at the bottom of a drop on a dark ride or the smell of gasoline on a fake submarine. Even so, I claim that the computer game's theme park allows a unique opportunity for players to embody a virtual avatar in the gameworld and see the theme park from below or to take up the mantle of the Imagineer and design it from above. By these modes of engagement, players experience and reenact themes as narratives, as playable architecture,

38. Ida Kathrine Hammeleff Jørgensen, "Games as Representational Artifacts: A Media-Centered Analytical Approach to Representation in Games" (PhD thesis, IT-Universitetet i København, 2020), 178. https://pure.itu.dk/portal/en/publications/ games-as-representational-artifacts(046bb469-1582-404b-8f3c-62de5836d3f5).html.

39. Jørgensen, "Games as Representational Artifacts," 180.

40. Lukas, *Theme Park,* 133.

and at the same time, as an idealized space of entertainment where the friction of the real world is assumed to be nil. It is with these nuances in mind that I now turn to the vexed question of passivity and agency in theme park criticism.

VRing off the Script? From Total Passivity to Algorithmic Agency

Architecture is not the only thing that performs at theme parks, although clever mechanical manipulation of the built environment does make inanimate objects appear to perform, as do life-like hydraulic and pneumatic robots. In fact, the classic postmodern criticism of Disney is that it is "a place of total passivity. Its visitors must agree to behave like its robots."[41] Partly due to health and safety regulations, the cultivation of middle-class civility, the desire for ensuring maximum throughput of rides, and the sheer volume of visitors that must be entertained in a theme park, standard codes of conduct and a high degree of formalisation of behaviour is essential to run a park smoothly. This choreographic algorithmization of behavior reaches its pinnacle within theme park video games.

In these games, simulated guests run on rather simple scripts, functioning essentially as tiny robots of consumption within the virtual world. A notable example of this is pathfinding behaviour. In *RCT 2*, when guests reach an intersection, they choose their path randomly. As YouTuber Marcel Vos illustrates, this results in the guests' mind-boggling ineptitude to reach the ends of a simple ten-tile maze, provided that they are given a simple left-hand, dead-end turn at every tile possible, due to the quirks of the pathfinding algorithm.[42] These virtual guests are rather stupid: a thousand might queue up for one ride at a time;[43] they will

41. Eco, *Travels in Hyperreality*, 48.

42. Marcel Vos, "RollerCoaster Tycoon 2 - The Impossible Maze," uploaded on July 31, 2020, YouTube video, https://www.youtube.com/watch?v=KVgoy_a_gWI.

43. Marcel Vos, "1000 Guests, 1 Queue Line," uploaded on June 17, 2021, YouTube video, https://www.youtube.com/watch?v=xwd48VEnptI.

eagerly hop on a ride that goes on for twelve in-game years;[44] they don't notice the deaths of fellow patrons; and board rides with exits leading to nowhere.[45] Of course, animated robots serve a different function on dark rides in real-life parks, acting as pseudo-protagonists, but Cornfeld's suggestion that "perhaps the pleasure of encountering Audio-Animatronic actors stems from the sense of a cinematic experience rendered as a three-dimensional environment on its own terms, unburdened by any semblance of personal control"[46] also applies to video game guests. The virtual guests have an autonomous AI, and pleasing their simple, code-driven hearts is the only true way to beat game scenarios. They are nonetheless passive in the sense that they are utterly inflexible in how they execute their program; while Audio-Animatronic robots on rides "perform perfection,"[47] in-game guests in theme park management simulators can only be said to be perfect performers in the sense that they adhere to their scripts to their literal deaths.

However, recent scholarship also highlights that the deterministic vision of the theme park as a machine of rote conformism does not stand up to scrutiny when investigated through the lens of the actual guests. Commentators note that there has been an increasing demand for agency in the parks, and patrons want to "indulge in fantasies in the parks and affect the space by playing in the staged/themed environments."[48] Agency is always negotiated by patrons, operators, and management, however. Unlike earlier forms of total artworks, "at Disneyland the active involve-

44. Marcel Vos, "[Former record] RCT2 - 12 Years Of Suffering - Longest roller coaster ever created," uploaded on December 18, 2018, YouTube video, https://www.youtube.com/watch?v=CFVm5R_dxoo.

45. Marcel Vos, "RCT2 - How to kill your guests without losing park rating," uploaded on September 6, 2019, YouTube video, https://www.youtube.com/watch?v=faMFM3QervQ.

46. Li Cornfeld, "'Have to See It, Yet Boring': Disney's Robot Dramas Revisited," in *Performance and the Disney Theme Park Experience: The Tourist as Actor*, eds. Jennifer A. Kokai and Tom Robson (Cham: Springer International Publishing, 2019), 167, https://doi.org/10.1007/978-3-030-29322-2_8.

47. Joseph R. D'Ambrosi, "The Search for a Great, Big, Beautiful Tomorrow: Performing Utopia with Non-Human Bodies in the Hall of Presidents," in *Performance and the Disney Theme Park Experience: The Tourist as Actor*, eds. Jennifer A. Kokai and Tom Robson (Cham: Springer International Publishing, 2019), 179, https://doi.org/10.1007/978-3-030-29322-2_9.

48. Victoria Pettersen Lantz, "What's Missing in Frontierland? American Indian Culture and Indexical Absence at Walt Disney World," in *Performance and the Disney Theme Park Experience: The Tourist as Actor*, eds. Jennifer A. Kokai and Tom Robson (Cham: Springer International Publishing, 2019), 45, https://doi.org/10.1007/978-3-030-29322-2_3.

ment of the audience in the interior of the theatre is greatly increased. . . . The journeys between the lands within Disneyland became active spatial stories, and the spectators essentially actors in the spectacle itself."[49] However, acting is not the same as agency. Acting is the action of performing, of engaging in make believe; agency in digital environments implies "the satisfying power to make meaningful choices and see the results of our actions and decisions."[50] Within a theme park space, however, "guests may join in the story if that interaction falls within the performance boundaries. People are encouraged to perform the role of park guest but must adhere to the scripts and boundaries of that role."[51] More substantially, guests cannot design rides themselves (although fans may lobby for or against changes),[52] nor can they change park operations to better suit their needs on a whim. This power is left to be enjoyed in virtual theme parks, designed for a single player rather than a million guests.

The rides are also castigated by postmodern cultural critics for their ersatz nature and illusory qualities. Even so, "Disney's simulations are not just illusions—they are physical environments that we can enter, touch, and move around in, designed to be as fully interactive as possible,"[53] within the means of health and safety regulations. And guests can often take a peek behind the scenes when rides break down and they are evacuated, seeing the ride as a walkthrough attraction without all the trappings of carefully controlled viewpoints.[54] By using night vision cam-

49. Wilson Smith, *The Total Work of Art*, 126.

50. Janet Horowitz Murray, *Hamlet on the Holodeck: The Future of Narrative in Cyberspace* (Cambridge, MA: The MIT Press, 2017), 123.

51. Maria Patrice Amon, "The Royal Theatre Presents: Echoes of Melodrama in the Magic Kingdom," in *Performance and the Disney Theme Park Experience: The Tourist as Actor,* eds. Jennifer A Kokai and Tom Robson (Cham: Springer International Publishing, 2019), 207, https://doi.org/10.1007/978-3-030-29322-2_3.

52. Notable studies of the power of fans to change the parks include Rebecca Williams, *Theme Park Fandom: Spatial Transmedia, Materiality and Participatory Cultures* (Amsterdam: Amsterdam University Press, 2020) and Priscilla Hobbs, ed., *Interpreting and Experiencing Disney: Mediating the Mouse* (Bristol, Intellect Ltd: 2022).

53. Knight, *Power and Paradise*, 99.

54. Innovention Media, "Lights On Evacuation Walkthrough Haunted Mansion | Walt Disney World 2019," uploaded on July 13, 2019, YouTube video, https://www.youtube.com/watch?v=kN4FD1035aw.

eras to highlight the technology behind the magic,[55] guests thereby discover the differences between its actual and virtual interiorities. It is not incidental that scholars emphasize that "through new technologies, the whole of the park going experience is being slowly transformed into a 'theme park for one,'" a trend culminating in the theme park video game, which has "remediated the theme park's experience into a world centred around [guests'] individual agency."[56]

In a game like *Kinect: Disneyland Adventures* or *Epic Mickey* (2010)*,*[57] players do not just move about the parks, but actively engage with the virtual environment, destroying and creating elements of the rides. In park management simulators, they design the layout of the parks, the rides, hire the employees, tend to marketing and custodial costs, as well as manage guest expectations. And yet, even the more freeform games promote a particular logic of play through procedural rhetoric[58] and they often guide the player through the experience in a design principle known as "scripting the interactor."[59] Furthermore, because of the non-trivial, often repetitive effort required to progress through the game, gameplay might actually feel suspiciously similar to work, or what you might call "playbour."[60] Theme park management sims, after all, put you in the place of someone with an actual job (or rather, several, including ride designer, HR manager, landscaper, chief financial officer, and more). You could make the case that game design is just cleverer at hiding the invisible walls that delimit an agent's performance.

55. Ithemepark, "Space Mountain Front Row Nightvision HD Magic Kingdom Walt Disney World," uploaded on March 21, 2013, YouTube video, https://www.youtube.com/watch?v=4N0otrMuh7E.

56. Bobby Schweizer, "Visiting the Videogame Theme Park," *Wide Screen* 6, no. 1 (2016), 27, http://widescreenjournal.org/index.php/journal/article/view/99/132.

57. Junction Point Studios, *Epic Mickey,* Disney Interactive Studios, Wii, 2010.

58. Ian Bogost, *Persuasive Games: The Expressive Power of Videogames*, (Cambridge, MA: MIT Press, 2007), 1–64.

59. Josephine Anstey and Dave Pape, "Scripting the Interactor: An Approach to VR Drama," in *Creativity and Cognition: Proceedings of the 4th Conference on Creativity & Cognition* (2002), 150–56. https://doi.org/10.1145/581710.581733.

60. Julian Kücklich, "Precarious Playbour: Modders and the Digital Games Industry," *Fibreculture Journal* 5, (2005), https://five.fibreculturejournal.org/fcj-025-precarious-playbour-modders-and-the-digital-games-industry.

Nowhere is the clash between environmental storytelling and agency more strongly felt than in the dark ride. As Sorkin recognizes, Disneyland and its dark rides offer "a space in which narrative depends on motion, and in which one is placed in a position of spectatorship of one's own spectatorship."[61] In this view, dark rides are immersive, but not interactive—they convey a set of virtual interiors to riders without the opportunity to step out of their spectatorial position, but they continually address patrons *qua* patrons ("Welcome, foolish mortals!", "Ye come seekin' adventure and salty old pirates, eh?"). It is not for nothing that more deterministic theme park criticism focuses on the individual rides while its authors argue for the passivity of the patron and opt for contextual and historical readings when they discuss lands, since guests enjoy a greater degree of freedom when exploring on foot.[62]

But the dark ride is notable for being the purest example of virtual interiority, as it "achieves the otherworldly by locking people inside another world and by detailing this world through special effects and interior design."[63] Despite their apparent lack of interactivity, ride designers attribute metaphorical agency to the riders, and discuss the guest's position in explicitly ludic terms. In John Hench's words, "we offer adventures in which you survive a kind of personal challenge . . . But in every case, we *let you win.*"[64] This liminal and ludic position is picked up on by game scholars, too, who note that rides like Jurassic Park are "essentially a giant computer-driven machine for telling an immersive story, and the boat is the fourth wall,"[65] or perhaps better put: the interface which connects riders and the immersive world.

61. Michael Sorkin, *Variations on a Theme Park: The New American City and the End of Public Space* (New York: Hill and Wang, 1992), 217.

62. Three classic examples of this are found in Jean Baudrillard's *Simulacra and Simulation* (Michigan: Ann Arbor - University of Michigan Press, 1994), Umberto Eco's *Travels in Hyperreality: Essays* (San Diego; London: Harcourt Brace Jovanovich, 1986), and Stephen Fjellman's *Vinyl Leaves: Walt Disney World and America* (Boulder: Westview Press, 1992).

63. Lukas, *Theme Park,* 124.

64. Charlie Haas, "Disneyland is Good for You," *New West Magazine*, December 4, 1978, https://www.dix-project.net/item/1633/new-west-magazine-disneyland-is-good-for-you.

65. Janet Horowitz Murray, *Hamlet on the Holodeck: The Future of Narrative in Cyberspace* (Cambridge, MA: The MIT Press, 1998), 107.

Today, rides and lands are often imaginative, essentialized, and stylized recreations of iconic buildings and culture, which are cognitively remapped through design to evoke particular associations. As antecedents, world's fairs often experimented and tested rides and themes before they found their places in the parks. Thus, a form of "entertainment intertextuality"[66] emerged, and this tradition continues with the remediation of physical rides and lands in the virtual world of computer games. This cuts both ways: if the recent opening of Super Nintendo World in Universal Studios Japan, and World Joyland in Changzhou are any measure, video game-themed parks are also capitalising on such intertextuality.

So, what happens when actual theme parks are recreated in a digital format? To answer that question, I use the remainder of this chapter to critically analyse several games. I investigate *Kinect: Disneyland Adventures* for how it recreates the guest's experience and remodels the physical rides to become more interactive. Then I move on to discussing two contemporary theme park management simulators, *Parkitect* and *Planet Coaster*. First, I describe them in terms of game mechanics (i.e., what a player can do in them) and its models of simulating the park as a business. Then I examine them as architectural design tools for the creation of replica parks, whereby players strategically include and omit particular elements of theme park design to realize their vision of what the essence of the park is.

Before we begin, I want to indicate that the analysis of theme park games provides a great example of what Golding has termed "spatial analysis from below [and above],"[67] a concept he uses to name the two vantage points of how players and theorists look at a game. In his discussion of first-person and isometric birds-eye-view games, he compares the players to the city walker of Michel de Certeau, and insists that "theory which instead finds itself at the perspective of the bureaucrat, looking down

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66. Lukas, *Theme Park,* 33.
67. Daniel Golding, "Putting the Player Back in Their Place: Spatial Analysis from Below," *Journal of Gaming and Virtual Worlds* 5, no. 2 (2013): 117–30, https://doi.org/10.1386/jgvw.5.2.117_1.

on the videogame 'from above', can never fully account for this point."[68] Players see the theme parks they build in *Planet Coaster* and *Parkitect* from above, where "the city starts to look a little bit more like a map" and where "we can encounter the city as a concept. . . . It is the vision empowered by a dispassionate critical distance; it is to see patterns and flows,"[69] which is indeed necessary to construct rides, lay down paths, and to provide homogenized fun for little computer people. Spatial analysis from above focuses on the conceptual analysis of video game spaces, whereas analysis from below investigates these spaces from the perspective of its users. Notably, players explore *Disneyland Adventures* from below—the eye height of the parkgoer. Likewise, spatial analysis from below begins with approaching the game from the toolkit of the player and what is available for her to do. This also implies that "if you alter the toolset available to the player, you also alter the space itself."[70]

To illustrate with just a couple of quick examples, without a way to height-map various game objects, a rollercoaster could not be constructed in a gameworld. Similarly, when the player avatar is a parkgoer, you can interact with characters in a gameworld on a more personal, meaningful level, whereas in a top-down, god's eye view, distance forbids such personal engagements. Some games will allow you to place new objects in the gameworld; others will only allow you to navigate around existing objects. Some building games bid you to manage your shops' stock and sales prices, while others only allow you to fiddle with ride and gate prices—this changes how you approach making money in the game. And finally, earlier games would only let you design the exterior structures and spatial arrangements of buildings, while newer games, like *Planet Coaster*, enable you to create elaborate dark rides with interior design. In fact, this is what I endeavour to show: that by looking at an open-world, arcade-style game like *Disneyland Adventures* and a business

68. Ibid., 119.
69. Ibid., 119–121.
70. Ibid., 125.

management-style game such as *Parkitect*, the theme park itself changes what it means and how it enables the construction of the virtual interiors of the park. It is with this thought in mind that I turn to the joys of virtual tourism in *Disneyland Adventures*.

See Everything, Ride Everything, Collect Everything—The Theme Park in Motion in Kinect: Disneyland Adventures

The Kinect was meant to be a revolutionary platform to rival the achievements of the Nintendo Wii and the PlayStation Move for the PS3, designed to bring full-body motion control to games. Essentially, a Kinect device detects the player's posture and body movements and maps them onto an in-game avatar, which performs them in the virtual world. If a person jumps in the living room, the avatar jumps in the game. This amounts to many of the Kinect games utilising corporeal motions like slashing, jumping, swinging, posing, crouching for their main game mechanics. Sports and fitness games and action-adventure titles dominate the motion-control game market, but many game studios have used the platform more innovatively.

Among them is *Kinect: Disneyland Adventures* (*KDA*)*,* published in 2011 and ported to Windows in 2017 as *Disneyland Adventures*, marries the motion-control mechanics with a life-sized recreation of the first Disney park. The player is put in the role of an average park-loving girl or boy who gets to explore Disneyland without adult supervision, meet forty-three beloved characters and ride nineteen iconic rides, as well as collect autographs, postcards, and pins. The external layout of the park is largely faithful to how the park stood at the time, minus the intellectual properties Disney did not control then (which they have since acquired). However, the virtual rides differ substantially from the original attractions, essentially functioning as minigames with different stages that rework the tableaux and characters of their sources. The player is actively involved in the minigames, and the levels "reposition them as a special actor who is a participant (not just observer) in the story of the ride."[71]

71. Schweizer, "Visiting the Videogame Theme Park," 22.

Besides copyright issues, one of the key reasons why the digital recreation differs from the physical parks is that the lack of materiality and the single-player experience removes crucial elements from the dark side of the theme park experience. For example, there is no need for a "lost parents" or "lost and found" section, because the player cannot be lost in the virtual park or separated from loved ones and personal belongings (your inventory is always safely with you). And since nothing biological is simulated in *KDA* either, there is no need to model things like toilets, first aid stations. Even rubbish bins and manhole covers are only included to exude free coins (even if both the guest's biological needs and their rubbish are simulated in other games like *Rollercoaster Tycoon*). Thus, we can see a quite literal sanitization of the theme park here. In the remediated rides, we have good examples of the difference between what Daniel Punday calls "primary spaces," the spaces the player accesses and acts upon, and "orienting spaces," those that are more abstract parts of the game world, serving as backdrops and context for action.[72] A major trend in transmediating rides for digital games is the expansion of these orienting spaces. For example, the physical Space Mountain in Disneyland is nothing more than a wild mouse roller coaster that players ride entirely in the dark. In contrast, the *KDA* version splits the attraction into two levels with a massive orienting space—"Journey through Space"—which has you ride a hovercraft through a psychedelically-coloured representation of space, collecting coins, meeting aliens, passing by an asteroid field, red giants, a black hole, and a Space Junkyard, in which you weave your way through a space station filled with robots. Granted, the main challenge lies in navigating along a fixed path. The primary space has a limited degree of freedom (which is still greater than the narrow confines of a physical ride), just enough to avoid obstacles that hurt and slow down the player as they progress inexorably towards the end of the run. The physical ride has very little voice-over, whereas the game version gives you an AI companion, who comments upon the tasks you need to do and provides more sci-fi ambience.

72. Daniel Punday, *Playing at Narratology: Digital Media as Narrative Theory* (Columbus, OH: Ohio State University Press, 2019), 54.

On Disneyland's it's a small world, riders sit in a boat as they listen to children of the world sing the theme song. In *KDA*, it's a small world is more involved: you need to make rotating motions to row your boat gently down the stream and meet characters, which then perform a little dance you must imitate—not unlike the gamified mimicry of *Guitar Hero* (2005) or the famous electronic sight and sound game, *Simon* (1978). Foregoing the physical, spatial journey of a flume ride, the game version still features its original 1964–65 New York World's Fair cardboard-cutout aesthetic, as exotic backgrounds dip in and out of frame, realising a world tour that is even more virtual than the Disneyland ride. The primary space is still very confined here, barely enough for the player to perform dance moves, but more importantly, the orienting space is completely flattened, merely hinting at spatial relations, but using the semiotic channel to signal various cultures reductively but effectively.

By way of a final example, Big Thunder Mountain Railroad is a runaway mine train roller coaster featuring an elaborate queue area that tells a tale of the wild west and the gold rush and prepares the riders for a mad dash through a canyon and a frontier outpost. The ride features no characters and little narrative, whereas in *KDA*, the attraction queue is replaced by a cutscene with a ghost miner who serves as the narrator of the minigame. Unlike the ride, the game's version allows players to switch tracks and thereby find secret Mickeys as well as set off explosions, and the whole minigame is woven around the story of the player rescuing a runaway train by riding and pumping a handcar and jumping onto a train to reach the locomotive. The two segments can be played in fifteen minutes, which, while shorter than the original ride, is in close vicinity to several other rides in the parks, particularly the seventeen-minute-long Pirates of the Caribbean ride. However, the space that the handcar and the train travel far surpass that of the Disney roller coaster—a feat only possible because of the virtuality of the game. These three examples might be enough to highlight the greater, but still circumscribed, degree of agency the player gets on the digital version of the dark rides while also showcasing the greatest strengths of these environments, i.e., that they do not have to obey the law of physics and materiality to construct worlds of the imagination.

When we consider Golding's spatial analysis from below, we must recognize the utter centrality of the player to the virtual interiority of the park, since the game, like many others of their ilk, "sells the ultimate dream of entertainment personalization: no lines, immediate access, and a place that magically revolves around the visitor."[73] Exploring the park and navigating its obstacles becomes the primary joy of play, and it is evident that the main privilege of playing the game is being in the park as the centre of action. There is a cybernetic feedback loop of navigation and discovery, as "this world is designed to be seen but the actions that cause particular parts of the world to be revealed are those of the player."[74]

Curiously, Lukas discusses the theme park as a "narrative machine," with lands that make patrons "take on a new relationship to architecture and landscape."[75] That relationship is one of expected give and take: it is an interaction that yields to the desires of the player and the parkgoer, who is enticed to buy, photograph, and collect the experience, and to *KDA*'s credit, the game faithfully adopts these very literal aspects of virtual tourism to remind the visitors of the intended use of the Disney parks. You can take photographs with the characters, collect their autographs, and buy merchandise with the virtual money you earn by riding the rides.

Both in the physical and the digital park, architecture and landscape serve and delight the customer by co-opting their agency for furthering the narrative logic of the theme park, that of adventure, extraordinary stimuli, and carefree spending in an environment that takes them elsewhere. Although the "outside" land vs. "inside" rides distinction exists in both, whether built by bricks or bits, Disneyland is a virtual interior that is controlled by the designer to let the player roam freely—within boundaries. In fact, the only time that the virtual exteriority (understood here as a space or moment in time when the carefully constructed image of virtual interiority breaks down) rears its ugly head is when the programming of the game goes awry: glitches and bugs sometimes result in animated characters not speaking their dialogue lines, buildings blinking in

73. Schweizer, "Visiting the Videogame Theme Park," 22.
74. Punday, *Playing at Narratology*, 108.
75. Lukas, *Theme Park,* 105.

and out of existence due to Z-fighting, textures not loading, and players falling through supposedly solid floors. Hopefully, these are only minor inconveniences most of the time, but they do lay bare the artificiality of the simulation, and the player's avatar may even end up being literally outside of the simulated space.

Lowering the Visual (Safety) Bar to Protect the Magic: ImagineFun's Recreation of Disneyland

Few video games have burst onto the scene quite as spectacularly as Swedish independent developers Markus Persson and Jen Bergensten's *Minecraft*.[76] As of early 2022, it is the best-selling video game of all time, with over 230 million copies sold, and it sparked a movement that empowered creators to play around with what is essentially a digital version of LEGO®. Created in extremely low-resolution voxels, *Minecraft* is (originally) a survival and building game that is so versatile as to be almost Protean in its applications: the game has the capability to represent biospheres; its architecture can be built with the use of Redstone ore; and its simulation of circuit boards enable young people to experiment with electrical engineering and even build their own computer within *Minecraft*.

More importantly for our purposes, *Minecraft* even allows the creation of full-fledged theme parks, including the ImagineFun company's recreation of Disneyland on a dedicated *Minecraft* server.[77] A stunning achievement by any measure, the meticulous modelling is recommendable especially for its efforts to strike a balance between the hyperrealistic artistry of the original Imagineers, and the decidedly austere visuality afforded by the voxel-based graphics of *Minecraft*. Like the parks themselves, the server is constantly being "plussed," i.e., updated to reflect development, with new rides being announced in places like the ImagineFun YouTube channel that also hosts 360° videos of some of the most famous attractions as teasers for the real thing. Another aspect in which ImagineFun's creation mimics the original parks is the service: since the

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76. Markus Persson and Jen Bergensten, *Minecraft*, Mojang Studios, Windows, 2011.
77. ImagineFun, Minecraft Server, mc.imaginefun.net, 2018–present.

ImagineFun server is open to all comers, the company has "employed" four Imagineers, three managers, seven developers, two builders, four park operators, seven park coordinators, twenty-six cast members, and ten tour guides. These volunteers are responsible for the services rendered to ordinary parkgoers and are required to spend at least twenty-five hours per weeks in the park to aid patrons and help develop new rides for the park. And as of writing, there are twenty-seven attractions that may be boarded and eight attractions to be sampled by the distinguishing guest, including several fireworks shows.

Although the level of dedication to verisimilitude would warrant a full ethnographic account of daily life on the server, we need to satisfy ourselves with a more modest goal of surveying some key characteristics of the virtual park. In ImagineFun, the tightly constrained visual language of *Minecraft* is exploited to provide a jury-rigged, but fully immersive, recreation of park regions and rides. Although not all attractions are in place yet, the ones that do exist are located in close correspondence to their place in the real park. Likewise, custom resource and audio packs ensure that park-related visual imagery and soundscapes are in place for the full experience.

We begin our tour by noting that, unlike the real parks that require the purchasing of tickets, players who already own *Minecraft* can join the server for free, and they even earn in-server currency (penny arcade tokens, Flynn Arcade tokens, and Golden Castle tokens) for riding rides which they may spend on items on the server. Because it is player-run, the recreation is qualitatively different in nature from the more stable and fixed economies within video games: new items, such as pins, are introduced regularly and the pins vary in rarity and condition, yet another form of artificial scarcity created for the health of the in-game economy.

Let us hop onto a ride central to the Disney image, and let's try to tease apart what makes the ImagineFun version special! The ImagineFun version of The Pirates of the Caribbean ride will have to suffice for this survey. The queue area is a simplified version of the Disneyland pre-show area, and as people board, the first thing to note here is that the safety procedures are recreated in as much detail as possible: the bateaux fea-

ture security warning stickers that remind the players to keep their stubby arms inside the vehicle, and the original ride spiel is played in the background in both English and Spanish. As we proceed through the bayou scene, we begin to notice the diminished opportunities to provide dramatic lighting, but we still hear and see the banjo player before we dip beneath a non-animated skull warning us that "dead men tell no tales." Sadly, many of the atmospheric tableaux are missing, and those that are there must survive on the original attraction soundtrack to fuel our imaginations. Indeed, the ride banks on our familiarity of the original to make the experience compelling, reminding players of the tight constraints imposed upon the ride designers by *Minecraft*. As we move to the ship battle scene, fireworks are substituted for the sound of cannon fire splashing into the waves, and we see Captain Barbossa issuing the command to capture Jack Sparrow. The burning town scene is the most fully realized one so far, with many pirates (and even some chickens) animated (but not, alas, the mayor dunked in the well). The burning fort scene has fire that is arguably more convincing than the rest of the ride, but the jail scene has woefully inadequate security to keep the blocky pirates in place. Finally, as we sail past a credible Jack Sparrow surrogate, we return to the loading area.

Albeit the limitations of the visual language of *Minecraft* are easily apprehensible, many of the spatial features are preserved like when riders plunge down the waterfall and ride one up on the way back. The scenes are laid out in accordance with the recent refurbishment that pays homage to the film pentalogy inspired by the ride. Any pretensions to illusionistic scene or set design, of course, must be tempered by the geometrical determinism of *Minecraft*, but lighting effects, at least, are there to soften the harsh contours of the blocky graphics. However, the one thing that is taken wholesale from the ride is the soundtrack, which plays in its entirety. Granted, one cannot hear the fellow riders' mutterings, the splashing of the water, or indeed, the audio spill from one scene onto the next, but these all testify to the ideological image of the theme park as a purveyor of pure experience, liberated from the messiness of materiality. And if there is one instance where ImagineFun's version supersedes that

of dedicated theme park games, it is that the designers of the *Minecraft* servers had to work with much less—both geometrically and in terms of animation—than either the real-life parks or the theme park simulators we will examine next.

Planet Coaster and Parkitect's Competing Philosophies of Park Creation

Both *Planet Coaster* (2016) and *Parkitect* (2018) are continuations of pedigreed theme park game philosophies, as the former brings the three-dimensional visual spectacle of *Theme Park World* (1999) and *RCT 3* (2004) to the forefront with free-form building tools and a creator-focused approached, whereas the latter stays closer to the stylized, isometric school of *Theme Park* (1994) and *RCT 1–2*, which—while having modular construction and plenty of theming options—enables a more management-oriented gameplay. So, for example, while *Planet Coaster* might let you organize a fireworks display, create custom dark rides, and build your own fairy tale castle, *Parkitect* urges the player to consider the movement of goods, place utility corridors, and be mindful of consistent theming that factors into the guests' enjoyment of the park. But the single biggest difference is that in *Parkitect*, as in *RCT 1* and *2*, one cannot ride the rides, whereas *Planet Coaster* and *RCT 3* gave the players the opportunity to experience their creations from an on-board perspective. Both games feature a detailed campaign mode, whose scenarios challenge the players to set up a theme with end goals that often restricts their gameplay options, and a sandbox mode, which allows the player's creativity to run rampant, without a concern for money or time.

As Lukas observes, in scenario play, parks are "on the verge of disorder, and the player must restore order by attending to rides, including dispatching maintenance men to them when they malfunction,"[78] and of course, they must turn a profit. However, the main attraction is not to make a well-oiled financial machine—since it is relatively easy to do so—but rather, it is the self-expression displayed through building and

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78. Lukas, *Theme Park,* 226.

tinkering with various rides and flows of people. In this process, players "establish authorship" of the parks as they "reflect on how the theme park has evolved into a global model and a text that is being constantly rewritten."[79]

Be that as it may, the greatest innovation of the digital medium is not in just representing the theme park per se, but in simulating it as a process, with flows of G-forces, people, and money. Capitalism has always been the lifeblood of the parks, and while articles, films, books, or paintings might depict the consequences of the venture, only digital games place the burden of juggling park expenses and income on their customers. Of course, scholars have noted that "the more advanced computer games are, the more they are in tune with neo-liberal ideology,"[80] and business management simulators are the prime terrain for tuning in. Perhaps, though, the fun also originates in the fact that "we are always already neo-liberal subjects that are prone to be attracted by neo-liberal games."[81] As the success of the games attest, players do like to take a peek behind the financial scenes, but the main draw will always be in seeing one's creations take flight.

From the first title in the genre, *Theme Park*, such games have always been notable for their modular, tile-based method of construction, where rides are built like model railways. Notably, *RCT* designer Chris Sawyer's earlier forays into game design included *Transport Tycoon* (1994),[82] which has a similar track-laying mechanism. As technology progressed, separate edifices housing multiple attractions could be built, and with the advent of full three-dimensional modelling, a torrent of creativity had

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79. Ibid.
80. Graeme Kirkpatrick, Ewa Mazierska, and Lars Kristensen, "Marxism and the Computer Game," *Journal of Gaming & Virtual Worlds* 8, no. 2 (2016), 124.
81. Sebastian Möring and Olli Leino, "Beyond Games as Political Education—Neo-Liberalism in the Contemporary Computer Game Form," *Journal of Gaming and Virtual Worlds* 8, no. 2 (2016), 156, https://doi.org/10.1386/jgvw.8.2.145_1.
82. Chris Sawyer, *Transport Tycoon*, Microprose, DOS, 1994.

been unleashed by the player communities. Today, few games rival the architectural suppleness of *Planet Coaster* to recreate actual theme parks from LEGO®-like primitives, though it takes painstaking effort and time to do so.

An important conceit of the theme park is the separation of show and backstage areas, which is replicated in both games. Although both *Parkitect* and *Planet Coaster* enable the creation of backstage areas, only *Parkitect* compels you to systematically do so as a game mechanic. Guests have a quantified immersion score, which goes down if they can see staff paths, utility buildings, or backstage employees, not to mention a lack of foliage and décor. It is through mechanisms such as these, along with the intricate business simulation, that players get a sense of how the theme park becomes a machine, "one composed of all the various rides, mechanical devices, subsystems, processes and performances that make up its functional system,"[83] and there is more than a hint of irony in the realization that digital technology makes such reflection possible.

There is another backstage/frontstage-style distinction in construction, that of building above the ground or below, since ground-level buildings must adhere to the lay of the land, while building below the ground opens up spaces that are virtual interiors of the plot, with fewer constraints on how to build. Some scenarios, for example, restrict your ability to demolish buildings or scenery.[84] Thus landscape becomes a resource as in the *Parkitect* scenario Kaiserberg, when a ski resort whose owner, as the mission briefing says, "wants to be prepared for climate change. . . . All of your coasters need to stay close to the ground—can you use the slopes to your advantage?"[85] This means that there is a height restriction imposed upon the player, making it tough to create high drops out of thin air.

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83. Lukas, *Theme Park,* 102.

84. I thank Sylvaine Hamar, better known as Silvarret within the theme park game community, for a lively and extended personal discussion on Zoom about the various aspects of theme park rides and scenario design he did for *Parkitect*. It is the author's great regret that we could not include many of the talking points in the final version of this chapter.

85. https://parkitect.fandom.com/wiki/Kaiserberg.

Immersion is certainly more heightened for the player than the virtual guests when you start theming the lands. The scenario's names already suggest intended themes, as in *Planet Coaster'*s "Captain Lockjaw's Buried Treasures" and "Dex-R's Science Shenanigans," or *Parkitect*'s "Sakura Gardens" and "Mystic Oasis," which rely on tested and true formulas to frame the player's possibilities and give each scenario a unique flavour. Furthermore, individual build objects are also grouped under such themes, like "Adventure" or "Candyland" in *Parkitect*, or "Rustic Set" and "Spooky Set" in *Planet Coaster,* but this is by no means prohibitive, so players are free to mix and match to create custom themes.

Downloadable content and updates add new scenery packs regularly with some of them paying homage to the genealogy of the medium, such as *Planet Coaster'*s Classic Rides Pack with its swinging chairs and gondola rides and the World's Fair Pack's focus on distant cultures. It is telling that the countries chosen for the latter (China, USA, France, Morocco, Italy, Germany, Japan, UK, Mexico, and Spain) echo many of the themed pavilions of Disney's EPCOT Center, rather than those of the anthropological villages of yore, like the cultures of the Philippines or Sub-Saharan Africa. Apparently, the designers want to inspire players to recreate, as well as remix, the heritage of the theme park.

Dark rides were important in our discussion earlier because they signalled the height of illusionistic ride design. And while the games' dark ride tools are no match for real Imagineering, both *Parkitect* and *Planet Coaster* mark a giant step forward, as previous instalments of the genre found the challenge of the dark ride too daunting to implement. In effect, *Parkitect*'s dark rides can hardly be called inspired or unique, as they only have a slow-moving ride vehicle with little customization for indoor space, and the same building blocks as outdoor scenery, only under a roof, and the sculptures that can be placed are not animated. However, *Planet Coaster* shines in this department as the ride buildings have separate themed, animated object sets, the ride vehicles can be tilted towards the moving tableaux, the ceiling has animated skyboxes with effects, and as the players observe from their on-board view of the ride. Thus, the pieces fall into place in *Planet Coaster*, completing the feeling of virtually

being in a fantasy world or a haunted house. Obviously, part of the magic fades due to the computer's ease of animating anything, which detracts from the technological virtuosity of physical ride design that employs visual tricks of all sorts to sell the illusions. Yet, as the next section shall make clear, these tools are more than enough for creators to make stunning reimaginings of rides and lands from classic theme parks.

The Business Simulator as Building Tool: Bricolage at the Virtual Theme Park

When you build the fun fair of your imagination, you seldom plan it well ahead. You start with plopping down a couple of rides, a few shops, connect them to a pathway, and see what happens. In these games, you do not build your own rollercoasters with the blueprint fully sketched out (although some templates are added by the designers)—starting from the station platform, you proceed one module at a time, interconnected with the previous segments, and you put in a lift hill, a drop, a loop, a corkscrew, and so on, until you snake back to the station. The only guiding principles are what you remember seeing or riding before and what looks cool. When you design buildings, you work from small primitives, which could be put to any use, and you make do with what you have. Such an approach to architectural design is called bricolage, from the French word meaning "to tinker." Inspired by its adoption for anthropology by Claude Lévi-Strauss, design thinkers have reclaimed bricolage as a bona fide design philosophy that celebrates on-the-spot thinking, repurposing, and cobbling together of disparate forms and styles in order to get the job done.[86] I argue that bricolage is exactly what goes on in the LEGO® set-like construction paradigm of theme park building and management games, since builders in the game have to rely on architectural primitives in order to construct their themed entertainment Meccas. Simple geometrical shapes are twisted, bent out of shape, and kit-bashed into submission for the creator's vision to materialize.

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86. Panagiotis Louridas, "Design as Bricolage: Anthropology Meets Design Thinking," *Design Studies* 20, no. 6 (1999): 517–35, https://doi.org/10.1016/s0142-694x(98)00044-1; Irénée Scalbert, "The Architect as Bricoleur," *Candide: Journal for Architectural Knowledge* 4, no. 7 (2011): 69–88.

Most scenarios and sandbox games of *Parkitect* and *Planet Coaster* offer a vast digital canvas for the player to build an entertainment empire upon. Players, however, often stick to tried and true forms, partly due to the force of cognitive imperialism with which the theme park has colonized our minds, and partly due to the mimetic desire of the miniature-maker to construct a microcosmic version of a colossal, million-dollar venture. In fact, as early as *RCT*'s "Added Attractions" expansion pack, a map based on Alton Towers has been recreated by the designers, and the other expansion, "Loopy Landscapes," brought Heide-Park and Blackpool Pleasure Beach into the game. *RCT 2* also featured digital reimaginings of five of the Six Flags brand of US theme parks. The designers thus kickstarted a trend in which intrepid players sought to recreate famous parks as well as build their own that riffed on the conventions of traditional theme park design.

It should come as no surprise that Disney is a focus for aspiring virtual builders; it is a brand much beloved with a devoted fanbase, and the designs of their parks are unparalleled in the industry. To understand the powers of custom creation and the technological development of the genre, let us compare a recreation of the original Disneyland in *RCT 2*[87] with one of Disneyland Paris in *Planet Coaster*.[88] RenderedMouse's version was built between 2004–2009, and the limitations of *RCT 2* become apparent at the outset. The game is not capable of rendering buildings of sufficient height to be scale-appropriate: Sleeping Beauty Castle is a squat, splodgy construct barely six-stories high. Nor are the dark ride buildings much to look at—most are miniature car rides with little interior décor, let alone animatronics; however, the ride choices, vehicles, and colours are theme-appropriate (e.g., Mr. Toad's Wild Ride has antique automobiles, the Matterhorn is a white bobsled coaster, Jungle Cruise is

87. RenderedMouse, "Disneyland RCT2," June 29, 2011, http://www.renderedmouse.com/projects/4/roller-coaster-tycoon-2/disneyland-rct2/; "Disneyland RCT, Part 1," uploaded on January 22, 2013, YouTube video, https://www.youtube.com/watch?v=1PoFGJVmyOk; "Disneyland RCT, Part 2," uploaded on January 22, 2013, YouTube video, https://www.youtube.com/watch?v=qbU5QKJPLjc.
88. LMBT [FR], "PARC.DISNEYLAND. PARIS DISNEY.LMBT," February 8, 2017, https://steamcommunity.com/sharedfiles/filedetails/?id=859626891; ToonStudiosProd, "DISNEYLAND PARK RÉALISÉ À 100%! Episode 1/5," uploaded on July 17, 2018, YouTube video, https://www.youtube.com/watch?v=_85xDP8SLYM.

a river raft ride with elephants frolicking in the water, Frontierland uses the Western theme, etc.). A remarkable exception is their versions of The Haunted Mansion and Pirates of the Caribbean, which are notable for the inclusion of many custom-modeled items. These two virtual attractions resemble the Disney originals rather well. Still, the overall impression is of a rudimentary sketch. At every turn, the beholder of this iteration feels that the primitive building blocks of the game necessitated clever short-hand to convey the essences of the rides.

Even so, some design choices are questionable despite the obvious simplicity of the builder's toolkit. For example, Frontierland hosts a visibly Russian flag, Tom Sawyer Island is absurdly spacious, few coasters (if any) have on-board photos (although the game has the option of installing one), and the restaurants are nowhere near in size to the originals (since most are just single-tile kiosks in *RCT*). Another understandable departure from the physical parks is the fact that, unfortunately, all in-game rides must be constructed within the confines of the park's de facto boundaries—in Disneyland, several show buildings stretch beyond the walkable areas of the park. One can palpably feel the negotiation of the creator with the punishingly strict limitations of the *RCT 2* engine.

These are thrown into sharp relief when we take a look at streamer LMBT [FR]'s stunning "Parc Disneyland" build, which they claim has taken over 4,300 hours to model. While this creation is not based on the Anaheim park but its Parisian counterpart, in every other respect they are comparable. Here, Le Château de la Belle au Bois Dormant is by far the tallest building in the entire park, its spires reaching well above Frontierland's peaks, complete with the requisite boxy topiary trees. Discoveryland's Star Wars Hyperspace Mountain is rendered in gorgeous detail (albeit redder than the original), Les Mystères du Nautilus features a walk-thru replica of Nemo's submarine from the 1954 Disney film, and so on. Pirates of the Caribbean is impeccably realized, from the meandering queue to the depths of the attraction: the fort scene has shooting cannons

complete with smoke effects, the town scene boasts instrument-playing pirates, and the ride even has a pirate dangling his feet above the heads of the riders, just like in the original. Also, the show buildings are properly demonstrated to be stretching beyond the park limits.

Still, the shops are once again limited by the game, as it has *Planet Coaster*-created fictional brands serving hot dogs and ice-cream, even though a restaurant can be named accurately, such as with Plaza Gardens. For this level of detail, a curious absence is the lack of dedicated cast member entrances and exits modelled in the finished build. Also missing are service walkways (which would be present in *Parkitect*); proper signage, typefaces, and logos for many rides; and Disney's famous themed trash cans. And naturally, any intellectual property, like costumed characters, are rendered in much lower detail than in *KDA*. This owes everything to the fact that each building was constructed from tiny geometric shapes, the building tool stretched to its absolute limit of what can be modelled. It is also worth noting that the entertainer mascots cannot be Disney-attired, the in-game rides feature no spoken words or music, and there are very few signs communicating to the guests. Even so, the architectural design of Disneyland Paris is realized to an astounding extent; the finished product is a true labor of love.

Indeed, all creators take liberties with the source material, both due to the digital nature of each game, whose engines must, first and foremost, be able to run a game with simulated guests and G-forces at relatively high speeds, but also due to the sheer volume of detail of the physical parks that must be excised to make a build realizable in the first place. The omissions themselves speak to the architectural integrity of the theme park vision: exteriors are much more lavishly detailed than the interiors of the rides, since believable immersion into the virtual world would both tax the creators and the hardware, and a true realization of a dark ride would be nothing short of making an actual video game. Guests still get to enjoy their rides, but video games do not need to hide machinery that makes the illusion believable, as it would happen with the physical parks. What is backstage in real life is obscured by the interface, and therefore does not have to be designed into the game. Nonetheless, the

idea of the theme park as a semiotic assemblage that provides seamless immersion is upheld and even perfected by the virtuality of the video game medium. Player-creators understand this and use the limited but flexible toolkit to reproduce the narrative integrity of themes. That is the true power of bricolage: starting from humble beginnings, creators jury-rig geometry to do their bidding, overcoming the limitations of technology and maximising architectural effect with the tools at hand.

Intermedial Themes in Digital Theme Park Productions

As this short survey of the possibilities of theme park games has shown, different genres and representational schemata offer radically different toolsets for engaging with the virtual interiorities of the parks. You, the player, can express yourself by enjoying your day in a theme park built for one in an open-world game like, *Kinect: Disneyland Adventures*, earning more money you can spend (and spend you shall!) and riding attractions that are more spectacular and challenging than the physical ones. Your body is virtualized in an avatar, and your motions are transferred into the virtual world, replacing some of the lost kinaesthesia of the video game. The game constantly interpellates you to perform corporeally, and the implied body of the theme park patron becomes a locus of agency once again—more so than in the physical rides—with its strict code of conduct.

In theme park management simulators, one sees the entertainment empire from above by building, adjusting prices, optimising performance, and also expressing their own creativity through multifaceted construction tools. In the same manner that Disneyland is a personal expression of the mid-century, Midwestern, and middle-class optimism of Illinois-born Walter Elias Disney with sights and sounds that were so dear to his heart, individual players can infuse their own parks with their personalities and showcase their creations to the wider community of game enthusiasts. As the sheer amount of content creator uploads on YouTube and Steam Workshop suggests, creators use the lessons learned by theme parks intentionally and put them into good use in the creation of their own parks. It is particularly telling that recreations of actual theme parks abound, since the quality of verisimilitude is a clarion call for fans to

praise and compare the creations with the originals. In fact, the high number of such recreations is reminiscent of the way real-life parks play it safe with their conservative adherence to well-recognized intellectual properties.

On a more intermedial note, I would like to summarize how designers of theme park video games must manipulate the four media modalities when migrating from the physical to the digital world to convey the essence of parkdom to their players.

Firstly, the sensorial modality is constrained by the technical medium of display. Real-life parks assail all senses to create overwhelming sense-scapes; in theme park games, sounds are just as present, however, they are more concentrated and deliberate: all voiceovers, effects, and music have to be pre-recorded and scripted to be played, whereas the live parks have a lot of incidental audio, background noise from the guests, less-than-family-friendly exclamations that might be overheard, and in general, noises that remind people of the messiness of life beyond the curated image of the parks. In the games, the visual verisimilitude ensures a high degree of fidelity, especially in licensed games, but the appearance of the architecture is stylized, even in construction games. This is due to the limitations of processing and rendering power. On the other hand, this stylization is also the exaltation of the utopian impulse already inherent in the ideology of the theme park: the materiality of the real site and the wear and tear of years of use require constant maintenance, whereas, technically, the virtual theme park can remain pristine, unless developers programme visual representations of destruction and decay into the simulation (as is the case with vandalized benches and lampposts, and the breakdown of rides in *Rollercoaster Tycoon* or the destruction of buildings in *Epic Mickey*).

Furthermore, the senses of smell, taste, and touch (as well as the all-important refreshment of water in the summer heat of the real-life parks) are not present in the virtual recreations. Even though theme park games might present restaurants or simulate guest needs, one cannot, in fact, engage in gastronomical pleasures, nor would they get to experience the smells of an immersive ride. As I have discussed before, real parks

engage the guest's haptic and proprioceptive senses to deliver a memorable experience. These must be replaced in video games with the pleasure of agency. Some of our interaction with the park through our senses is implied, however: the in-game camera is "splashed" with water droplets on water rides and the player avatar visibly shakes when it collides with objects in *KDA*. The full body is only addressed as a performer in Kinect's games—most interactions are abstracted by the input devices in the building and management games. Riding the player's creations onboard in *Planet Coaster* implies kinaesthesia through audiovisual cues of acceleration and deceleration.

The spatiotemporal modality is addressed by the designers when they recreate the spatial relations in the various lands of a Disney theme park to achieve a mimetic reality effect, but it is shattered in the reimaginings of the actual rides, which now extend the experience for twice-thrice the length of the originals to compensate for the lack of sensory channels in the digital medium. Physical spaces are adapted to better suit the interactivity of the digital medium: players can affect the virtual spaces to a far greater degree than a guest would be able to in a real-life park. Likewise, the constraints of a purchased plot of land act as natural barriers for the theme-parkization of the whole world, per Gottdiener. There is no such barrier in a virtual space: traversable game land is only subject to the whims of the game designers, and in principle, could extend into infinity. In fact, as we have seen with the repurposed rides in *KDA*, spaces can extend well beyond the modelled ride buildings, and as we have examined with regard to *Planet Coaster* and *Parkitect*, space is used ad hoc to provide challenges for the players, such as with an artificially small park that the player-designer needs to find workarounds for.

Kinect: Disneyland Adventures can be completed in about sixteen hours of playtime, much less than a weekend spent in the parks. The users of theme park management simulators usually only play a map for a couple of hours in order to finish scenario goals, so they park-hop more often than actual park goers: maintaining a park once they run out of room to expand is not nearly as much fun as building something new. The video game space is more malleable than the million-dollar environments of

the physical parks, and often flatter, as attested by the recreation of Disneyland in *RCT 2* in which infrastructure that is essential for running the parks is often missing (but *Parkitect* does feature them more than other software). As Lukas observes, "like a virtual reality space the theme park creates a new temporal and spatial order; it causes [. . .] a suspension of the day before and the day after; the only thing that matters while being in the theme park is that day itself, the time spent inside the park."[89] And the virtual reality spaces of computer games exploit the exclusivity of their players' attentions by abstracting that experience: *KDA* does not have a night-and-day cycle or weather simulation, but *Parkitect* and *Planet Coaster* does, with its spectacular night-time illumination and the fluctuating weather system that affects how willing people are to go on certain rides. However, the parks do not have seasonal attendance highs and lows, and they do not close for the winter, like many continental parks do.

Most of the concessions to the artificiality of the virtual parks come in the material modality. As everything is coded and rendered, *KDA* only implies interaction with different objects through collision detection and hitboxes. The G-forces of a rollercoaster ride are only abstractly calculated in management simulators, but guests can theoretically withstand forces that would kill actual humans. Thus, guest safety is more assumed than assured by the players. Harm can't really come to you in *KDA*, and while guests may die in park management games, such disasters do not completely upend the simulation.

Planet Coaster and *Parkitect* also only simulate some needs of the guests, such as hunger, thirst, fatigue, and nausea, which either factor into something that could be sold to them, or something that can be quantified in a park rating. Finally, a real-life issue that players must worry about less is that of the crowds: since computer people have no volume—only

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89. Lukas, *Theme Park,* 235.

animated models and sprites—they can safely walk through each other (*Planet Coaster* seems to program guests to get out of each other's way but clipping into each other is still an issue) and this means that crowds do not have to be managed the same way one must in real parks.

The semiotic modality is where the representations borrow most from existing parks. Although guests do not need to be explicitly communicated to, even earlier instances, such as *RCT 2,* featured marquees to stop guests from entering certain paths. Guests can also buy park maps to find out where they want to be going and can get a feel for how intensive a ride is by looking at it. The games communicate intended use and options for influencing the game-world through textual and audiovisual means: *KDA* has a narrator character that calls out actions that must be performed, whereas park simulators convey scenario goals in briefings and use charts, tables, and figures to give insights into the park's financial performance, guest relations, marketing strategy, and more. Custom-made parks usually have signage, but they do not affect in-game guests—rather, they are included for fellow players to communicate what rides were modelled and to give an aura of verisimilitude to digital parks. Similarly, virtual guests do not pick and choose rides because of their immersive qualities. Instead, they select them due to a hard-coded preference for the quantifiable statistics of built rides: their intensity, excitement, and nausea ratings. *Parkitect*'s immersion statistic is more akin to a general park rating to bring the backstage-frontstage area mechanics in play, and it tracks the amount of decoration rather than its consistency and coherence.

Finally, in accordance with Jørgensen's addendum to Elleström's model, the all-important operational and agentive aspect of these games must be considered, both of the player and the simulated guests. In *KDA*, the player controls a single avatar, who must ride, collect, and shop till they drop, using their body to operate it. However, the complex movements of the human body sometimes do not track well to the Kinect operating system, and this results in the wrong input which might result in failing one of the challenges of a ride. In general, the player is well aware that the translation from the corporeal to digital runs into obstacles,

making operating a much iffier affair than in the Windows port of the game where there is a lack of ambiguity owing to the controls being mapped onto keystrokes and mouse swipes. The two management sims are more straightforward because of the abstraction of building a virtual theme park: mouse and keyboard controls enable the intuitive conceptual modification of building plans and road layouts, but especially in *Planet Coaster*, the bewildering array of sliders, buttons, and statistics on the user interface might hinder the unwary player of making sense of their options right away—the game has a significant learning curve.

In terms of in-game agency, ride operators are only visible on *Planet Coaster*, as both *Parkitect* and *Kinect: Disneyland Adventures* choose to only imply their existence. Even in *Planet Coaster*, ride operators are not paid separately as employees, since only janitors, mechanics, security guards, vendors, and entertainers are paid, and even they do not enter into collective bargaining or operate as a workforce—they behave as if they are individual contractors. The ride operation and safety protocols are also assumed rather than simulated, clearly because of the super-human ability of guests to withstand physical tribulations. Guests do not complain about the behavior of staff members, or lack thereof—even though emotional labor is a key distinguishing feature of theme parks, it is not simulated. In contrast, *KDA*'s cast members have prerecorded voice-overs and, like Audio-Animatronics, they perform perfectly. All in all, whether on the ground in *KDA* or high above the clouds in the management sims, the player may act as a demigod, to whom the virtual interiors of the theme park games open up so that they may draw maximum enjoyment from the digital parks. The implied interactor is a composite of what the Imagineers, the park managers, and the game designers want them to do, and the player's own desires to express themselves through conforming and rewriting the codes of conduct is afforded to them.

Exit Through the Gift Shop: Conclusions

As I hoped to have shown in this chapter, the virtualization of the theme park experience is both a necessary and inevitable fact of convergence culture, and the pandemic only helped to accelerate this tendency. Whether using VR to explore decommissioned rides, roaming the streets of Disneyland in your own home, or building the theme park of your imagination, video games and digital technology have made the virtual interiorities of the theme park more accessible and more expressive than ever before. "Fantasy, in its fullest [form], must be given a place and this place, in turn, is asked to perform."[90] Video games visualize and operationalize that fantasy of the theme park, while strategically privileging certain experiences and intended readings in the name of fun. But, as many YouTube videos which show the sadistic genocide of digital parkgoers in games like *RCT 2* or *Planet Coaster* attest, these intended readings are not hard limits to the player's agency.

Theme park games offer a unique interaction of the virtualized body of the guest and the idealized narrative space of the lands and rides. I have endeavoured to use spatial analysis from below to highlight how the player's toolset changes the way virtual theme parks operate and create interiorities. As Fraser writes, "the method through which we form knowledge of video game space is in fact the very method through which we form knowledge of 'real world' urban spaces."[91] This made me more willing to make explicit connections between real-life architectural theory and its use in the building of virtual theme parks. Fraser's work suggests that this connection might in fact be a two-way street, but it would take a thorough analysis of contemporary architectural theory and practice to prove so.

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90. Lukas, *Theme Park,* 137.
91. Benjamin Fraser, "Why the Spatial Epistemology of the Video Game Matters: Mētis, Video Game Space and Interdisciplinary Theory," *Journal of Gaming and Virtual Worlds* 3, no. 2 (2011), 103, https://doi.org/10.1386/jgvw.3.2.93_1.

In closing, I must admit that spatial constraints have forbidden me from pursuing more tangential, but just as interesting, avenues of inquiry. Further research could elaborate on how existing, non-theme park video game genres utilize theming today and what principles of theme park design make their way into the level and world design of, say, open-world action-adventure games, or first-person shooters. Another investigation could profit from examining the communication between user and game, i.e., how the semiotic modality shifts and constrains certain interpretations of the theme park experience. And ultimately, it would be worth taking a deeper look at how Virtual and Augmented Reality devices change our experiences of the virtual theme park compared to those we have in the Kinect and building-and-management simulators.

Theme park games literally treat their worlds as toys, and the outcome of such a move is that "immersion becomes thematized"[92] in the digital space. If there is a "theme park world picture" comparable to that of the amusement park, it materializes in "new spatial, architectural and geographic forms; it affects doing by structuring new models of the person, self and social relationships; it affects knowing in terms of its unique project of culture; and it affects telling by introducing new narratives that are used to understand the world."[93] The architectural forms, though they often remediate existing theme parks, do so with no concern for the physicality or materiality of the park beyond what is hard-coded into the game, resulting in more inventive yet impossible-to-realize architectural fever dreams.

The players do not only create but share their creations: they prototype and test rides, receive feedback, and thereby build an audience and community on social media platforms. They negotiate the essential elements of what a theme park is, they retool and reevaluate their own relationships as they work through the limited toolsets of the games and act as bricoleurs of their own right, and, finally, they infuse their creations with thoughtful commentary that interweaves real-life parks and their

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92. Marie-Laure Ryan, *Narrative as Virtual Reality* (Baltimore: Johns Hopkins University Press, 2001), 199.
93. Lukas, *Theme Park,* 240.

own design process, curating them for fellow enthusiasts. It is through this process of cultural renewal that they form a "theme park game world picture," so to speak, one that is modular, maker-oriented, mimetic, and mediated, perhaps even to a greater degree than physical theme parks.

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The Strip as a Movie Set

Immersive Experience Design in Las Vegas

Stefan Al

Introduction

Perfectly timed with the *Cisco Kid* movie series (1939–1950), Las Vegas resort builders welcomed guests with cowboy saloons and a bar with relics of "Pancho," the Kid's sidekick. A year after P*rincess of the Nile* (1954), the Dunes resort opened on the Strip with a smiling Sultan, blown up three stories tall. Not coincidentally just after Hollywood blockbuster *Cleopatra* (1963), Caesars Palace installed a lounge in a floating Cleopatra's barge. Two years after Spielberg's classic *Hook* (1991), Treasure Island opened with a pirate village, a skull and bones sign, and scorching frigates.

If any city is an example of life imitating art, it is Las Vegas. "The building progression on the Strip," researcher William Fox writes, "relied on a growing synergy with Hollywood," giving the masses an experience "as if they had stepped through the screens of movie theaters and television sets and onto a soundstage for the Roman Coliseum, if not into the arena itself."[1]

The Strip confounds the boundaries on the relationship between the virtual and the real. *Viva Las Vegas* (1964) featured Elvis, who was a live performer in Las Vegas. Tim Burton's *Mars Attacks!* (1996) reenacts the actual demolition of the Landmark's tower. The Rat Pack in *Ocean's*

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1. William L. Fox, *In the Desert of Desire: Las Vegas and the Culture of Spectacle* (University of Nevada Press, 2007).

Eleven (1960) were the live performers of the casinos that they would end up robbing on screen. Even television series have taken advantage of the Strip's camera-friendly image, including *CSI: Las Vegas* and MTV's *Real World* reality show, held in a Palms casino suite—now available for bookings, without the camera crew.

No other city has gone as far to exploit Hollywood as Las Vegas. Back in 1969, real estate mogul Kirk Kerkorian bought the venerated MGM Studios, sold its real estate, and built an MGM-movie themed casino. He then featured the studio's logo, known throughout the world, on the casino's rugs, walls, and ashtrays. In fact, the Strip's first two resorts, the El Rancho and the Last Frontier built in the 1940s, were developed by entrepreneurs who were also movie theatre operators.

But besides the many connections between Las Vegas and Hollywood themes and owners, the architecture between the two had design connections as well. In the following, I will explain three striking architectural similarities: 1) false front architecture; 2) immersive design; and 3) digital screens. In today's "Experience Economy," these three qualities of the Strip's architecture find themselves in retail stores worldwide. In an age of ubiquitous online shopping, retail corporations are eager to provide unique experiences that bring customers back to brick-and-mortar stores. In their quest they are going in less explored architecture approaches to connect with customers, seamlessly integrating physical and digital communication. Their efforts are not unlike in Las Vegas, where developers have for decades used architectural experimentation and technology in the hope of attracting people to the Mojave Desert.

False Front Architecture

In 1963, Tom Wolfe was ecstatic at what he saw in Las Vegas. At a visit of YESCO's office, a local sign design and manufacturing company, he noticed a model prepared for the Lucky Strike Casino sign. Two red curving faces came together into a narrow spine, as tall as a sixteen story-sky-

scraper. In contrast, the structure which the sign meant to decorate was only a two-story building, the Lucky casino. This incredible form fit perfectly in his expedition investigating "the new culture-makers" of "popular" society.

"I don't know . . . It's sort of a nose effect. Call it a nose,"[2] designer Hermon Boernge said of the shape of the narrow vertical face. Wolfe was amazed at the designer's description. "Okay, a nose, but it rises sixteen stories high above a two-story building," Wolfe wrote. "In Las Vegas no farseeing entrepreneur buys a sign to fit a building he owns. He rebuilds the building to support the biggest sign he can get up the money for and, if necessary, changes the name. The Lucky Strike Casino today is the Lucky Casino, which fits better when recorded in sixteen stories of flaming peach and incandescent yellow in the middle of the Mojave Desert."

This "nose" represented a tipping point. Although it was only a remodeling of Lucky Strike Casino, at 153 feet, it was the tallest structure in Las Vegas (see Image 2.1). The shapes of the sign designers, claimed Wolfe, easily rivaled the modern forms of elite architects: "In the Young Electric Sign Co. era signs have become the architecture of Las Vegas, and the most whimsical, Yale seminar frenzied devices of the two late geniuses of Baroque Modern, Frank Lloyd Wright and Eero Saarinen, seem rather stuffy business, like a jest at a faculty meeting, compared to it."

In contrast to these celebrated architects, the Las Vegas sign designers didn't waste time theorizing their work. While the artists created a wholly original and new art vocabulary, "Las Vegas' sign makers work so far out beyond the frontiers of conventional studio art they have no names themselves for the forms they create," Wolfe wrote of "America's first unconscious avant-garde." So the Pop critic lent a hand coining names of their shapes: "Boomerang Modern, Palette Curvilinear, Flash Gordon Ming-Alert Spiral, McDonald's Hamburger Parabola, Mint Casino Elliptical, Miami Beach Kidney."

2. Quoted in Tom Wolfe, *The Kandy-Kolored Tangerine-Flake Streamline Baby (*Macmillan, 2008), 8.

The Lucky remodeling instigated a trend of using signs to make buildings seem more impressive than they actually were. Architects Robert Venturi and Denise Scott Brown called these "decorated sheds,"[3] plain buildings with independently applied signage—like the 1958 Stardust, which had plastered a large sign of a planetary system on what was essentially a collection of industrial barracks (see Image 2.2). Or the Golden Nugget in 1949, which had built a sign so big; it made the building seem twice the size. Since the false front only affected the appearance of the building, not its substance, it was the antithesis of what was taught in architecture schools—where the building's substance is supposed to be expressive. Nevertheless, the false fronts were cover-ups of unremarkable buildings that achieved at a relatively low cost a maximum of visibility.

Whether a conscious effort or not, the casino builders had expanded on the fundamentals of western architecture—a style characterized by false fronts, making one-story cabins look like two-story saloons. Historian Richard Erdoes later wrote of Western architecture: "The false fronts were pasted like sheets of cardboard to one-story log cabins or board shacks to give the impression of splendid two-story saloons. In character with the Westerner's proclivity for bragging, for trying to appear a little more than life-size, the false fronts gave the appearance of a stage set."[4]

Coincidentally, the false fronts of frontier towns were also typical of Hollywood movie sets. Las Vegas, by building false fronts, got to the essence of the western architecture and Hollywood, which are all about faking it.

3. Robert Venturi, Denise Scott Brown, and Steven Izenour, *Learning from Las Vegas* (Cambridge, MA: The MIT Press, 1967).
4. Richard Erdoes, *Saloons of the Old West* (New York: Knopf, 1979), 37.

Image 2.1. *Lucky Casino. Credit: Stefan Al.*
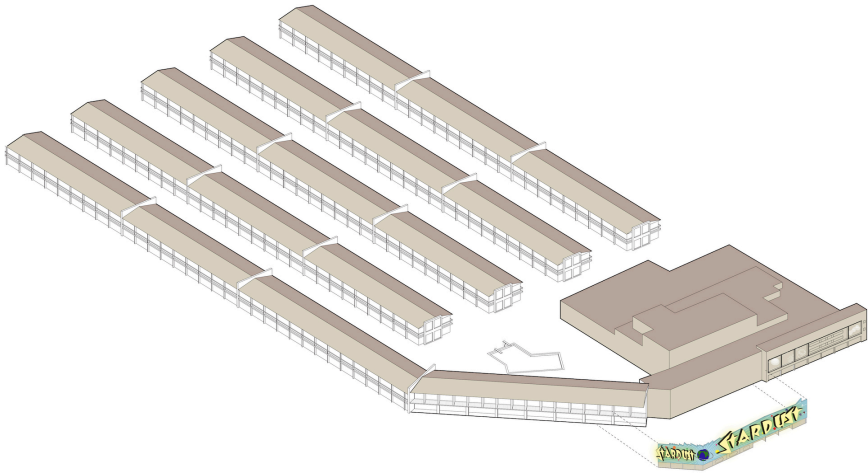
Image 2.2. *Stardust Casino. Credit: Stefan Al.*

Immersive Interiors

From lounging on a floating Cleopatra's barge, to dining in a Magical Empire with fireballs shooting from a dragon-toothed cave, Las Vegas has built fully immersive places to transport people to a different world, away from everyday reality.

The most immersive of all was the Domes of the Sea, a seafood restaurant built at the Dunes in 1963 (see Image 2.3). It was a siren song of a dining experience, staking a claim on the Deep-Sea theme, a popular science fiction trope. The world became fascinated with new oceanic discoveries of the late 1950s, when the first nuclear-powered submarine crossed under the Arctic ice cap, and Jacques Piccard descended to the deepest spot in the ocean. Hollywood exploited the deep-sea fascination with *Voyage to the Bottom of the Sea* (1961); accordingly, the Dunes expanded its Arabian Nights desert theme with a bit of ocean and a mermaid stage prop.

Architect Milton Schwartz built a saucer-shaped building that appeared to float in a pool of water: "It looked like it came from outer space."[5] But as a white skeleton of curvilinear ribbons suspended the sand- colored roof, while bubbling water shimmered light from underneath, the saucer appeared equally like a crustacean. (It was a classic case of form follows food—a seafood restaurant in the shape of a shell.)

While on the exterior the restaurant represented a clamshell abstractly, on the inside it did so literally. Schwartz collaborated with set designer Sean Kenny on the interior. At the center of the dome, below the irides- cent inner-shell-like vaulted ceiling, they floated a special performer. "I had chosen a woman with long, golden blonde hair," Schwartz said. "She was five-foot-six and played a harp, a golden harp, and I placed her in a seashell in the center of the restaurant that rolled around on a figure eight track in the water."[6]

The Dome of the Sea's level of immersion signaled a distinct departure from other restaurants. Previously star performers had been the focal point. But Schwartz and Kenny encircled guests with wall-projections of images of fish and seaweed, giving them a full 360-degree sea panorama. It made people become full participants in the seascape. Schwartz remembered, "The people became part of the show."

Guests walked up to a saucer-shaped building that appeared to float in a pool of bubbling water, light shimmering from underneath. Inside the dome, below an iridescent inner-shell-like vaulted ceiling, they would see a blond mermaid harpist sitting in a seashell that rolled on a figure eight track in a pool. Looking around them, they would get a full 360-degree sea panorama with wall projections of seaweed and fish.

5. Milton Schwartz, "Oral History of Milton Schwartz: Interview by Harvey M. Choldin." Chicago Architects Oral History Project (The Art Institute of Chicago, 2007), 57.
6. Schwartz, "Oral History," 69.

For some, however, the experience was too authentic. With projections of fish and seaweed, the harp-playing mermaid riding her seashell incessantly in figure eights—all of this under an iridescent ceiling, the entire dome floating on a bubbling pool—it actually made some people seasick.[7]
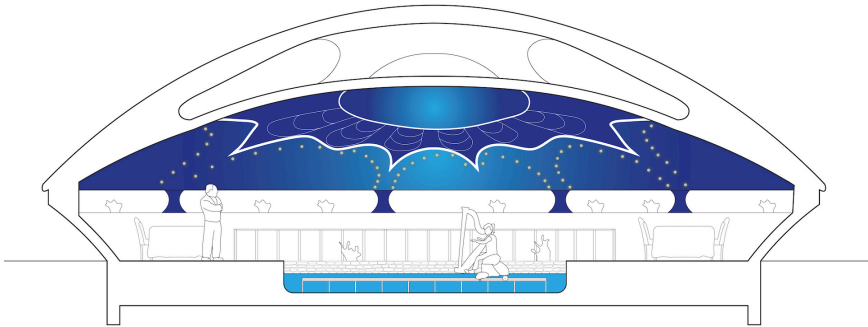
Image 2.3. *Cross section of the Dome of the Sea. Credit: Stefan Al.*

Digital Screens

Despite people being increasingly glued to their smartphones and electronic devices, Las Vegas developers have found a way to get attention in the digital age: bigger digital screens. These digital screens, like the Aria sign, a 25-story tall structure packed with 11 million pixels, show nonstop commercials.

Las Vegas is symptomatic of a trend of what cultural philosopher Paul Virilio calls "media buildings"—structures dedicated to housing information rather than habitation. In contrast to conventional architecture that presents a static image, these buildings display constantly changing scenes. While the high-tech buildings provide exciting opportunities to architects, some psychologists blame them for increased cases of ADHD (attention deficit hyperactivity disorder).

7. Schwartz, "Oral History," 69.

But Las Vegas has no intention of limiting people's "screen time." Already in 1994, the city built the Fremont Street Experience, a vaulted LED canopy floating above Fremont Street—the world's largest electric screen, effectively the size of five city blocks (see Image 2.4). Las Vegas has gone so far in building digital distractions that it turned the sky into a giant television set.
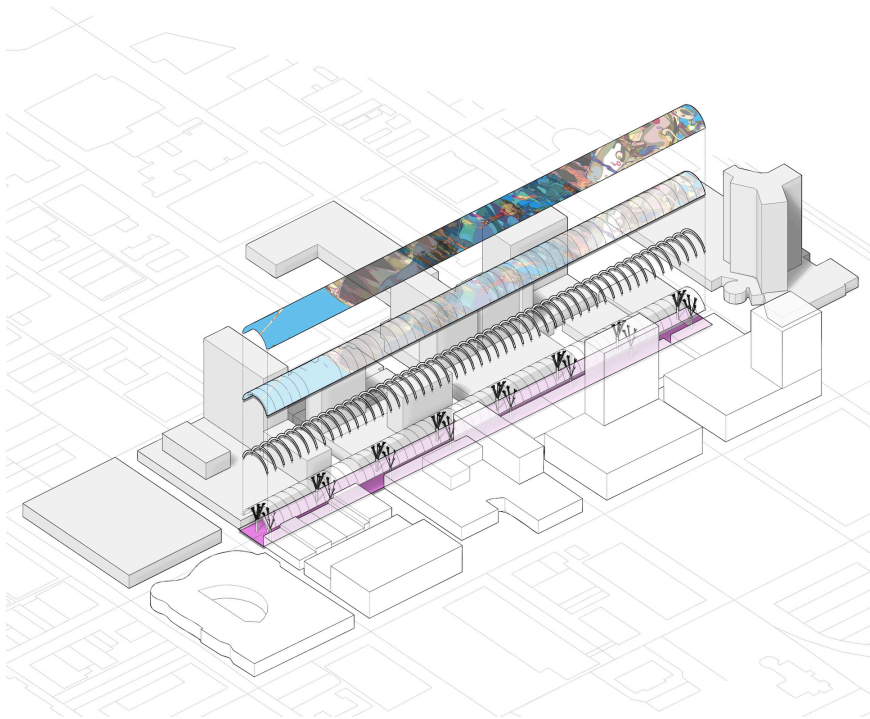
Image 2.4. *Exploded view of the Fremont Street Experience. Credit: Stefan Al.*

Conclusion

These three architectural approaches combined amplify a unique sense of virtuality in Las Vegas. False front architecture draws people in from afar. Immersive interiors engage all their senses from up close. Digital screens present them with ever changing imagery, and possibly interactive ones as well. Finally, the shared symbolism between Hollywood and the Strip ensures that the images are recognized by everyone.

As a result, the architecture of the Strip confounds the distinction between the virtual and the real. Such a condition is described by French philosopher Jean Baudrillard in his book *Hyperreality*. He referred to a Borges fable in which cartographers had drawn a map so detailed that it covered the territory entirely. But where in Borges's story the map frays, Baudrillard inverts the story as a metaphor for today's world: "if we were to revive the fable today, it would be the territory whose shreds are slowly rotting across the map."

There is much to learn from the new spectacular architecture of Las Vegas. The developers of the Las Vegas Strip created a uniquely virtual, uniquely mediated, and uniquely immersive world. Various researchers have recognized this experiential aspect of the Strip: "Consider Las Vegas, the experience capital of America," wrote Pine and Gilmore in *The Experience Economy*. "Virtually everything about Vegas is a designed experience, from the slot machines at the airport to the gambling casinos that line the Strip; from the themed hotels and restaurants to the singing, circus, and magic shows."[8] Resorts on the Strip have professionalized the design of customer experience. The city had become a pioneer in the "experience economy," in which companies compete by orchestrating memorable events for their customers.

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8. Joseph B. Pine and James H. Gilmore, *The Experience Economy: Work is Theatre & Every Business a Stage* (Harvard Business Press, 1999).

But many of the city's most iconic spaces took their cues from Hollywood. Not unlike the construction of a movie set, Las Vegas developers employed interdisciplinary teams of architects, interior designers, set designers, and engineers. Together, they aimed to conceive not merely buildings but "movie sets." They left us with immersive experiences in which we can no longer distinguish between the virtual and the real.

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Imagining Cities Through Play

Immersive, Playful Video Game Experiences and the Liberation of Civic Imaginations

Konstantinos Dimopoulos

Introduction

Video games do not have to be useful in a measurable way. They can happily keep on existing as a popular form of entertainment but are most certainly not expected to improve us as a species, provide us with specific skills, or teach us science. They are a popular art form[1] with mainstream appeal, and thus theoretically in a position to enlighten, inspire, start discourses, and, in certain cases, spread ideas regarding the betterment of humanity. Massively popular video games like *BioShock*[2] openly discuss politics, and the medium as a whole aspires for immersion to create believable, yet mostly imaginary, worlds for players to experience as convincingly as possible. It is the nature and design sensibilities of video games that allows them to present convincing synthetic worlds and spaces, and to thus enrich imaginations.

Playing and interacting in radically different, often impossible, and commonly urban environments usually populated by clever automatons sounds like an idea that would have been enthusiastically adopted by the utopian thinkers of the 19th century. And, I argue, such a powerful

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1. Chris Melissinos, "Video Games are One of the Most Important Art Forms in History," *Time*, September 22, 2015, https://time.com/collection-post/4038820/chris-melissinos-are-video-games-art/.
2. 2K Boston, 2K Australia, *BioShock*, 2K Games, Microsoft Windows, 2007

medium can indeed liberate or at the very least trigger our imaginations to the point of picturing the unthinkable. Perhaps not necessarily collectively—Karl Marx,[3] the grandfather of modern revolution, was adamant that revolutionary thought can only be widespread during turbulent times—but at the very least on a minority level.

I claim that games and utopian thought are compatible; that the immersive, interactive, navigable urban worlds of gaming inform the way we look at cities, urbanism, and society as a whole. Video games can convey utopian ideas and crucially help to imbue these concepts with concrete—albeit digital—forms. Games and utopias both do, after all, pay attention to urban environments. *Grand Theft Auto V,*[4] for example, one of the most successful games in history, has an impressive city at its heart; whereas both classical utopias, and most contemporary dystopias, have been almost exclusively urban, the latter has also directly influenced countless game settings.

Humans at Play

Play, in all its varied guises, and whether acknowledged or not, has been at the core of human evolution and culture for millennia, albeit often only encouraged in heavily restricted or ritualized contexts. The famous *Children's Games*[5] painting by Bruegel the Elder from 1560 showcases over two-hundred children playing roughly eighty games. Depicted as completely absorbed in their frivolous activities, the children are directly contrasted to the painting's adults who are occupied with obviously more important matters. *Children's Games* suggests that during the 16th century, play was perceived as the exclusive domain of children, yet it showcases a rich tapestry of all the toys and games already available to humans, from inflated pig bladders, water guns, and dolls to marbles and spinning tops.

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3. Karl Marx, *The Eighteenth Brumaire of Louis Bonaparte* (New York: Cosimo Classics, 2008).
4. Rockstar North, *Grand Theft Auto V*, Rockstar Games, PS3, 2013.
5. Bruegel the Elder, *Children's Games*, 1560, oil on panel, 118 cm × 161 cm, Vienna Kunsthistorisches Museum.

Adults, of course, never stopped playing either. Sports, card and dice games, gambling, games such as the Egyptian metaphysical[6] senet, the Royal Game of Ur, nine men's morris (which dates at least as far back as the Roman era[7]), as well as the still popular checkers, go, and chess, were all mainly aimed at adults. Playing games even survived the strict moral doctrines of the Protestantism, mercantilism, and early capitalism it—as Max Weber[8] demonstrated—directly influenced. Adults and older children were expected to focus on work in an era when productivity was regarded as a moral duty, yet, neither games nor sport vanished. Eventually, games even thrived: Parker Brothers, the American toy and game manufacturer, was founded in 1883,[9] Christian virtues in the early 19th century were taught via The Mansion of Happiness board game, and the political Landlord's Game by anti-monopolies activist Lizzie Magie was self-published in 1906[10] before eventually being turned into the hugely popular board game of Monopoly by Parker Brothers.

Monopoly, this strangely enduring board game that has been reskinned to fit such diverse themes as *Star Wars* and *Peppa Pig*, also serves to highlight the subtle but continuous relationship of urban space and play. Monopoly allows players to buy avenues and roads and wants them to understand the rules that govern the real estate market and the inherent inequalities of the untaxed urban land market. Even if Monopoly is not as central to the contemporary, daily civic experience as the amphitheater was in the Roman city, it carries on a long tradition of games that interact with the urban fabric: football stadiums[11] have been important social nodes of the British industrial city, horse-back *Chovgan* was played

6. Christian Donlan, "Why did ancient Egypt spend 3000 years playing a game nobody else liked?," *Eurogamer*, October 29, 2017, https://www.eurogamer.net/articles/2016-06-01-why-did-ancient-egypt-spend-3000-years-playing-a-game-nobody-else-liked.

7. Friedrich Berger, "From Circle and Square to the Image of the World: A Possible Interpretation for Some Petroglyphs of Merels Boards," *Rock Art Research* 21, no.1 (2004): 11–25.

8. Max Weber, *The Protestant Ethic and the Spirit of Capitalism* (New York: Oxford University Press, 2011).

9. Kathy McCabe, "For love of the games," *The Boston Globe*, December 7, 2003, http://archive.boston.com/news/local/articles/2003/12/07/for_love_of_the_games/.

10. Philip E. Orbanes, *Monopoly: The World's Most Famous Game—and How it Got that Way* (Cambridge, MA: Da Capo Press, 2006).

11. Juan Luis Paramio, Babtunde Buraimo, and Carlos Campos, "From Modern to Postmodern: The Development of Football Stadia in Europe," *Sports in Society* 11, no. 5 (2008): 517–534.

for centuries on the Naqsh-e Jahan square[12] in Isfahan, Persia, and *Poké-mon GO*[13] brought thousands of unexpected users to countless civic sites across the world and encouraged citizens to discover new sections of their cities.

What Friedrich Schiller described as the play-drive,[14] a pure, necessary moment in human development, might explain why we are indeed one of those species who simply cannot stop playing. *Homo Ludens*—the defining 1938 work by historian Johan Huizinga[15] which still influences how scholars look at gaming today—destabilized many of the taboos surrounding games and further showcased the importance of the play element in culture and society. Huizinga argued that play is both older than culture and a required condition for it: animals played before humans, thus play and culture are intertwined. Snakes and Ladders, for instance, a game with ancient Hindu roots originally called Moksha Patam, featured strong religious symbolism before being sanitized and adapted for an English audience by the Milton Bradley company in 1943.[16]

Interestingly, Huizinga also noted that play doesn't necessarily restrict itself to games, and indeed fun—one of the most significant aspects of play—can creep into any type of activity. Fun, or the promise thereof, can make most situations appealing, and so games were employed to make the early, gargantuan computers seem exciting. *OXO*, a simple game of tic-tac-toe (and possibly the first video game ever) ran on the EDSAC mainframe in 1952 and was part of Sandy Douglas's thesis on human-computer interaction.[17] Similarly, the sci-fi action game *Spacewar!* (1962)[18] was designed to show off the entertainment capabilities of com-

12. Zubaidullo Ubaidulloev, "The History and Characteristics of Traditional Sports in Central Asia: Tajikistan," *Bull. Facul. Health & Sci., Univ. of Tsukuba* 38 (2015): 43–58.
13. Shiva Kooragayala and Tanaya Srini, "*Pokémon GO* is changing how cities use public space, but could it be more inclusive?," *Urban Wire*, August 5, 2016, https://www.urban.org/urban-wire/pokemon-go-changing-how-cities-use-public-space-could-it-be-more-inclusive.
14. Friedrich Schiller, *Essays: Friedrich Schiller* (London: Bloomsbury Academic, 1993).
15. Johan Huizinga, *Homo Ludens: A Study of the Play-Element in Culture* (Angelico Press, 2016).
16. "Snakes and Ladders," Wikipedia, last modified September 17, 2021, https://en.wikipedia.org/wiki/Snakes_and_ladders.
17. Tristan Donovan, *Replay: The History of Video Games* (Lewes: Yellow Ant, 2010).
18. Steven L. Kent, *The Ultimate History of Video Games* (New York: Three Rivers Press, 2001).

puters to visitors of the Massachusetts Institute of Technology. One could argue that gamification—the process, essentially, of enhancing services with (motivational) affordances in order to invoke gameful experiences[19]—was what drove the very first games.

Since those early days, video games moved from vast supercomputers to portable phones, affordable computers at home, and compact consoles, and explosively grew to become a vast, global industry that now dominates much of popular culture. According to the 2021 Global Games Market Report,[20] video games generated an estimated $175.8 billion in revenue in that year alone. Capitalism and its mainstream ideological systems, as well as the culture it generates, can in no way afford to regard video games (and play in general) as an exclusively counterproductive or frivolous pastime meant for children. Video games are nowadays a core pillar of the entertainment industry and have expanded their reach to most social groups, including senior men and women.[21] The days of Nintendo trying to initially disguise its definitively successful Nintendo Entertainment System as a clever kid's toy,[22] or an 8-bit gaming-focused home computer marketed as being "good for homework," are far beyond us.

Adults are now encouraged to spend time and money playing and can engage with games without the fear of stigmatization. Entertainment marketing targets adults, and some of the medium's greatest successes, like *Grand Theft Auto V*, a title that has sold over 150 million units,[23]

19. Juho Hamari, Jonna Koivisto, and Harri Sarsa, "Does Gamification Work?—A Literature Review ofEmpirical Studies on Gamification," In *2014 47th Hawaii International Conference on System Sciences*, 3025–3034, 2014.
20. "Global Games Market Report," *Newzoo*, accessed September 27, 2021, https://resources.newzoo.com/hubfs/Factsheets/Newzoo_Global_Games_Market_Report_Fact_sheet.pdf.
21. AARP Research, "Gaming Attitudes and Habits of Adults Ages 50-Plus," December 2019, https://www.aarp.org/content/dam/aarp/research/surveys_statistics/technology/2019/2020-gaming-trends-older-adults.doi.10.26419-2Fres.00328.001.pdf.
22. Helen A. Lee, "The Untold Truth of R.O.B. The Robot," *Looper*, October 23, 2020, https://www.looper.com/266530/the-untold-truth-of-r-o-b-the-robot/.
23. "Lifetime unit sales generated by Grand Theft Auto V worldwide as of November 2021," *Statista,* November 2021,https://www.statista.com/statistics/1247955/gta-v-unit-sales-worldwide-total/#:~:text=As%20of%20November%202021,%20Grand,video%20games%20of%20all%20time.

can afford to ignore the younger audiences by being rated as "Mature" (17) products. Consuming video game media is not merely a mainstream behavior, rather, it is hailed as a healthy and economically significant activity. Playing action games—first person shooter games in particular—has, for example, been shown[24] to produce improvements in sensory, perceptual, and spatial cognitive functions. The psychological benefits[25] of playing video games have also been researched, and their use as both educational and exercise tools is widespread.

Success and recognition have led to ideology and culture. Creators of casual games, King, were acquired[26] for $5.9 billion by Activision-Blizzard as their match-3 game *Candy Crush Saga* all but dominated the mobile market charts on platforms like iTunes and Google Play: its profits[27] for 2020 reached $857 million. Parallel to that, geek culture, a culture of enthusiasts traditionally associated[28] with media such as video games, Japanese animation, and science fiction, etc., is increasingly celebrated across mainstream media outlets, and thus video games are increasingly studied as an art medium and popular phenomenon. Unsurprisingly, and as the discipline of game studies rose to study video games, Huizinga was effectively rediscovered, this time with a particular interest in his concept of the magic circle, which, according to Gordon Calleja,[29] was widely adopted to articulate the spatial, temporal, and psychological boundaries between games and the real world.

24. Ian Spense and Jin Feng, "Video Games and Spatial Cognition," *Review of General Psychology* 14, No. 2 (2010): 92–104.

25. I. Granic, A. Lobel, and R. C. M. E. Engels, "The benefits of playing video games," *American Psychologist* 69, no. 1, (2014): 66–78.

26. "Activision Blizzard completes King acquisition becomes the largest game network in the world with over 500 million users," *Activision,* February 23, 2016, https://investor.activision.com/news-releases/news-release-details/activision-blizzard-completes-king-acquisition-becomes-largest.

27. David Curry, "Candy Crush Revenue and Usage Statistics (2022)," *Business of Apps,* January 11, 2022, https://www.businessofapps.com/data/candy-crush-statistics/.

28. Jessica McCain, Brittany Gentile, and W. Keith Campbell, "A Psychological Exploration of Engagement in Geek Culture," *PLOS ONE* 10*,* no. 11, (2015), e0142200, https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0142200.

29. Gordon Calleja, "Digital Games and Escapism," *Games and Culture* 5, no. 4, (2010):335–353.

For Huizinga,[30] however, this circle referred to social contexts where specific, agreed-upon rules distinguished one type of social space from another: the tennis-court, the chessboard, the arena, the temple, or, indeed, the video game screen. Just as a wedding ritual does not exclusively matter within the confines of the temple as it carries significance within civil society, so do gaming's virtual worlds influence people outside of the screen and in the actual world. Play moves out of the playground's boundaries just as effortlessly as *BioShock*'s critique of Ayn Rand sparked a wider discourse on objectivism. Gaming's magic circle cannot completely separate gameplay from everyday life, mainstream ideas, and politics, as even more emphatically observed with the augmented reality game *Pokémon GO*[31] that has thousands hunting for cartoon monsters in actual cityscapes worldwide.

Interestingly, such interactions with actual space and comments on its organization did not arise from unorganized play. They sprang from gaming—a type of play with distinct purpose, structure, goals, and rules—as an activity that is enjoyed in virtual spaces by people very obviously residing in actual space, but also whose forms and imagined geographies resemble and have been directly inspired by reality. The principles shaping the construction of mental maps that Kevin Lynch analyzed in *The Image of the City*[32] and *Good City Form*[33] and employed in his attempts to make urban spaces navigable, have been extensively referenced[34] in level design theory and widely adopted in the creation of playable worlds. Thus, exploring video games worlds such as *Cyberpunk 2077*'s[35] Night City reveals a clear system of landmarks, paths, districts, and nodes.

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30. Huizinga, *Homo Ludens*.

31. Niantic, Nintendo, and The Pokémon Company. *Pokémon GO*. Niantic. Android. 2016.

32. Kevin Lynch, *The Image of the City* (Cambridge, MA: The MIT Press, 1960).

33. Kevin Lynch, *Good City Form* (Cambridge, MA: The MIT Press, 1981).

34. For examples, see in Christopher W. Totten, *An Architectural Approach to Level Design: Second Edition* (Boca Raton, London, New York: CRC Press, 2019), and Chris Bateman, ed., *Game Writing: Narrative Skills for Videogames, Second Edition* (Bloomsbury, 2021).

35. CD Projekt Red. *Cyberpunk 2077*. CD Projekt. Windows. 2020.

Remembering Utopia

The political aspirations of utopian thinking were never really questioned. At its simplest, "utopia" is a proposal that allows us to imagine a better world, to envisage situations that are beneficial for the majority of humankind. Utopia can pithily—and often via an imaginary city—describe such a desired future. It can be symbolic of a political program, critique an existing socioeconomic system, or attempt to envision an alternate political economy—a way out. Whether vaguely described as a class-less society that overcomes divisions of city and countryside, or a meticulously planned federalist union of towns, utopia remains optimistic and elusive. The closer we get to it the farther away it escapes, and even though it can never be achieved, it most definitely is something that keeps us moving forward. Utopia can be very specific, too. It can be precise and aspire to incremental changes or even lie entirely in the eye of the beholder. The depth and width of utopian thought is indeed immense, and that is why I only employ it in its most traditional, classical sense.

Although aspirational political fantasies trace as far back as Plato's idealistic, perfect city of Atlantis, the word utopia (roughly Greek for "the place that is nowhere") began to be attached to such visions with Sir Thomas More's eponymous usage in 1551.[36] Utopias were much later described as non-dialectic by Marx and Engels.[37] They've also occasionally expressed nostalgic urges for an idealized past, and in most cases have been understood as static states of societal flawlessness. Urbanist Lewis Mumford in the definitive *The Story of Utopias*[38] presented several of the most important of these fascinating utopian schemes, or, as he put it, all the philosophies, fantasies, rationalizations, projections, images, and opinions on a perfect society, with spatial imaginings like Tommaso Campanella's religious *City of the Sun* or the Icarian socialism of Étienne Cabet, who founded communities in Illinois and Texas.

36. Sir Thomas More, *Utopia* (New York: Dover Publications, 1997).
37. Karl Marx, Friedrich Engels, *Manifesto of the Communist Party* (Moscow: Progress Publishers, 1977).
38. Lewis Mumford, *The Story of Utopias* (Azafran Books, 2017).

Attaining perfection can only be achieved outside history, but from the hedonistic and meticulously designed structures of Charles Fourier's *phalanstère* to the utopian-yet-applied socialism of Robert Owen, aspects of utopianism did creep into architectural and planning theory. Utopia as architecture—as a reconstructed and thoroughly described world—is, according to Ruth Levitas,[39] culturally familiar. Ebenezer Howard's "Garden City"[40] method of planning, as well as various strands of modernism, turned utopia into something more realistic and more attainable. Perhaps this utopian plan bordered on totalitarian,[41] as in Le Corbusier's brilliant but overbearing *Ville Radieuse*,[42] or in other instances, though admittedly less so, as in Frank Lloyd Wright's individualistic, futuristic dream for the suburban "Broadacre City."[43]

It should be noted that utopias are not necessarily to be regarded as spatial schema; not all utopian notions include architecture. Ernst Bloch, one of the last classical utopians, in his seminal work *The Principle of Hope,*[44] chose to understand utopia as a political program and human impulse instead. But for those visions which do include actual plans of spatial organization and actualization, what is rarely commented upon is that utopias—whether accompanied by vivid maps and detailed architectural concepts or are colorfully narrated in prose—try to support the imaginations of their audience with as concrete forms as possible. Imagining something pithy, understandable, and coherent, is imagining something plausible. Something that can serve as a call to action and perhaps provide the initial blueprints for a new society. Something which can present us with formerly unimaginable options.

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39. Ruth Levitas, *Utopia as Method: The Imaginary Reconstitution of Society* (London: Palgrave Macmillan, 2013).
40. Ebenezer Howard, *Garden Cities of To-morrow* (New York: Classic Books International, 2010).
41. David Pinder, "In Defense of Utopian Urbanism: Imagining Cities After the 'End of Utopia,'" *Geografiska Annaler Series B, Human Geography* 84, no. 3/4, (2002): 229–241.
42. Gili Merin, "AD Classics: Ville Radieuse / Le Corbusier," *ArchDaily*, accessed October 1, 2021, https://www.archdaily.com/411878/ad-classics-ville-radieuse-le-corbusier.
43. "Broadacre City," Wikipedia, last edited July 28, 2021, https://en.wikipedia.org/wiki/Broadacre_City.
44. Ernst Bloch, *The Principle of Hope, Volume 1* (Cambridge, MA: The MIT Press, 1995).

Such hopeful grand narratives were finally pushed away by the rise of postmodernism,[45] combined with the desperation that Margaret Thatcher condensed into her "There Is No Alternative"[46] slogan and the temporary collapse of egalitarian dreams following the defeat of the Soviet Union. We were left alone with capitalism, which Francis Fukuyama[47] gleefully professed as "the end of history." The complete retreat[48] from utopian urbanism was unavoidable, as things were now thought to be as good as they could get. Even urban planning's great projects gave way to the logic of incremental improvements, and notions of a technologically exotic future city that blossomed during the 1950s had all but faded away by the end of the twentieth century.

Dystopia, the reversal of utopia (effectively the "bad place" in Greek) has become prevalent, projecting current problems and anxieties onto a bleak future. The notion dominates much of the popular imagination, especially in the science fiction genre. Huxley's *Brave New World,*[49] Orwell's *1984,*[50] films such as *Blade Runner*[51] and *Brazil,*[52] and games like *A Mind Forever Voyaging*[53] or *Cyberpunk 2077* all evoke hellish cityscapes brilliantly and warn us of political dangers. Dystopias may be pessimistic but are deeply political and spatial in their critique of the status quo as well. They are never static either, and thus are in direct contrast to the end of history narrative which so spectacularly and quickly collapsed.

Even if the idea of the utopia in its traditional, prescriptive format regaining prominence seems improbable, its methods of conviction via believable, seemingly thorough, depictions of better societies and of reminding humans that their lives should be vastly better, remain valid. Obviously,

45. David Harvey, *The Condition of Postmodernity: An Enquiry into the Origins of Cultural Change* (Cambridge, London: Blackwell, 1990).

46. "There Is No Alternative" (TINA) was the phrase that Thatcher commonly used to claim that the free-market economy is the only, and un-debatable, economic option.

47. Francis Fukuyama, *The End of History and the Last Man* (New York: Free Press, 1992).

48. David Pinder, "In Defense of Utopian Urbanism."

49. Aldous Huxley, *Brave New World* (New York: Harper Perennial Modern Classics, 2006).

50. George Orwell, *1984* (New York: Signet Classics, 1977).

51. *Blade Runner*, directed by Ridley Scott, United States: Warner Bros., 1982.

52. *Brazil*, directed by Terry Gilliam, United States: Universal Pictures, 1985.

53. Steve Meretzky, *A Mind Forever Voyaging*, Infocom, MS-DOS, 1985.

rethinking utopia or utopian urbanism is outside the scope of this essay but sparking imaginations with better alternatives most definitely is not. Sketches, models, fantastic maps, and detailed descriptions were employed by early utopians exactly because they were aware of the fact that an idea becomes concrete and palpable only when it is possible to be imagined. While discussing the imaginary In *The Seeds of Time,* Jameson[54] famously stated that it is easier to imagine the end of the Earth than it is to imagine the end of capitalism, thus pointing out that the problem might indeed be a crisis of the imagination.

Immersion and Video Game Imaginations

Crucially, video games are especially good at constructing and helping us imagine ourselves in entirely new places in what can only be described as an interesting dialogue between interactive virtuality and reality. One of the most important aspects of the video gaming medium is its ability to induce immersive experiences.[55] As players suspend their disbelief and experience different places, they can then transport their in-game sensations and thoughts into the real world, potentially demanding or taking part in the latter's evolution. After all, video games have been shown to nurture creativity[56] and imagination.[57]

Video games are indeed a medium that can spark imagination in novel ways, as well as a rare medium that demands the participation of audiences. Players of games must think, react appropriately, and explore. They must understand interlocking systems. A movie will never cease its progress if you are not paying attention or fail to get its themes, and a book is not able to stop inattentive readers from making it to the final

54. Fredric Jameson, *The Seeds of Time*, (New York: Columbia University Press, 1994).

55. Lazaros Michailidis, Emili Balaguer-Ballester, and Xun He, "Flow and Immersion in Video Games: The Aftermath of a Conceptual Challenge," *Frontiers in Psychology* 9, no. 1682 (2018).

56. "Video game playing tied to creativity," *MSU Today*, November 2, 2011, https://msutoday.msu.edu/news/2011/video-game-playing-tied-to-creativity.

57. Kym Buchanan, "How Video Games Engage the Imagination Muscle," *Pop Matters*, February 2, 2016, https://www.popmatters.com/how-video-games-engage-the-imagination-muscle-2495454604.html.

chapter. A game, however, can do exactly this. It graces audiences with agency, teaches them its rules, trains them in its mechanisms, and then enforces attention and demands problem solving, thus further engaging and immersing them in its world.

Simultaneously, video games are firmly rooted in neoliberal capitalism, as Slavoj Žižek argues in Jon Bailes's *Ideology and the Virtual City,*[58] though this does not say much about them. It is mostly a historical observation: video games are products of their time as they express popular anxieties, and, admittedly, are aimed at commercial success, yet they can simultaneously also be freeware, anti-establishment, wildly experimental, personal or propagandist, and, in a nutshell, art. Interestingly, video games and utopias share certain common traits too: both are adept in imagining alternate societies in novel urban environments, both are deeply spatial, and both strive to prove their cohesiveness.

By bringing play to their spatial medium, video games liberated the concept from the constraints of actual space. The limits of gaming need no longer adhere to the constraints of the lines of a pitch, the edges of a table, or even the area of a square. In video games, reality's physical rules can easily be bent. Buildings and settlements can ignore physics, size restrictions, and costs. Vast expanses can be provided to players. Impossible, gravity defying buildings and irrational, fluid spaces can be conjured. To organize and shape such spaces, the disciplines of architecture[59] and urban design are important, and do indeed influence the important disciplines of level design[60] and even narrative design.[61] Virtual architecture and urbanism may not have to adhere to the constraints of physics or the

58. Jon Bailes, *Ideology and the Virtual City: Videogames, Power Fantasies and Neoliberalism* (Winchester, Washington: Zer0 books, 2019).

59. Christopher W. Totten, *An Architectural Approach to Level Design, Second Edition* (Boca Raton, FL: CRC Press, 2019).

60. Rudolf Kremers, *Level Design: Concept, Theory, and Practice* (Natick: AK Peters, 2009).

61. Konstantinos Dimopoulos, "The Tales Cities Tell," in *Game Writing: Narrative Skills for Videogames*, ed. Chris Bateman (New York: Bloomsbury, 2021), 339–363.

laws and needs of actual people, but, even in their most exotic applications, they need to heavily borrow from reality to create spaces that are easy to grasp and feel somewhat familiar to players to create believable, seemingly sensible illusions.

Virtual worlds[62] are still bound by rules as they attempt to emulate the physical world without ever losing their flexibility. Games set in convincing yet outlandishly urban illusions are of particular interest, as they manage to achieve suspension of disbelief in environments with little resemblance to those we experience in our daily lives. The city of Anor Londo in *Dark Souls*,[63] for instance, is an urban centre with a perpetually setting sun and undead inhabitants and consists almost exclusively of gothic cathedrals. Yet, it retains enough familiarity to attract its audiences: the city features a central axis and walls, and at its center lies a structure directly inspired by the *Duomo di Milano*. Similarly, the evolving dystopian city of Rockvil (the setting of classic text adventure game *A Mind Forever Voyaging*[64]) may feature flying buses, 130 story buildings, and black marble temples run by cults, but is also based on an almost stereotypically US urban structure pattern. By allowing players to act upon such a virtuality, real-life rules can be believably re-imagined in novel environments. As our brains are brilliant at thinking in patterns, when introduced to a seemingly plausible environment it can fill in the blanks, evaluate, and understand it. We can then discern how a world without disease could make sense and can experience moving around a virtual city that does not cater to private automobiles.

Interactivity is a core characteristic of video games, and player choices are key in engineering the emotions that drive the game experience.[65] This sense of agency amplifies player feelings and piques their interest in their surroundings. Interactivity and choice force audiences to engage on a deeper level as they learn to be attentive of their environments and recognize the relationships governing them. When things work the way they

62. Richard A. Bartle, *Designing Virtual Worlds* (Berkeley: New Riders, 2004).
63. From Software, *Dark Souls*, Namco Bandai Games, PlayStation 3, 2011.
64. Meretzky, *A Mind Forever Voyaging*.
65. Tynan Sylvester, *Designing Games: A Guide to Engineering Experiences* (Sebastopol, CA: O'Reilly, 2013).

are expected to, video games become immersive, and their immersion is further supported by requiring the player to understand the rules of the world they are temporarily inhabiting. Indeed, video games exercise almost all the cognitive and social skills required in real life.[66] According to Bryant and Davies,[67] the cognitive, emotional, and kinesthetic feedback loop that is formed between game process and player makes games a particularly powerful media for affecting moods and emotional states. Players occupy spaces and experience within them an intense, simulated form of existence where interaction is the active drive of emotion. The engrossing cityscapes of video games are actively demanding their audience's attention.

Immersion is a major aspect to a game's popularity,[68] and all game spaces, with their hopefully legible, abstracted realities, are constructed to achieve exactly that. As games remain interconnected systems of constraints that limit how players are able to interact with them,[69] hiding such constraints is another design problem. In order to maintain immersion—which makes a game's themes and ideas more persuasive—constraints require obfuscation. Ian Bogost[70] speaks of this procedural rhetoric of the art, that is, of persuading through rule-based representations and interactions within a specific theme, where players literally fill in missing portions of the game by interacting with it. These rules and available interactions are what imbue games with meaning and bring them to life in a unique new way.

66. Spense and Feng, "Video Games and Spatial Cognition."

67. Jennings Bryant and John Davies, "Selective Exposure to Video Games," in *Playing Video Games: Motives, Responses, and Consequences*, ed. P. Vorderer, J. Bryant (Lawrence Erlbaum Associates Publishers, 2006), 181–194.

68. James Babu, "Video Game HUDs: Information Presentation and Spatial Immersion," Master's Thesis, Rochester Institute of Technology, 2012.

69. Stefano Gualeni and Nele Van de Mosselaer, "Ludic Unreliability and Deceptive Game Design," *Journal of the Philosophy in Games*, Online First Issue (2021), last accessed October 1, 2021, https://journals.uio.no/JPG/issue/view/415.

70. Ian Bogost, *Persuasive Games: The Expressive Power of Videogames* (Cambridge, MA: MIT Press, 2007).

To consciously utilize the urban worlds of gaming to inform the way we look at cities and urbanism, we must stop regarding video games as merely a type of escapism sealed within its digital magic circle, itself surrounded by a society that mostly regards escapism as a negative phenomenon.[71] Reality is a complex beast, often influenced by individual or collective imaginings. Nothing exists outside it, yet briefly escaping its imposed ideologies may allow us a glimpse at utopia. Besides, playing games does not automatically imply some sort of retreat from society. Games are not any more escapist than any other engaging activity,[72] and, whether persuasive or not, are an active force in culture.[73] As for their persuasive power, the effect of games, in the vein of *SimCity,*[74] is easily noticed in physical reality regarding mainstream perceptions of what urban planning is.

The cities of games are thoroughly planned, yet often fragmented, virtual spaces evoked through geometry, texture, sound, and prompts for interactions. They provide us with a completely new lens through which to appreciate urban realities and configurations. This is not a lens necessarily applicable to the scientific analysis of actual geography, but one of a still growing artistic medium: it doesn't have to be pragmatic when it's able to render spatial imaginations palpable in a believably concrete manner. This is a lens that transforms text and two-dimensional plans—the domain of the engineer and the architect—into interactive 3D digital spaces that are much closer to how we perceive physical space. No specialized knowledge or map-reading skills are required to experience and understand such spaces, and the addition of layers of interactivity as well as simulation sub-systems (such as flows of pedestrians) further support the illusion of being there.

71. Calleja, "Digital Games and Escapism."
72. Ibid.
73. Luis Navarrete-Cardero and Juan J. Vargas-Iglesias, "Can We Programme Utopia? The Influence of the Digital Neoliberal Discourse on Utopian Videogames," *Journal for a Global Sustainable Information Society* 16, no. 2 (2018), 782–804.
74. Will Wright et al., *SimCity*, Maxis Software, MS-DOS, 1989.

Uniquely, several of the worlds video games have to offer can be explored and played in a collective fashion. Multiplayer games like *Fortnite*[75] or *World of Warcraft*[76] act as very real social hubs, and, fascinatingly, as types of virtual space meant to be shared by many. These are digital settings limited by rules, yet are still able to entertain infinite possibilities, as cooperative sharing is required for gameplay.[77] It could, and indeed has been, argued that such video games can act as limited laboratories to simulate the consequences of different social, political, and economic policies.[78] Obviously, the scientific outcomes from such odd laboratories would be highly questionable, and, depending on the particular assumptions a virtual world was built upon, deeply biased, but, admittedly, they could perhaps approach the matter of the feasibility of certain utopian organizational suggestions or, based on their collective nature, offer up unexpected imaginings.

Alexander Galloway[79] argues that all video games are, at a certain level, utopian projects anyway, due to them featuring worlds that pick and mix the laws and rules they are simulating. This freedom to shape rules is, according to Galloway, utopia's scaffolding. Admittedly though, the creation of an imaginary world does not a priori imply a utopia;[80] this would at least demand a utopian intent, too, which is relatively rare in gaming. Even games like the eponymously titled pioneering, islandic nation builder *Utopia*[81] for the Intellivision and the 16-bit city builder *Utopia*[82]

75. Epic Games, *Fortnite: Battle Royale,* Epic Games, Windows, 2017. *Fortnite* is a player versus player battle royal game where the last man standing wins. The game encourages in-game communication, and even gives players gestures and dance routines to enhance its social function.

76. Blizzard Entertainment, *World of Warcraft*, Blizzard Entertainment, Windows, 2004. *World of Warcraft* is a massively multiplayer online role-playing game set in an expansive fantasy universe populated with strange races, nations, and buildings.

77. Alexander R. Galloway, "Warcraft and Utopia," *1000 Days of Theory* (2006), last accessed October 3, 2021, https://journals.uvic.ca/index.php/ctheory/article/view/14501/5342.

78. Michał Kłosiński, "Games and Utopia," *Acta Ludologica* 1, no.1 (2018), 4–14.

79. Galloway, "Warcraft and Utopia."

80. Kłosiński, "Games and Utopia."

81. Don L. Daglow, *Utopia* (Sears, Roebuck, and Co. Intellivision, 1981).

82. Celestial Software, *Utopia: The Creation of a Nation*, Gremlin Graphics, Amiga, 1991.

lacked such intent, despite allowing players to effectively pursue utopian creations. Actually, all city-building games, often despite their underlying assumptions, can be appropriated to entertain both utopian and dystopian civic notions.

What games and their urban environments have successfully and intentionally done so far, instead, has been in creating socio-spatial critiques. Extreme divisions, new types of racism, environmental deterioration, and civic authoritarianism have been common themes for gaming's urbanism. Even when social antagonisms are symbolically personified in alien overlords, supernatural beings, evil businessmen, or corrupt politicians, rather than institutional inefficiencies or systemic contradictions,[83] emphatic class structures both remain and define the vast majority of major video games.[84] Gaming's critique of modern ideologies and spatial structures, however, is often presented in a pulpy or whimsical way. I am also convinced that in many cases it manifests itself unconsciously, as designers tackle and research the inherently political social space in order to craft believable virtual cities themselves. Any good world builder will study reality and thus represent classes in their cities while probably also realizing their inherent narrative dynamic.

Jon Bailes[85] examines some of the more iconic attempts to unconsciously resolve social issues in the video game cities of *Saints Row IV,*[86] *Grand Theft Auto V, No More Heroes,*[87] and *Persona 5.*[88] According to Bailes, *Saints Row IV*'s utopian hedonism offers consumerism without the exploitation in an outrageous setting, whereas *Grand Theft Auto V* creates a more cynical critique of capitalist metropolitan life in a corrupt, hopeless, greedy big city. The town of Santa Destroy from *No More Heroes* is an abstracted

83. Bailes, *Ideology and The Virtual City.*

84. Konstantinos Dimopoulos, *Virtual Cities: An Atlas & Exploration of Video Game Cities* (London: Unbound, 2020).

85. Bailes, *Ideology and The Virtual City.*

86. Deep Silver Volition, *Saints Row IV*, Deep Silver, Windows, 2013.

87. Grasshoper Manufacture, *No More Heroes*, Marvelous Interactive, Nintendo Wii, 2007.

88. Atlus, *Persona 5*, Atlus, PlayStation 3, 2016.

representation of North American urban sprawl, where neither change nor riches are attainable, whereas *Persona 5'*s Tokyo is, for all intents and purposes, a prison city that is to be reformed to a proper city, but not quite desirable one, at the end of the game.

Reforming dystopia, or saving it from further decline, is a rather common theme, and thus urban dystopia is regularly visited by games. Dystopia's built-in plot hooks and the immersive powers of the medium, as well as its attention to the design of space, have created an impressive variety of highly memorable and often didactic cities over the past 40 years. The apathetic gray of the city of Neutropolis in *Normality* (1996),[89] the failed utopia of *BioShock,* the mercantilist steampunk horror of *Dishonored*'s[90] Dunwall, the corporatist Terrapolis from sci-fi adventure *B.A.T.,*[91] and the cruel cyberpunk cities of *Deus Ex*[92] are all characteristic examples thereof. The evils of capitalism projected on them in exaggerated and imaginative ways have created memorable places, though, admittedly, dystopia is sometimes merely used as a fictional façade,[93] as seen in the otherwise brilliant City 17 of *HλLF-LIFE 2.*[94]

Towards A Virtual Utopian Urbanism

Despite the inherent strengths of the medium, urban utopias remain incredibly rare in video games. Understandably, a perfect society doesn't offer interesting, inherent contradictions, but there really is no reason to stick with the static utopianism of old or even, as Asimov's *Foundation*[95] showcased decades ago, focus exclusively on internal threats. Besides, I cannot imagine many would find the flying cities of Georgii Kru-

89. Gremlin Interactive, *Normality*, Gremlin Interactive, Ms-DOS, 1996. *Normality* is a 3D adventure game about a teenager's rebellion in a dull, polluted, police state of the future.

90. Arkane Studios, *Dishonored*, Bethesda Softworks, Windows, 2012. *Dishonored* is an action-adventure that takes place in a plague-ridden, steampunk, industrial city and revolves around a royal murder and the ensuing coup.

91. Computer's Dream, *B.A.T.,* UbiSoft Entertainment, Atari ST, 1989. *B.A.T.* is an early point-and-click game in deep-space cyberpunk universe involving cosmic terrorists and unique aliens.

92. Ion Storm, *Deus Ex*, Eidos Interactive, Windows, 2000. *Deus Ex* is a cyberpunk role-playing thriller and one of the games that created the immersive sim genre. It takes place in a near-future dystopian Earth.

93. Navarrete-Cardero and Vargas-Iglesias, "Can We Programme Utopia?"

94. Valve. *HλLF-LIFE 2*. Sierra Entertainment. Windows. 2004.

95. Isaac Asimov, *Foundation* (New York City: Gnome Press, 1951).

tikov[96]—emblematic of early utopian planning in the Soviet Union—dull places to visit or think that their splendor is better appreciated on paper than in an interactive 3D environment susceptible to simulated weather and social tensions.

In reality, the virtual cities of gaming can offer convincing, memorable, and even persuasive utopias, provided they chose to do so. The technical capabilities and design methodologies are already well tested, documented, and in place. Civic, imaginary worlds that have the potential to produce alternative hopes and desires[97] can be manufactured and should enter the discourse regarding possible futures. Or as Marie-Laurie Ryan[98] put it, there are two perspectives on the virtual: fake virtual and potential virtual. A virtual city then must be seen as realized potential virtual, and this potentiality can attempt to convey the images of a better world and, hopefully, positively influence its audience.

Video games provide us with unending digital space to experiment with. It is a space that will never run out, can be arranged in virtually any way, and is supported by a menagerie of systems that make it feel real and behave in ways we perceive as plausible. What's more, and unlike previous utopian schemes, such systems can theoretically show the evolution of a proposed utopian scheme. An immersive digital utopia no longer has to be a static description, but a type of predictive tool that takes player choice into consideration. A game world can evolve along both deterministic and procedural lines in an endlessly iterative fashion. One could even attempt—within well-defined constraints—to construct a playful workspace to test out concepts of urban utopianism.

Video games provide us with fascinating opportunities to construct storytelling, and the thematic and immersive civic spaces can provide structure and form to dreams of social change. The technical ability, theory, and design vocabulary are already in place, but it is the design and nar-

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96. Selim Omarovich Khan-Magomedov, *Georgii Krutikov: The Flying City and Beyond* (Barcelona: Tenov Books, 2015).
97. Kłosiński, "Games and Utopia."
98. Marie-Laurie Ryan, *Narrative as Virtual Reality: Immersion and Interactivity in Literature and Electronic Media*, (Baltimore: Johns Hopkins University Press, 2001).

rative challenges that are the main obstacles. The imagination of the artists will undertake such work. Regarding the available tools, many of them have been homed in architecture and planning, due to their increasing incorporation of game technologies in their interactive visualizations, though we do have to remember that game tools, such as game engines, lack the precision demanded by the CAD and GIS programs that the designers of physical reality employ.

What's more, games as mainstream mediums should progress beyond building utopian-flavoured cities for players to experience and be inspired by. Games may be perfectly situated to let us imagine the utopia and its spaces anew by combining their spatial eloquence, persuasiveness, and interactivity, but it is the latter that could help them explore even more intriguing directions without limiting imaginations to the pre-imagined by the designers. In-game building tools supported by clever systems, moral choices that can make or break utopia, and player agency can bring dialectics and dynamism into the discourse. Maybe, as Kłosiński [99] claims, utopia in video games may have to also question whether what it depicts can be changed by the player. Or, perhaps, video gaming's finest utopias can only be collaboratively—and organically—imagined on massive servers by thousands of active, engaged players.

No matter the means, attempting to liberate the popular imagination of cities is a noble goal. It is one worth at least attempting to reach, as experiences in interactive, virtual spaces could shape how we perceive real space and thus what we perceive as possible. And as both game engines and games themselves become more accessible, utopia may have even found a new medium through which to present, enrich, and explain itself.

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99. Kłosiński, "Games and Utopia."

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Resurrecting Defunct Theme Park Attractions

Fan Preservation in Virtual Worlds

Bobby Schweizer

"Saving" the Past in Polygons

On January 7, 2021, the popular YouTube channel Defunctland posted a project that had been in development for a few years: a virtual reality re-creation of the former Magic Kingdom attraction 20,000 Leagues Under the Sea (1971–1994) at Walt Disney World.[1] News of the high-profile project—available as an interactive 360° video and VR application—was enthusiastically circulated across social media and pop culture news websites. This effort—organized and publicized by one of the internet's most popular theme park outlets—is the most recent example of a long-established, though minimally publicized, form of fan preservation: attractions resurrected in 3D. Despite being thoroughly grounded in concrete and steel, theme park attractions are (on a long enough scale) ephemeral. Attractions may be remodeled or demolished with no guarantee that any of their pieces will be secured for posterity. And, because theme park attractions are mixes of architecture, cinema, theater, bodily sensation, and special effects, the only way to get close to replicating the original would be to duplicate them elsewhere (though they would still lack crucial context). "Fan preservationists" do significant work saving

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1. Kevin Perjurer, "Defunctland VR: 20,000 Leagues Under the Sea," uploaded on January 7, 2021, YouTube video, https://www.youtube.com/watch?v=qQgLOzVkNVU.

and re-presenting popular culture that might otherwise get lost.[2] Fans of the parks without access to official archives have adopted the ethos that Andy Bennett refers to as "DIY (Do-it-yourself) Preservationism" which involves "the salvaging and re-mastering of recordings that are not readily accessible."[3] Bennett notes that groups of bootlegging music fans had a willingness "to apply their own conventions of taste and distinction."[4] They were curating, so to speak. And the same is true in the case of theme park preservationists: their sensibilities often involve expressions of nostalgia, appreciation of craftsmanship, and use of rhetoric about what these attractions represented in their time. Preservationists work both with and as "rogue archivists," a term coined by internet culture researcher Abigail De Kosnik to describe nonprofessional "amateurs, fans, hackers, pirates, and volunteers" who function as memory workers who collectively (though frequently disconnectedly) amass the snippets of the past.[5] Rogue archivists are joined by "fan-historians" who engage in productive labor that assembles and interprets the history of their subject of interest.[6] Fan and lay historians have archived photographs, home movies (including ride-through videos), ephemera, paratexts, and documentations of stories. Alongside these "traditional" forms of media archiving, *Minecraft* builders, *NoLimits 2* designers, and Autodesk Maya 3-D modelers have knowingly, and even unknowingly, joined an online community of practice dedicated to archiving the theme park. Using reference photos and videos, descriptions and anecdotes shared online, and often their own personal memories, fan preservationists have taken to software tools that offer a new way of remembering that realizes the "vir-

2. Melanie Swalwell, "Moving on From the Original Experience: Games History, Preservation and Presentation," in *Proceedings of DiGRA 2013: DeFragging Game Studies* (Digital Games Research Association, Atlanta, GA, 2013), http://www.digra.org/wp-content/uploads/digital-library/paper_454.pdf.

3. Andy Bennett, "'Heritage Rock': Rock Music, Representation and Heritage Discourse," *Poetics* 37, no. 5 (2009): 475, https://doi.org/10.1016/j.poetic.2009.09.006.

4. Bennett, "'Heritage Rock,'" 483.

5. Abigail De Kosnik, *Rogue Archives: Digital Cultural Memory and Media Fandom* (Cambridge, MA: The MIT Press, 2016), 2.

6. E. Charlotte Stevens and Nick Webber, "The Fan-Historian," *Transformative Works and Cultures* 37 (2022): 2.10, https://doi.org/10.3983/twc.2022.2125.

tual" realities of theme parks in virtual computer space.[7] These creators often choose tools based on convenience or familiarity rather than the most appropriate platform. And these re-creations are not perfect reconstructions but rather interpretations belonging to the rogue archives of Disney fans and historians.[8] Because of the integrated nature of first-person embodied points-of-view in both theme park and virtual spaces, 3D re-creations are primarily concerned with replicating the experience of being in a ride vehicle and moving through an attraction.[9] In my method of archeological digging to find examples of virtual re-creations, I relied heavily on YouTube captures of games both old and new, websites preserved by the *Wayback Machine*, loose threads of online discussions, and hands-on experiences with virtual rides. What has emerged is a library of examples of defunct/demolished/extinct attractions re-created with three-dimensional tools to reveal both the nature of DIY preservationists and the online networks of theme park archives. Though absent of darkly-painted walls, troughs of moving water, and tangles of animatronic wiring, these virtually preserved attractions direct their attention to an essential aspect of the theme park: the preservation of embodied experience.

Virtual ride re-creations in videogame tools allow the player to be situated within the space of the attraction and manipulate their point of view. Though it could be argued that a 360° POV ride video could accomplish the same, the proliferation of that capture method is relatively recent and cannot document attractions which have already been demolished or converted. The re-creations examined here are imperfect—and that is a part of their significance. Some projects were meticulously researched and brought to life in jaw-dropping Unreal Engine environments while

7. For extended discussions on the "virtual" qualities of real spaces see Celia Pearce, *The Interactive Book: A Guide to the Interactive Revolution* (Indianapolis, IN: Macmillan Technical Pub., 1997); Michael Heim, *Virtual Realism* (Oxford University Press, 2000); Marie-Laure Ryan, *Narrative as Virtual Reality: Immersion and Interactivity in Literature and Electronic Media* (Baltimore, MD: Johns Hopkins University Press, 2001); Michael J. Ostwald, "Identity Tourism, Virtuality and the Theme Park," in *Virtual Globalization: Virtual Spaces/Tourist Spaces*, ed. David Holmes (New York: Routledge, 2001), 192–204.

8. De Kosnik, *Rogue Archives*, 4.

9. Dave Gottwald, "From Image as Place to Image as Space: Pinocchio, Pirates, and the Spatial Philosophy of the Multiplane Camera," *The International Journal of the Image* 12, no. 1 (2021): 71–93, https://doi.org/10.18848/2154-8560/CGP/v12i01/71–93.

others are "good enough" approximations in *Roblox*. Fidelity, in the case of these rogue archives, is balanced with the heartfelt desire to share a sense of joy and wonder, and approachable videogame technologies enable this form of chronicling. *Minecraft*, for example, offers multiple richly detailed fan-operated Walt Disney World servers such as the Imagineers Club and Imagineering Fun and, in 2021, were joined by an official *Minecraft x Walt Disney Magic Kingdom* expansion. Players surely feel a sense of awe at the vast, intricate landscapes built of voxels. The immersive qualities may be different from the real counterpart, but it, too, encourages the "active creation of belief" integral to the sense of immersion. Virtual rides that place the player in the attraction also parallel the sense of embodiment within the theme park's tapestry of narrative space, asking players to perceive their surroundings while in motion.[10] These acts of engagement beg us to inquire about what it means to "experience" an attraction. Each member of the audience of Disneyland's Rocket/Flight to the Moon (1955–1975) perceived the show in their own body and their own time—their own "experience." Philosopher John Dewey's foundational *Art as Experience* (1934) advocated for an experiential interpretation of art (and by extension expressive media) that considered the artist and their work communing with the viewer who was actively engaged with the world around them. Forms of expression, as Dewey described, are "the art of making clear what is involved in the organization of space and time prefigured in every course of a developing life-experience."[11] The significance of the work shifts from the artifact to its dynamic effect on the living being, who is said to have had "an experience" when the "material experienced runs its course to fulfillment."[12] Virtual attraction creators compel us to consider what it means to preserve our experiences.

10. For a foundational explanation of being-in and moving-through media spaces, see Anne Friedberg, *Window Shopping: Cinema and the Postmodern* (University of California Press, 1993), http://hdl.handle.net/2027/heb.08213.

11. John Dewey, *Art as Experience* (Perigee Books, 1980), 24.

12. Dewey, *Art as Experience*, 36.

Game historian Melanie Swalwell has encouraged a mode of preservation that deprecates the importance of the "original experience" in favor of a "range of sources" that each contribute to the texture of an experience.[13] This is especially true of theme parks: because a parkgoer cannot have a commensurate experience of an attraction at home, they are left re-experiencing from memories and documentation. Attraction ride-through videos, as Kyle Meikle describes, serve "at the same time as an archive, a live performance, and a promotion of for some future performance" that positions viewers as "actors in the park's repertory."[14] In the comments sections of the videos Meikle examines, it's clear that even first-person videos have a transportive quality.[15] Theme park literacy allows us to engage with re-creations using our primary sense—"the supremacy of the visual"—while excusing that which we cannot directly sense in favor of imagining.[16] Thus, theme park re-creations are akin to our own imperfect memories of experience and preservation as an exercise in recollection. Though simulated movement reveals how "kinaesthetic presence converges with issues of image simulation,"[17] parkgoers who seek out this media are accustomed to the act of riding.[18] The players/viewers of virtual re-creations are able to situate themselves within the presentation in much the same ways parkgoers used their cinematic literacy to interpret attraction spaces.[19] In virtual ride re-creations, we can "see volatile attitudes about the proper relationship between perception and representation," and "'actual' experience and 'aesthetic' experience."[20] Performance scholar Michael Nitsche described how though a virtual ride "quotes the sensual spectacle of a real rollercoaster, it does so in the second instance

13. Melanie Swalwell, "Moving on from the Original Experience," in *Fans and Videogames: Histories, Fandom, Archives*, ed. Angela Ndalianis and Helen Stuckey (Taylor & Francis, 2017), 213–33.

14. Kyle Meikle, "Time for the Theme Park Ride-through Video," *Transformative Works and Cultures* 37 (2022): 1.5, https://doi.org/10.3983/twc.2022.2203.

15. Meikle, "Time for the Theme Park Ride-through Video,"3.2.

16. Gordon S. Grice, "Sensory Design in Immersive Environments," in *A Reader in Themed and Immersive Spaces* (ETC Press, 2016), 131–38.

17. Andrew Darley, *Visual Digital Culture: Surface Play and Spectacle in New Media Genres* (Routledge, 2002), 107.

18. Michael Nitsche, *Video Game Spaces: Image, Play, and Structure in 3D Game Worlds* (Cambridge, MA: The MIT Press, 2008), 13–14.

19. Gottwald, "From Image as Place to Image as Space," 77–79.

20. Brooke Belisle, "Immersion," in *Debugging Game History: A Critical Lexicon*, ed. Raiford Guins and Henry Lowood (Cambridge, MA: The MIT Press, 2016), 256.

through the eye of a virtual camera" which highlights the lack of physical sensation.[21] Immersion is a contested term, but here it is used to describe an embodied sense of being located within a space and given some amount of agency.

Media theorist Brooke Belisle advises that "the felt experience of immersion . . . expresses a temporary but powerful alignment between the technical conventions of a particular medium, the aesthetic form of a particular representation, the cultural logic of a particular historical moment, and the perceptual framework of a particular participant's embodied experience."[22] In his research-through-design practice of building a virtual dark ride by documenting existing attractions, Joel Zika typologized the common characteristics of dark rides throughout history: "an internal and external journey," "360-degree design," "triggered sound," "perspective and illusion," "mediated lighting," and "haptic feedback."[23] The majority of attraction re-creations studied here attempt to emulate at least the first five of these six characterizations. Zika's work is also unique because he uses gyroscopic sensors to measure acceleration, force, and bumps while documenting classic dark rides which might "allow for a full simulation of the experiences at a later date."[24] Though that sort of data is unavailable for rides that have already been demolished, it's not difficult to imagine the preservationists of today carrying a smartphone app that could record these sensations for posterity. Even still, it is apparent that significant parts of an attraction's construction can be virtualized using computer technology because of parallels between classically virtual (in the way Marie-Laure Ryan employs the term) and digital virtual spaces. As "spatial media," theme park and game design have converged with regards to "spatial narrative, experience design," "illusion of authenticity," and "immersion."[25] Scott Lukas

21. Nitsche, *Video Game Spaces*, 14.
22. Belisle, "Immersion," 256.
23. Joel Zika, "The Historic Dark Ride: Reimagined for Virtual Experience" (Dissertation by Artefact and Exegesis, Melbourne, Australia, Swinburne University, 2021), 49.
24. Zika, "The Historic Dark Ride," 25.
25. Celia Pearce, "Narrative Environments from Disneyland to World of Warcraft," in *Space, Time, Play: Computer Games, Architecture and Urbanism: The Next Level*, ed. Friedrich von Borries, Steffan P. Walz, and Matteas Bottger (Basel: Birkhauser, 2007), 201.

connects virtual reality and theme parks through David Lowenthal's notion that theme parks are already of "willful geographies of the mind."[26] And former Walt Disney Imagineering executive designer Joe Rohde practiced these very concepts. At the SIGGRAPH Computer Graphics conference in 2007, Rohde—who is best known for leading the creation of Disney's Animal Kingdom—described his team's work as "virtual placemaking."[27] The virtual space of videogames is the ideal medium for preserving the virtual space of the theme park.

Practices of Fan Preservation and Rogue Archivists

Theme park fandom researcher Rebecca Williams has written extensively about the "online memorialization" that occurs when fans gather to discuss a defunct or soon-to-close ride and how this discourse "canonizes" a particular iteration of that ride.[28] It can often be interpreted as a form of "fannish discontent" whereby theme park fans recognize the irreversibility of major changes.[29] Though Williams doesn't go quite as far as to connect memorialization to preservation, the collective efforts of these fans save the memories of attractions, events, and experiences. For example, when the pseudonymous Epcot fans "Hoot Gibson" and his friend "Chief" set out to document every detail of the soon-to-shutter attraction Horizons by breaking free from the confines of the ride vehicle to wander the sets to photograph and film, they were undertaking a preservationist campaign of unprecedented scale.[30] Hoot and Chief are prime examples of the unsanctioned work De Kosnik describes of the "rogue archivists"

26. David Lowenthal, "The Past as a Theme Park," in *Theme Park Landscapes: Antecedents and Variations*, Dumbarton Oaks Colloquium on the History of Landscape Architecture (Dumbarton Oaks, 2002), 12; Scott A Lukas, *The Themed Space: Locating Culture, Nation, And Self* (Lanham, MD: Lexington Books, 2007), 14.

27. Florian Freitag, "Theme Park Metatexts: An Aesthetics of Inclusion and Exclusion," *Journal of Foreign Languages and Cultures* 3, no. 1 (June 2019), 4.

28. Rebecca Williams, *Theme Park Fandom: Spatial Transmedia, Materiality and Participatory Cultures* (Amsterdam: Amsterdam University Press, 2020), 212–13.

29. Williams, *Theme Park Fandom*, 215.

30. Doug Jones, "The True Story of the Unauthorized, Daredevil Documentation of the Horizons Ride at Disney World," *DangerousMinds*, August 17, 2016, https://dangerousminds.net/comments/the_true_story_of_the_unauthorized_daredevil_documentation_of_the_horizons_.

in enthusiast communities.[31] Though not quite as roguish, the fans who started preserving attractions as three-dimensional, computer generated images beginning around the turn of the twenty-first century recognized that software could bring back to life defunct attractions.

Fan-preservationists, fan-historians, and rogue archivists fill an essential role in rescuing information and artifacts otherwise lost to secrecy or indifference. Trade secrets at the Walt Disney Company, for example, are kept within the organization's walls for years to maintain a competitive advantage. In recent years, Imagineers on social media have become moderately more forthcoming with stories, concept sketches, and photos of old projects-in-progress, but previously signed "non-disclosure agreements" often swear them to corporate confidentiality. And the sheer scope of the company's endeavors (even just the portion that relates to theme parks) is too extensive to preserve. The Walt Disney Archives—led for decades by David R. Smith—attempts to save significant pieces of history, but enthusiasts are often interested in the insignificant (or, perhaps they find everything significant). The material objects of the parks, when preserved, find convenient homes when exhibited for Disney promotional events such as the D23 fan convention or the *Behind the Attractions* series on the Disney+ streaming service. And the company's Disney Editions book imprint regularly produces authorized "insider" attraction histories like Jason Surrell's *The Haunted Mansion: Imagineering a Disney Classic*[32] and Imagineer monographs such as John Hench and Peggy Van Pelt's *Designing Disney*.[33] But there are other archives as well on the spectrum of official to unofficial (or sanctioned to rogue). The Walt Disney Family Museum and the Harrison "Buzz" Price archive at the University of Central Florida are examples of professionally curated collections of primary source documents. Memoirs by Imagineers are common, and former Imagineers more openly share old stories and media from their personal collections. Moving beyond the company, the Enchanted Archives public history project that was developed by a trained historian can be categorized as professional but unsanctioned. Traveling again toward the

31. De Kosnik, *Rogue Archives,* 3.
32. Jason Surrell, *The Haunted Mansion: Imagineering a Disney Classic* (Disney Editions, 2015).
33. John Hench, *Designing Disney* (Disney Editions, 2009).

"rogue" end of the spectrum, the website *DIX* (Disney Resource Index) has cataloged (but does not host) publications, interviews, and internal documents more readily available to the public. YouTube has served as a tremendous storage pool of video documentation of old home movies and current-day walkaround and ride-through videos.[34]

Descriptions by Stevens and Webber of "fan-historians" and Swalwell of "fan-preservationists" serve well to describe a range of individuals or collectives who occupy a role outside of official channels and are engaged in productive labor. Ride re-creators are enthusiasts invested in maintaining the future well-being of their fandom by contributing resources and attention to their community of preservationists. They are supplemented by other fan-historians and archivists who share home movies and photos, re-circulate concept art and magazine scans, and sustain the mythology to produce archival momentum.[35] These collections have become "networked objects" shaped by the habits of users and their tools.[36] And, as José Van Dijck emphasizes, it is less that technology supports increasing fidelities of digital memory[37] and more that networks reveal the messy, ad-hoc nature of communities attempting to recollect. It's appropriate, then, that archives capture the tension between the "idealistic" experience and the metatexts that reveal the "backstage" and operational workings of the theme parks.[38] The documentation gathered by professionals and enthusiasts that comprises the crowd-sourced archive returns us to an important question: to what extent do these examples capture the totalizing experience of the theme park? The lived experience of wandering through a theme park or riding a ride is difficult to emulate because they are a "total-sensory-engaging environmental art form"[39] and, short of re-creating an attraction brick-by-brick in a sec-

34. For an extended discussion of YouTube ride videos, see Meikle, "Time for the Theme Park Ride-through Video."

35. Sophie G Einwächter, "Preserving the Marginal. Or: The Fan as Archivist," in *At the Borders of (Film) History: Temporality, Archaeology, Theories: FilmForum/2014: XXI Convegno Internazionale Di Studi Sul Cinema*, ed. Alberto Beltrame, Giuseppe Fidotta, and Andrea Mariani (Udine: Forum, 2015), 366.

36. José Van Dijck, *Mediated Memories in the Digital Age* (Stanford University Press, 2007), 48.

37. Van Dijck, *Mediated Memories in the Digital Age*, 50–52.

38. Freitag, "Theme Park Metatexts."

39. Margaret J. King, "The Theme Park: Aspects of Experience in a Four-Dimensional Landscape," *Material Culture* 34, no. 2 (2002): 3.

ond location, replicating actual experiences seems improbable. However, virtual ride re-creations have poised themselves rhetorically to address this issue. Surprisingly, most of the examples I found (primarily documented as YouTube playthroughs) replicated the boundaries of the actual park-going experience. This differentiates them from officially licensed theme park games such as *Universal Studios Theme Park Adventures* (2001) and *Kinect: Disneyland Adventures* (2011) that reproduce the layout and facades of the parks while inventing stand-ins for their rides and attractions. Games like these remediate the theme park experience by establishing new dynamics between the player and the park ecosystem and casting them as participants in the ride story.[40] Virtual tribute designers, on the other hand, attempt to simulate the original attraction's geometry and presentation, comprising the "*narrating architecture* that enforces a certain vision through the limitation of the spatial practice within it."[41] This is especially true of fans of re-creations of defunct rides and attractions. After their demolition, these seemingly-stable spatial practices that had previously provided what Anthony Giddens called "ontological security" for fan identity required a surrogate object that could reproduce the emotional bonds formed with the original experience.[42] Upon the closure of an attraction, the internet has provided fans with a place to congregate, share media and memories, and use nostalgia to reclaim their personal relationships to the places they hold dear.[43]

The fan preservationists discussed in this chapter range from incidental contributors who happened to build a ride in *Minecraft* to engaged community members who converse on social media or within YouTube comment threads. An illustration of this can be seen in the comments of DACS DACS's *Rollercoaster Tycoon 3* "Virtual Twister: Ride It Out" video in which another user inquires if their "real soundtrack" would be helpful in the production of the video, to which DACS DACS replies: "Do you have the Bill Pullmann [sic] Exit announcement without the music mixed

40. Bobby Schweizer, "Visiting the Videogame Theme Park," *Wide Screen* 6, Special Issue: Videogame Adaptation, no. 1 (2016), http://widescreenjournal.org/index.php/journal/article/view/99.

41. Nitsche, *Video Game Spaces*, 106.

42. Hoot Gibson, "(No Title)," *Mesa Verde Times* (blog), July 19, 2012, http://mesaverdetimes.blogspot.com/2012/07/there-were-lot-of-times-when-we-would.html.

43. Williams, *Theme Park Fandom*, 234.

in? I could integrate it in the model, so you could even hear it in the rct [*Rollercoaster Tycoon*] game when the attraction ends."[44] Ride builders like DACS DACS and X-S Bravo are part of a group of "rogue preservationists" who capture and disseminate information that often risks infringing on the intellectual properties of corporations who produce work they care about.[45] In the same YouTube comment, DACS DACS further exemplifies the impulses of the rogue archivist: "Sadly i don´t have a link or the name of the guy, but if you haven´t found it i could see, maybe i saved the original vid to one of my external hard drives."

The re-creations discussed here provide a new perspective that aligns theme park-going with digital affordances. For certain projects, it's easy to determine the designers' intentions. Defunctland's 20,000 Leagues Under the Sea and former Imagineer Don Carson and Daniel Singer's Alice in Wonderland[46] are publicized as strictly preservationist efforts. In other examples—like any number of *Jaws* attractions built in the *Planet Coaster*, *Minecraft*, or *Roblox* game environments—it is more difficult to discern the motivation for the time and effort. Are they spurred by a personal fondness? The convenient availability of models in the games' asset stores? The rewards of producing a popular YouTube playthrough of the ride? Regardless of intent, these game-based ride re-creations serve the important role of capturing both the landscape of the ride and the creator's interpretation of that experience. Their creators are prime examples of how "media users have seized hold of all of mass culture *as an archive*" to textually poach and remix into their own creations.[47]

44. DACS DACS, "VIRTUAL Twister - Ride It out Universal Orlando," uploaded on July 31, 2016, YouTube video, https://www.youtube.com/watch?v=nIGoOqRujCw.

45. Marvin Carlson, "Immersive Theatre and the Reception Process," *Forum Modernes Theater* 27, no. 1 (2012): 162, https://doi.org/10.1353/fmt.2012.0002; Scott Carlson, "Bootleg Compilations as Fan Preservation," in *Music Preservation and Archiving Today*, ed. Norie Guthrie and Scott Carlson (Rowman & Littlefield, 2018), 162.

46. Don Carson, "Recreating Disneyland's 1958 Version of the Alice in Wonderland Attraction - Intro Version," uploaded on August 9, 2020, YouTube video, https://www.youtube.com/watch?v=GGzoQLkOMWk.

47. De Kosnik, *Rogue Archives*, 4.

Early Work in 3D Re-creation

The proto-example of a virtual ride re-creation emerged out of the 1997 "Save Mr. Toad" online campaign that formed when Disney announced the closure of Mr. Toad's Wild Ride (1972–1997) at the Magic Kingdom and its replacement, The Many Adventures of Winnie the Pooh (1999–). Mr. Toad—a duplicate of one of Disneyland's opening day attractions—had become a fan favorite. Notably it was also one of the first attractions to close in an era when online fan communities had become more ubiquitous and connected through message boards. In the case of this attraction, the campaign found a home at savetoad.com.[48] Fan Spencer Cook is responsible for the first well-publicized 3D modeled ride project, *Virtual Toad*.[49] Cook reported on his website that even before the fan campaign he had thought of re-building the ride in physical miniatures and guiding a "tiny video camera" through it. This practice would have mimicked earlier design practices of WED and reminds us of the intertwined histories of theme park attractions and "filmic grammar."[50] Admitting this might prove beyond his capabilities, Cook turned to 3D animation technology, thinking that it might have preservationist potentials ("like reconstructing an ancient temple by computer!").[51] Parts of the project were released in the now-defunct QuickTime VR format, enabling viewers to drag the mouse to look around while the virtual camera navigated the space of the ride. Cook continued to work on the project intermittently for a decade, and though he never completed it, his custodial intentions were clear. "When it's all finished, whether it be on DVD or installed in some 'virtual reality' setting, people will once again be able to experience a small slice of 'dark ride' heaven."[52]

48. The website has been preserved at https://www.math.miami.edu/~jam/toad/.
49. Spencer Cook, "Welcome to Virtual Toad!," *Virtual Toad,* accessed August 30, 2021, http://virtual-toad.com/.
50. Gottwald, "From Image as Place to Image as Space."
51. Spencer Cook, "A Computer-Animated Reconstruction of Mr. Toad's Wild Ride." *Wayback Machine,* 2003, https://web.archive.org/web/20060913202241/http://www.virtual-toad.com/history.html.
52. Cook, "A Computer-Animated Reconstruction."

During this same period, other fans were experimenting with 3D modeling. These projects include Jason Bartel's Horizons/Epcot project,[53] Michael Flint's interpretation of If You Had Wings (1972–1989),[54] and Steve Wesson's Adventure Thru Inner Space (1967–1985) "Virtual Ride-Thru."[55] Bartel was focused primarily on 3D models to put together a rendered landscape rather than a particular output. Flint published screenshots and released short video clips online to show his work-in-progress. However, he ultimately ended the project and conceded that, "The reasons are many, but the fact that there are some acceptable videos of the ride available and my unwillingness to learn 3D animation beyond the basics are why I've chosen to stop." The reference to "acceptable videos" emerging around 2005 hints at the new methods of sharing video files on the internet (and, in fact, notable preservationist Martins Videos would release a "tribute" only a year later). Cook also encountered a dead-end and was unable to complete the project. In some ways, *Virtual Toad* benefited from the original ride's extensive use of "flats" (painted 2-dimensional surfaces) that reduced the number of full 3D models that needed to be created. Yet, working alone with 3D modeling and animation software that was—especially for home users—still in a nascent period proved difficult.

Wesson, who found success with his Adventure Thru Inner Space Virtual Ride-Thru, left a diary of his progress online. He updated website visitors with the tribulations of the rendering woes faced by home creators: "My old machine rendering scene heavy projects (like the lobby) at 700 x 486 pixel took about 1 hour 30 minutes to render . . . PER FRAME!!! That means ONE SECOND of animation took well over 60 HOURS."[56] Wesson worked on the project for years and was ultimately able to produce and distribute a DVD (and later a set of video files) to sell his work, containing

53. Jason Bartel, "Progress During 2001 | Deep Water Studios," *Deep Water Studios,* February 18, 2004, http://www.deepwaterstudios.com/projects/epcot-center-project/epcot2001/.

54. Michael Flint, "Dizneyworld's If You Had Wings Project," *Wayback Machine*, March 20, 2005, https://web.archive.org/web/20071220062206/http://dizneyworld.net:80/iyhw.html.

55. Steve Wesson, "CGI 3D ATIS Project Re-creation Ride Thru," *Wayback Machine*, November 25, 2004, https://web.archive.org/web/20050308211912/http://www.atommobiles.com/cgi-project.htm.

56. Steve Wesson, "Update (WITH SOUND) 06-30-03," *Wayback Machine*, June 30, 2003, https://web.archive.org/web/20031002050709/http://www.atommobiles.com:80/cgi-project.htm.

two perspectives of the attraction: a rider's first-person perspective from one of the Omnimover vehicles and another with fixed cameras mounted in the virtual building for a "cinematic" presentation of its layout. In the same way that the "flats" of Mr. Toad meant having to model fewer complex character shapes, Adventure Thru Inner Space favored projected video effects over complex figures, making it slightly simpler to build in polygons. Wesson's project was well received by Disney fans. Praise for the work came from Spencer Cook (designer of *Virtual Toad)*, who thought Wesson should be known as the "'founding father' of the virtual theme park ride-through." Even former Senior Vice President of Concept Design, Walt Disney Imagineering Eddie Sotto, quipped, "The Oscar goes to Steve, for finding new ways to arrange pixels for our comfort and convenience!"[57]

In these early examples, we can see how the promise of 3D software inspired park fans to reclaim the ride experience virtually and the major hurdles of the realities of technological limitations. This small group of creators linked to one another's projects on their home pages, shared works-in-progress, and formed an early niche community whose works were discussed on message boards. Only Wesson's Adventure Thru Inner Space re-creation has survived the digital decay of the Internet. Only screenshots remain from Flint's animation tests as saved by archive.org's *Wayback Machine.* And Cook's Mr. Toad lives as screenshots and Quick-Time VR files that can only be opened on older Apple computers. These lost resources serve as reminders that media intended to preserve also needs to be maintained.

Remembering with Videogame Technology: Sims, Sandboxes, and Game Engines

Before the availability of game engines, ride re-creators used 3D modeling software like Blender, Maya, and Bryce 3D designed to output rendered video, like a computer-animated movie. Videogame tools, on the other hand, offer something other 3D rendering software does not: the

57. Steve Wesson, "Adventure Thru Inner Space DVD," *The Mighty Microscope,* 2010, http://www.themightymicroscope.com/dvd_puchase.htm.

ability to reproduce the visual and aural environments in a way that is both responsive and navigable using in-game point-of-view cameras. Virtual ride re-creations based on game tools can be divided into three categories: those built using theme park sim and ride-design tools like *Planet Coaster*, those using built-in sandbox tools like *Roblox*, and those using built-in game engines like Unreal. The re-creations built using platforms take on existing characteristics of that game: the visual style of existing assets and construction blocks makes a marked difference in the visual composition of *Minecraft*; game mechanics, world attributes like movement speed, and controller and camera implementations determine how it feels to interact in the space; and multiplayer spaces like *Roblox* add a social dynamic that replicates the communal nature of theme park-going. Video game engines like Unity and Unreal are tools that handle significant parts of the development process: graphics, virtual cameras, assets, implementing mechanics and interactions through programming, and deploying game executables for distribution. In fact, these engines have transcended the games industry and have become a significant tool of architectural design because they allow for navigation and interaction.[58] Unlike the games designed as either theme park sim and ride-design games or as creative sandboxes, game engines open vast possibilities of creation. Game engines are intended to be distributed as interactive and playable, though the prevalence of virtual ride-through videos on YouTube complicates expectations about agency.

Theme park sim and ride-design games such as *Rollercoaster Tycoon 3*, *Planet Coaster,* and *NoLimits 2: Roller Coaster Simulator* are popular because they allow players to construct rides with tools designed for that specific purpose. Ride-designers contrast with the "sandbox" games below that have been co-opted for theme park attractions. As their titles imply, these games are ostensibly for building rollercoasters—a type of ride the Disney and Universal parks have had fewer of than other types of attractions, but are more prevalent at Six Flags, Cedar Fair, and Sea-World/Busch Gardens parks. Enthusiasts have taken to the coaster-spe-

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58. Dave Gottwald and Gregory Turner-Rahman, "The End of Architecture: Theme Parks, Video Games, and the Built Environment in Cinematic Mode," *The International Journal of the Constructed Environment* 10, no. 2 (2019): 41–60, https://doi.org/10.18848/2154-8587/CGP/v10i02/41-60.

cific tools of *NoLimits 2* (*NL2*) for a specific branch of preservation. In one example, an "homage" to the Dragon Challenge (formerly Dueling Dragons) (1999–2017) at Universal Islands of Adventure in Florida was interpreted as the "Lost Lands Dragons" coaster.[59] Its track layout remained the same, but neither the Wizarding World of Harry Potter nor the original Lost Continent context were preserved. Though most Disney Park coasters are still in operation, creator Giftaddict replicated the "From the Earth to the Moon" rendition of Space Mountain that was a part of Disneyland Paris between 1995 and 2005.[60] Because of the limitations of *NL2*, Joseph Pojunis instead paid tribute to the "spirit" of the original Twilight Zone Tower of Terror (2004–2017) at Disney California Adventure with a wholly new interpretation that converted the "drop ride" hotel into a subway train coaster. In Pojunis's interpretation, "Terror Tracks is an homage . . . created as a form of carrying on the legacy of the popular attraction" and the project highlights the subjective experience so many of these creators are trying to convey.[61] User Martymum creatively implemented slow-moving ride vehicles in *NL2* for Epcot's Test Track and Universal Studios' Kongfrontation.[62] *Rollercoaster Tycoon 3* contained a feature to allow creators to import "custom scenery" made in software like SketchUp to deploy architecture and models not available in the base game, which allowed them to represent a greater variety of attractions and demonstrates how creators are always looking to push the limitations of software.

Planet Coaster, on the other hand, is more broadly suitable for preservation because it features a variety of ride systems including boats, dark ride vehicles, and raft rides. User NOICE preserved the first version of Epcot's Test Track (1999–2012) in both layout and by providing an audio

59. Deanrell, "NoLimits 2: Lost Lands Dragons (Dueling Inverted B&M)," uploaded on January 19, 2018, YouTube video, https://www.youtube.com/watch?v=NhGbbvWW5c4.

60. Giftaddict, "[NoLimits Coaster 2] Space Mountain - From the Earth to the Moon | Full Onride," uploaded on November 1, 2015, YouTube video, https://www.youtube.com/watch?v=2PDD7Giair0.

61. Joseph Pojunis, "[NL2] The Twilight Zone: Terror Tracks," uploaded on December 21, 2016, YouTube video, https://www.youtube.com/watch?v=Zo-_Wy1fV4s.

62. Martymum, "Original Test Track (Disney's Epcot) – No Limits Coaster 2 - Recreation," uploaded on June 11, 2017, YouTube video, https://www.youtube.com/watch?v=mSTdgOE6IwQ.

soundtrack to map it to the original.[63] User Theme Park Worldwide used the Studios Park expansion pack to construct JAWS: The Ride (1990–2012) and recorded their own narration of the boat captain delivering the ride's script.[64] Although these games were not created to handle all types of attractions one might find at a theme park, such as a stage show or simulator ride, builders have found clever workarounds. Notably, creators using these tools will often produce their own edited videos for YouTube in which they employ machinima techniques to capture the queues and vistas from different angles, splice in virtual b-roll, stitch together separate scenes, and capture a point-of-view ride as the central featurette. Not only does this aid in preserving the context of the rides, it also can be used to overcome the limitations of ride-designer games whose boundaries are being pushed. YouTube has proved invaluable for disseminating these labors of love: often, constructed attractions are too complex to share between game players. Combing through this distributed archive, it is evident in the comments of ride-builders and the response by both players and YouTube audience members that these re-creations fall into the shared nostalgia of Williams' "online memorialization."

"Sandbox games" are designed as creation tools that DIY preservationists have adapted to meet the needs of ride design. Key to these are scriptable, "rideable" objects like the cart in *Minecraft,* or programmable events in MediaMolecule's *Dreams* for the PlayStation 4 and PSVR. Sandboxes are all-purpose building tools and, as a result, it's possible to find entire parks such as the aforementioned Imagineers' *Minecraft* server or the amalgam of attractions both current and defunct in "Universal Studios Roblox Theme Park." One lesser-known example of a sandbox is *Project Spark*—a short-lived game creation tool created by Microsoft for Windows and the Xbox One (2014 and 2016). Serving as a successor to Kodu Game Lab, *Project Spark* was a sandbox design tool that enabled creators to terraform and establish biomes, build environments, and script objects.

63. SwiftSnakeProduction, "Test Track - Epcot - Walt Disney World - Planet Coaster," uploaded on July 31, 2018, YouTube video, https://www.youtube.com/watch?v=2JdCgTOJsBw.

64. Theme Park Worldwide, "Let's Play Planet Coaster - Studios Park - Episode 8 - JAWS: The Ride," uploaded on July 2, 2018, YouTube video, https://www.youtube.com/watch?v=JhKHMIT_eQQ.

Project Spark provides textures and meshes and allowed creators to combine objects into a new single object, but it did not include a modeling tool. YouTube user Rich Costall utilized *Project Spark* for a "loving re-creation of closed and existing Disney and Universal Studios theme park attractions" that cleverly adapted the "fantasy" aesthetic of the tool's buildings and props. The defunct attractions on Costall's channel include Kongfrontation (1990–2002)[65] and JAWS: The Ride (1990–2012)[66] from Universal Studios, Florida. From Walt Disney World, there is Epcot's Maelstrom (1988–2014) and Hollywood Studios' The Great Movie Ride (1989–2019), which was shuttered five years after Costall's re-creation efforts. His rides are constructed out of objects provided by *Project Spark*, including character models, repurposed building parts, props, limited animated figures, and the soundtracks from the rides. Costall's Kongfrontation begins outside of the show building, and his YouTube walkthrough guides the character through the queue and onto the ride vehicle. Universal's Kongfrontation vehicles were modeled after the gondolas of New York City's Roosevelt Island Tramway, and the game's gondolas resemble wooden interpretations of the original (complete with in-tram overhead television monitors). The tram winds its way through the disaster area while a giant gorilla model terrorizes the passenger and the level uses visual effects built into the tool such as explosions, fog, and sparks to mimic the special effects details of Universal Studios' opening day attraction.

In Costall's video walkthroughs, he expressly discusses using other videos as references for his interpretations. His first effort preserves the original El Rio Del Tiempo version (1982–2007) of Epcot's "Mexico Boat Ride" attraction rather than the Gran Fiesta Tour Starring the Three Caballeros (2007–) update. Naturally, this necessitated having vintage photos and footage to draw from.[67] Costall's Norway Pavilion includes the exterior area of the Epcot territory as well as the Maelstrom boat ride that is

65. Rich Costall, "Kongfrontation: Universal Studios Florida (Project Spark)," uploaded on August 16, 2015, YouTube video, https://www.youtube.com/watch?v=pTDzEvpDbxE.

66. Rich Costall, "JAWS - Universal Studios Orlando in Project Spark," uploaded on April 13, 2014, YouTube video, https://www.youtube.com/watch?v=IdfxFvmb-rs.

67. Rich Costall, "Project Spark - EPCOT - Mexico Pavilion," uploaded on March 15, 2014, YouTube video, https://www.youtube.com/watch?v=bvqRLMRnftQ.

scripted to navigate itself through a river track once the player steps aboard. The boat then winds its way through an imperfect interpretation that draws attention to the significance of indexical references expected by riders.[68] In the video overview, Costall admits to certain concessions made in this reconstruction: the ride is not to the scale of the original, he found it difficult to script the boat's reverse movement, and he had to make do with an "arctic fox [3D] model" instead of a polar bear because of the assets that were available. There is also an error in the ride layout where the final drop occurs on the opposite side. Though the ride is not a perfect re-creation, it even includes details such as the FastPass ticketing kiosks outside the ride building and the theater room that played a Norway tourism video for parkgoers exiting the attraction. It doesn't capture verisimilitude, but it certainly captures the spirit of Norway's cult favorite ride. Notably, Costall published (and presumably finished) his Norway level six months before Disney announced that Maelstrom would be closing and re-themed to Frozen: Ever After (2016–).[69]

TheArmyofDos (YouTube user Hakke) has been working to recreate major attractions in Disneyland and Disney California Adventure, including the original version of the Twilight Zone Tower of Terror before it was replaced by Guardians of the Galaxy: Mission Breakout in 2017.[70] Notably, *Dreams* can be used with PlayStation VR that adds a whole new dimension of embodiment within the virtual world. *Dreams* also enables its users to draw from user-generated content while assigning credit, which means that Hakke's creations are collaborative endeavors. Similarly, *Planet Coaster*'s creators can acquire everything from individual models to full park areas using the Steam Workshop or Frontier Workshop. Collaboration through user-generated content marketplaces has become a crucial part of these efforts because of the sheer amount of time it takes

68. Rich Costall, "Epcot Norway and Mexico Pavilions - Project Spark," uploaded on May 8, 2014, YouTube video, https://www.youtube.com/watch?v=0LlfkvfQnR4&list=PL6Dq-p9_8N7yY5JjvVsy8Yrl1szJTpois&index=7.

69. Rebecca Williams, "Replacing Maelstrom: Theme Park Fandom, Place, and the Disney Brand," in *Everybody Hurts: Transitions, Endings, and Resurrections in Fan Cultures*, ed. Rebecca Williams (University of Iowa Press, 2018), 167–80.

70. Hakke, "DreamsTM Disney California Adventure The Twilight Zone Tower of Terror | VR," uploaded on July 24, 2020, YouTube video, https://www.youtube.com/watch?v=3CBI2wvjkb8.

to build in 3D. Sandbox tools like *Minecraft* and *Roblox* are extremely popular on their own, so it is no surprise to see a glut of ride re-creations: they are designed to run on a range of computer hardware specifications or home consoles and provide an approachable platform for learning how to build, assemble, and script virtual worlds.

A game engine "encompasses the fundamental software components of a computer game [including] program code that defines a game's essential 'core' functions, such as graphics rendering, audio, physics, and artificial intelligence."[71] Game engines may handle core programmatic functions, but from the nothingness of a blank project file, games designers become "world-builders that must consider the technological control of every aspect of the game including the scripted actions of automated characters."[72] Game designers are not unlike theme park designers in producing a particular kind of experience. And though the undertaking is daunting, 3D re-creations using game engines offer unparalleled verisimilitude. In 2010, an Epcot fan named Chris Wallace began a project called "Horizons: Resurrected" in the Unity game engine. The goal—like the 3D animated progenitors that came before—was to create a spatially accurate re-creation of an Epcot ride that had a cult following. Horizons (1993–1999) was demolished to make way for a thrill ride and has been lamented by fans ever since for how accurately they feel it represented the original vision for EPCOT Center as an "Experimental Prototype Community of Tomorrow." "Horizons is no longer not just there anymore—it is completely destroyed . . . it's almost symbolic of all the things we miss about the parks because it is so utterly absent," Wallace noted. This prime example of Giddens' "ontological security" formed its own fandom that includes tribute websites and numerous projects to preserve its memory. In an interview with *MiceChat*'s Communicore Weekly show, Wallace described the impetus of the project emerging from the lack of high-quality archival material: "I can watch ride-through videos, but so much of it is dark. It's all from VHS taped in the 80s. So the video quality is terrible. So, I watched ride video after ride video and I feel like I didn't

71. Henry Lowood, "Game Engine," in *Debugging Game History: A Critical Lexicon*, ed. Raiford Guins and Henry Lowood (Cambridge, MA: The MIT Press, 2016), 247–58.

72. Gottwald and Turner-Rahman, "The End of Architecture," 56.

have a sense for what it was like."[73] Wallace expanded on this, explaining how "a big part of the project is the archeological side" in which he sourced material from across the Internet to aid in its design. Of particular use were the rogue archivist methods of Hoot and Chief—the theme park explorers who carefully documented every inch of Horizons. Wallace even commented on the *Mesa Verde Times* blog where Hoot posted their photos and video: "DO YOU REALIZE HOW HELPFUL THIS IS TO ME?! More than ANY other ride through video Ive seen. You captured so much of the stuff guests ARENT supposed to have looked at – which is exactly where the 'blind spots' in my reference have been."[74] The Unity game engine enabled Wallace to construct an elaborate environment in polygons, import models and textures, re-create lighting conditions, and incorporate the ride's soundtrack. When Wallace had the opportunity to demo "Horizons: Resurrected" at an unofficial 30th birthday celebration for Epcot, he projected the ride onto a large, curved screen and gave participants a head-tracking device so they could naturally navigate the visual environment by turning and looking.

At the moment, the barrier to entry for game engines is significantly higher than ride-design or sandbox games. Developers frequently do their own intricate 3D modeling and texturing work, write C# scripts and Unreal Blueprints, fixate on lighting, and manage software builds and deployment. The "DisneylandParis VR/Desktop Experiences" YouTube channel, for example, documents their work-in-progress building Disneyland's Tower of Terror—including the queue and pre-show—in Unreal Engine 4.[75] The video diaries of incremental improvements reveal the extensive labor required to make even single-attraction projects a reality. This becomes even more complicated when they set their ambitions on preserving park lands or even the entire park itself. Across the game tools I examined, it was clear that there is a temptation to reconstruct whole parks (or, at least, versions of parks). Aspiring themed entertainment

73. MiceChat, "In The Hot Seat with Communicore Weekly - Horizons: Resurrected's Chris Wallace," uploaded on October 18, 2012, YouTube video, https://www.youtube.com/watch?v=U3mw96rGlBw.

74. Gibson, "(No Title)."

75. DisneylandParis VR/Desktop Experiences, "Tower Of Terror - UNREAL ENGINE VR EXPERIENCE WIP#10 (PRESHOW ENGLISH.Ver)," uploaded on July 17, 2019, YouTube video, https://www.youtube.com/watch?v=FKLg3IWyROI.

designer Daniel Childs practiced at Unreal Engine by creating a detailed model of Universal Resort in Orlando, Florida, that includes both Universal Studios and the adjacent CityWalk retail district. He describes the saga of his elaborate reconstruction of CityWalk as "an ever-expanding and updating personal project in the hopes of gaining myself my dream job."[76] For Childs, it may be a portfolio piece, but he is also the keeper of a detailed, navigable record. "(Your World) Tomorrowland 1979" is an attempt to portray the Magic Kingdom's Tomorrowland as it stood at the end of the park's first decade of operation. Like *Roblox*, the system it is built upon has networked multiplayer, and fans can join to explore the virtual place. However, its operators must enable a server instance through the "Your World" platform and thus it is not readily open to visitors. Another massive preservational work-in-progress that has garnered fan attention is Sean Patrick Holland's "Futureport '82" project that takes a distinct rhetorical approach to re-creating an idealized version of EPCOT as it was "intended" to be on opening day.[77] *MiceChat*'s Scott Attula wrote,

> for those of us who visited later in its lifespan, the park may feel a bit otherworldly. That's why I invited my dad to watch. He worked for MAPO (the manufacturing arm of WED/Imagineering) in the early 80s and during his time working in Orlando completed projects in just about every EPCOT pavilion. This jogged his memory of what it was like. I think that's what this sort of recreation is all about. Reminiscing over fond memories for those who got to experience Future World in 1982 and an educational opportunity for those like myself who didn't get the chance (I wasn't even born yet).[78]

Holland's undertaking has recently upgraded from Unreal Engine 4 to 5, which has notably improved the quality of the lighting that is key to our visual experience of space. But, with this switch comes higher processing and graphical demands—both on the part of Holland and of the audiences who need capable computers to view it. "Futureport '82" has mitigated

76. Daniel Childs, "Universal Work In Progress - 30/03/19," uploaded on March 30, 2019, YouTube video, https://www.youtube.com/watch?v=xlWQVOZQXpA.
77. Sean Patrick Holland, "Futureport '82," *Futureport '82*, accessed August 28, 2021, https://www.futureport82.com/.
78. Scott Attula, "Step Back to Epcot's Opening Day with Futureport '82," *MiceChat* (blog), April 17, 2021, https://www.micechat.com/287002-step-back-to-epcots-opening-day-with-futureport-82/.

this concern by making the previous iteration available as a navigable 3D space in a web browser (like Google Street View). Holland's work is also in dialogue with park-scale projects such as "Disney MGM '89." Ambitions of verisimilitude are justifiable; we cannot help but be transported by the thoroughness of detailed models, texture, and lighting and marvel at their creators' efforts. It is no surprise, then, that fans anxiously anticipate Defunctland's promised expansion of its 20,000 Leagues Under the Sea VR experience into a whole virtual park amalgam of attractions that no longer exist. However, though the navigable worlds suggest greater objectivity because game engine worlds resemble their real-world counterparts, what they can offer are places for visitors to re-examine the subjective theme park experience.

Re-Experiencing

Whereas this chapter focused specifically on re-creations preserving "defunct" rides, the number of currently operating rides that players and fans have created using game tools is astounding. At the time of this writing, a *Roblox* player can jump into dozens of worlds that have interpreted theme parks and their attractions to varying degrees of accuracy. With the aid of social media, fan-preservationists converse, share reference material, and encourage one another to bring attractions and parks to life. Though there are cases when it is worthwhile to preserve "original experiences," opportunities for subjective experience deserve a role in making sense of the past.[79] DIY preservationists relay the subjectivity of theme park experiences and capture en masse that which otherwise may be forgotten. And theme park fans may be encroaching upon a new threshold: though there is plenty of work to be done preserving the past, enthusiasts are dutifully saving the present. Their hard work offers the rest of us the opportunity to revisit not just the past we have missed but our own experiences as well. If that is the case, what happens to John Dewey's notion that "an experience" can be bounded when "the material experienced runs its course to fulfillment"? What happens when we revisit art? Or any expressive work? What happens when we

79. Melanie Swalwell, "Moving on from the Original Experience," in *Fans and Videogames: Histories, Fandom, Archives*, ed. Angela Ndalianis and Helen Stuckey (Taylor & Francis, 2017), 213–14.

revisit Space Mountain fifteen years after our first Disneyland vacation? It seems likely that if, in the meantime, the ride was only an increasingly distant memory, the second visit is a new experience. But how about an annual passholder who can ride it at least once a month? Surely those experiences begin to blend. The subjective, imperfect nature of ride-through videos and soundtrack recordings and *Rollercoaster Tycoon* interpretations may very well un-bound the discrete experience in a way that constantly refreshes our perspective and engages the intellectual experience. And, when a 3D recreation in a videogame level is the only way to glimpse a long-demolished attraction, *Planet Coaster* players and VR headset owners will be well-versed to visit the past.

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II. LIMINAL ENCOUNTERS

Surface Encounters

Empathy and Intermediation

Giuliana Bruno

Introduction

> There exist what we call images of things,
> Which as it were peeled off from the surfaces
> Of objects, fly this way and that through the air . . .
> I say therefore that likenesses or thin shapes
> Are sent out from the surfaces of things
> Which we must call as it were their films or bark.
>
> —Titus Lucretius Carus, *De rerum natura*[1]

For Lucretius, the image is a thing. It is configured like a piece of cloth, released as matter that flies out into the air. In this way, as the Epicurean philosopher and poet suggests to us, something important is conveyed: the material of an image manifests itself virtually on the surface. Lucretius describes the surface of things as something that may flare out, giving forth dazzling shapes. It is as if it could be peeled off, like a layer of substance, forming a "bark" or leaving a sediment, a veneer, a "film." This poetic description and its philosophical fabrication go to the heart of my concern in this text, which addresses matters of aesthetic encounters as mediated on the surface of things.

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1. Titus Lucretius Carus, *On the Nature of the Universe,* trans. Sir Ronald Melville (Oxford: The Clarendon Press, 1997), 102–03.

What constitutes an aesthetic encounter? How do we experience the relation between materiality and virtuality in an aesthetic space? Can we understand virtuality as a form of potentiality? If so, how is this relation mediated? To address this issue, we must go beyond the realm of pure visuality. The matter of my concern is not simply visual, but tangible, spatial, and environmental—that is to say, material. I would therefore begin by questioning the place of materiality in our virtual world. To engage materiality and our encounters with material space in virtual, mediated form, I suggest that we think about surfaces rather than images, and in so doing explore the fabrics of the visual and a phenomenon I call the surface tension of media. In order to pursue a receptive materialism, and to approach the transmission of empathy in art, I propose performing critical acts of investigation on the surface, focusing especially on screen surface and mobilizing the wide potential of material expression across the "screens" of different mediums.[2]

I have long argued for a shift in focus away from the optic and toward the haptic in order to understand the tangible spatiality of the visual arts, their moving, habitable sites, and the intimate experiences they offer us as we walk through the public spaces in which they reside and with which they interact.[3] The "haptic," a relational mode derived from the sense of touch, is what makes us "able to come into contact with" things, even virtually. This reciprocal contact between us and objects or environments occurs on the surface. It is by way of such tangible, "superficial" contact that we apprehend the art object and the space of art, turning contact into the communicative interface of a public intimacy.

This is why I prefer to speak of surfaces rather than images: in order to experience how in visual space the virtual manifests itself materially on the surface of things, where time becomes material space. Digging into layers of imaging and threading through their surfaces, my theoretical

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2. I expand here upon a central concern of my book *Surface: Matters of Aesthetics, Materiality, and Media* (Chicago: University of Chicago Press, 2014) in which I turn to the concept of surface in order to investigate the place of materiality in our contemporary virtual world.

3. See also Giuliana Bruno, *Atlas of Emotion: Journeys in Art, Architecture, and Film* (London and New York: Verso, 2002); and Bruno, *Public Intimacy: Architecture and the Visual Arts* (Cambridge, MA: The MIT Press, 2007).

interweaving of materials emphasizes the actual "fabrics" of the visual: the surface condition, the textural manifestation, and the support of a work as well as the way in which it is sited, whether on the canvas, the wall, or the screen. I am particularly interested in what we may call the phenomenon of the "becoming screen"— that is, in the play of materiality that is brought together in light on different, intersecting screens—and in offering a theorization of the actual fabric of the screen as a material surface-space. I am also interested in the migratory patterns of such visual fabrications and in tracing their material history as well as their shifting geographies. In this way, I want to rethink materiality and show how surface matters in the fabrics of the visual, for it is on the surface of mediums that textures come alive and the "feel" of an aesthetic encounter can develop.

Surface Matters in Visual Fabrics

In this age of virtuality, with its rapidly changing materials and media, what role can materiality really have? How is it fashioned in the arts or manifested in technology? Could it be refashioned? I ask these questions at a time when contemporary artists themselves appear preoccupied with materiality in different forms and are questioning the material conditions of their mediums. There is much potential for a reinvention of materiality in our times when not conceived in opposition to the virtual. In claiming that this relation is visibly and actively pursued in the visual, plastic, and moving-image arts as well as in architecture, I theorize it as a surface condition. The surface is for me configured as an architecture: as a partition that can be virtually shared, it is explored as a primary form of habitation for the material world. Understood as the material configuration of the relationship between subjects and with objects, the surface is also viewed as a site of mediation and projection, a zone of encounter and admixture, memory and transformation.

Most importantly, I argue that materiality is not a question of materials but rather concerns the substance of material relations, which are also conveyed by virtual mediums. I am interested in the space of those relations and in showing how they are configured on the surface of different

mediums. As we consider that art, architecture, fashion, design, film, and the body all share a deep engagement with superficial matters, we can observe how surfaces act as connective threads between art forms and structure our communicative existence. In order to open this theoretical space for a reinvention of materiality in intermediation, I therefore want to address in particular here how the surface mediates material relations, which include affects, the creation of virtual interiorities, and the passage of empathy.

In proposing that we pay attention to surface materiality, I engage deeply with the pleats and folds that constitute the fabric of the visual and, in this regard, pursue what Gilles Deleuze calls a "texturology:" a philosophical and aesthetic conception of art in which its "matter is clothed, with 'clothed' signifying . . . the very fabric or clothing, the texture enveloping."[4] To make this textural shift involves tracing what we might call the enveloping "fashioning" of the image and weaving this across different mediums.

This requires thinking of mediated images materially, for it means viewing them as textures, traces, and even stains. The visual text is fundamentally textural in many different ways. Its form has real substance. It is made out of layers and tissues. It contains strata, sediments, and deposits. It is constituted as an imprint, which always leaves behind a trace. A visual text is also textural for the ways in which it can show the patterns of history, in the form of a coating, a "film," or a stain. One can say that a visual text can even "wear" its own history, inscribed as an imprint on its textural surface. It can also show affects in this way. After all, the motion of an emotion itself can be drafted onto the surface of an image, in the shape of a line or in the haptic thickness of pigment, and it can be tracked down with tracking shots. An affect is virtually "worn" on the surface as it is threaded through time in the form of residual stains, traces, and textures. In visual culture, surface matters and it has depth.

4. Gilles Deleuze, *The Fold: Leibniz and the Baroque*, trans. Tom Conley (Minneapolis: University of Minnesota Press, 1993), 115.

To understand this relation between materiality and virtuality, we thus need to expose the work of the surface and show how textural matters manifest themselves there. As we plumb the depth of surfaces that surround visual culture, we can also see how they envelop us. Skimming the surface, we not only can weave together the filaments of visual existence, exposing their traces in layers of experience, but also trace patterns of transformation. Surface especially matters as a site in which different forms of mediation, transfer, and transformation can take place.

The Surface Tension of Media: Screen, Canvas, Wall

A material transformation occurs as images travel across the surface of different mediums. Many changes affected by the migration of images happen on the surface and manifest themselves texturally in the form of a kind of surface tension, which affects the very "skin" of images and the space of their circulation. In this sense, I claim that aesthetic encounters are actually mediated on the surface and that such mediated encounters engage forms of virtual projection, transmission, and transmutation.

Let me offer some examples to make this aspect of the material fabrics of the visual and their relation to a surface tension more concrete. In contemporary architecture, as exemplified in the work of Herzog & de Meuron, the façades of buildings are engaged as pliant surfaces of inter-mediation. These surfaces, which have become lighter and more tensile, may be energized by luminous play, texturally decorated as if they were canvas, stretched as membranes, and treated increasingly as envelopes.[5] In contemporary art, such surface tension has emerged as a textural form of fashioning the image as well and, as a concept, is driving an aesthetic development that emphasizes the dressing of visual space in different

5. See, among others, David Leatherbarrow and Mohsen Mostafavi, *Surface Architecture* (Cambridge, MA: The MIT Press, 2002); and Philip Ursprung, ed., *Herzog & de Meuron: Natural History* (Montreal: Canadian Centre for Architecture, 2002).

mediums.[6] Such wearing of surface is an important phenomenon that art and architecture also share with cinema. Think of the cinema of Wong Kar-wai in which atmospheric forms of imaging are stitched together on the surface in patterns of visual tailoring. Here we find a dense, floating surface in which one senses the material of light and the fabric of color, emphasized by the visual pleating of editing that itself creates volume and depth, grain and granularity—the final effect being that residue and sedimentation appear retained in the saturated surface. We almost never see clearly through the fabric of this screen, for several coatings and planar surfaces are constructed out of different materials, and all are folded together. There are so many layers to traverse on the surface that the screen itself, layered like cloth, takes on volume. Here, the virtual space of film becomes a space of real dimension in which the viewer is empathetically absorbed through an aesthetic journey that connects exterior and interior space on screen fabric.

The Skin of the Wall

To further address the issue of surface encounters in mediatic form, we can also turn to the interdisciplinary and multimedia practices of Diller Scofidio + Renfro.[7] This architectural studio performs acts on the surface, creating moving images and an enveloping "fashioning" of continuous surface space. They make surface into a virtual medium and at times even turn it into a structural form. Diller Scofidio + Renfro produces this surface condition by weaving surfaces together and across the fabric of different artistic mediums. Here, the architectural surface is the vehicle for a virtual transmission, becoming a form of mediation and transformation. The studio constructs spaces that are actually "mediated" on the surface

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6. See, for example, David Joselit, "Surface Vision," in *Super Vision*, ed. Nicholas Baume, exh. cat. (Boston: Institute of Contemporary Art; and Cambridge, MA: The MIT Press, 2006); Joselit, *After Art* (Princeton: Princeton University Press, 2013); Chrissie Iles, "Surface Tension," in *Rudolf Stingel*, ed. Francesco Bonami, exh. cat. (Chicago: Museum of Contemporary Art; and New Haven: Yale University Press, 2007), 23–29; and Cassandra Coblenz, ed., *Surface Tension*, exh. cat. (Philadelphia: The Fabric Workshop and Museum, 2003), https://www.fabricworkshop.org/exhibitions/surface/essay.php.

7. For a reading of the multiform practice of this architectural studio, see the exhaustive monograph by Edward Dimendberg, *Diller Scofidio + Renfro: Architecture after Images* (Chicago: University of Chicago Press, 2013). See also Hubert Damisch, "Blotting out Architecture? A Fable in Seven Parts," *Log*, no. 1 (Fall 2003): 9–26; and Mark Hansen, "Wearable Space," *Configurations* 10 (2002): 321–70.

as it engages the surface of the screen in the process of building space. Furthermore, in its sites, the surface can become animated and create forms of imaginary, virtual projection. In this way, these architects create surface encounters that can induce empathy with space.

Think of Alice Tully Hall in New York's Lincoln Center for the Performing Arts, as refurbished by the studio. Here the surface has acquired its own performative character, taking center stage in a luminous form. Curtained with a thin veneer of wood, the interior walls of the auditorium are as light as curtains, and they become as luminous as screens. As light transpires from behind the thin layer of their material surface, it creates atmosphere and mood in the entire auditorium. This surface effect is enhanced by the fact that the pinkish light emerges through the walls as if perspiring through the surface of their skin, giving the impression that the walls are blushing. This form of "superficial" contact is an expression of spatial empathy, and it makes possible a communicative interface. Here, the surface shows its tangible potential to become fully a theatrical space. When light is filtered outward in this way in the auditorium, it creates a textural surface that takes on the shifting, performative qualities of a space of projection. The surface becomes a screen, and it creates a spectatorial public intimacy. Activated with atmospheric translucency in this way, wall, curtain, and screen are no longer separate entities but take on related characteristics, becoming conflated spaces of mediation, transmission, performativity, and spectatorship.

Screening Material Space

The surface encounters that Diller Scofidio + Renfro creates show that a material transformation occurs as luminous textures travel across the surface of different mediums. In fact, surface tension here affects the very "skin" of images, creating aesthetic encounters that are physically and virtually "mediated" on the surface and engaging forms of projection that become transmission—and this includes the creation of atmosphere and the transmission of affects.

Diller Scofidio + Renfro constructs a dialogue with the material of projection, performing mediatic interventions, or builds by "installing" in space a frame for atmospheric luminous play. Architecture and film are related in fundamental ways as medial spatial practices, and even end up converging as modes of screening. In the cantilevered media center of Boston's Institute of Contemporary Art, for example, the studio actually framed the exterior sea view and put it in dialogue with the display of computer screens that face the large window. Here, the notion of aperture is reimagined, becoming the screen of a new atmospheric cinema. In such a way, the work creates moving frames in architecture and produces deeply "mediated" surface encounters.

When a surface condition is activated in this way on visual planes, it changes our way of thinking about space. This new form of superficial materialism initiates a major transformation: it demands a re-vision of space, thus challenging received modes of visuality, the dichotomy between materiality and virtuality, and the specificity of medium. If we consider Diller Scofidio + Renfro's form of fashioning space within this larger frame, the very nature of what we have traditionally understood as canvas, window, and wall changes to incorporate another form: the screen. An architecture of mediatic transformations comes to the surface at this very junction, where surface tension can turn both façade and framed picture into something resembling a screen. This filmic screen, far from representing any perspectival ideal, is no longer a window but is reconfigured as a different surface. Made of translucent fabric, this screen is closer to a canvas, a sheet, or a curtain. Partition, shelter, and veil, it can be a permeable material envelope. On this material level, the current intersection of canvas, wall, and screen is a site at which distinctions between inside and outside temporally dissolve into the depth of surface. The screen itself is reinvented as a material architecture of "becoming"—the tensile surface that connects and mediates texturally between art forms. It all appears to fold back into screen surface—that reflective, fibrous canvas texturally dressed by luminous projections.

Becoming Screen

This "becoming screen" is a fundamental aspect of Diller Scofidio + Renfro's work, and it also defines the state of our contemporary visual culture. Such a phenomenon is at the center of a material reconfiguration of visual space that involves the projective surface and the way in which it constitutes a place of encounters. The screen has become an omnipresent material condition of viewing and a site of virtual relationality, and this is occurring paradoxically just at the point that cinema, at the very moment of film's own obsolescence, comes to inhabit today's museums and art galleries. A refashioning of visual space is taking place in a proliferation and exchange of screens. Such refashioning of the fabrics of the visual displays tension at the edges, in the space that exists beyond a particular medium, in the interstices between art forms, at junctions where both transgressive and transitive exchanges between the arts become palpable on the surface.

The screen acts as the actual surface of this refashioning by returning us to the absorptive materiality of a permeable space of luminous projections. As screen-based art practices enact such a return to materiality by emphasizing surface luminosity and textural hapticity, the memory of film is materialized in contemporary art. The screen is activated outside of cinema as a historically dense space—re-enacted, that is, as a mnemonic canvas that is fundamentally linked to the technology of light. Walking through the art gallery and the museum, we encounter webs of cinematic situations, reimagined as if collected together and recollected on a screen that is now a wall, a partition, a veil, or even a curtain.

It is important to engage the virtual movements that are taking place in material ways in our environment of screen surfaces. This passage is crucial because it affects the sedimentation of the visual imaginary—its residues—as well as further transmissions and transformations. To be sure, the exchange that has taken place on the field screen of visual archives profoundly affects the fabric and architecture of the visual experience. In suggesting that we weave through this visual fabrication and the material relations that link together screen, window, and wall across

time, exposing the threads that connect the visual to the spatial arts, including the migrations between cinema and architectural space, my aim is to reclaim materiality as an intermedial surface condition and to foster further explorations in surface tension and depth.

Empathy, Projection, and the Surface of Things

In theorizing surface materiality in this way, I also want to touch on the surface of things and suggest that this membrane conveys the material relation that develops virtually between subjects and objects. I am particularly interested in these surface encounters and in considering how they can express a form of empathy. It is important to emphasize in this regard that empathy is a form of virtual exchange.[8] This process of connection occurs not only between people but also between persons and such things as space. As the German philosopher and psychologist Theodor Lipps clearly put it when defining his vision of empathy at the cusp of modernity, *Einfühlung*, or empathy, can be a virtual mimicry or transfer that is activated between the subject and his or her surroundings.[9] One can empathize with expressive, dynamic forms of architecture, with colors and sounds, or with scenery and situations, and these virtual "projections" include atmospheres and moods. In Lipps's words, "a landscape expresses a mood. Such 'expression' says exactly what we intend by the term 'empathy.'"[10]

Empathy is thus a form of virtual "transport:" a psychic passage set in motion not simply with physical beings but also with material space, including such things as the surface of the earth, settings and locales, forms and formations, tints and tones, hues and shapes. According to

8. The literature on this subject is extensive. For an introduction, see Harry Francis Mallgrave and Eleftherios Ikonomou, eds., *Empathy, Form, and Space: Problems in German Aesthetics, 1873–1893* (Santa Monica: The Getty Center for the History of Art and the Humanities, 1994). For an overview of the history of *Einfühlung*, see Juliet Koss, "On the Limits of Empathy," *Art Bulletin* 88, no. 1 (March 2006): 139–57. See also Robin Curtis and Gertrud Koch, eds., *Einfühlung: Zur Geschichte und Gegenwart eines ästhetischen Konzepts* (Munich: Wilhelm Fink, 2008); and *Art in Translation*, special issue on *Einfühlung* 6, no. 4 (December 2014).

9. See Theodor Lipps, "Empathy and Aesthetic Pleasure," in *Aesthetic Theories: Studies in the Philosophy of Art,* ed. Karl Aschenbrenner and Arnold Isenberg (Englewood Cliffs, NJ: Prentice-Hall, 1965).

10. Ibid., 405.

Lipps, *Einfühlung* can be an actual function of these spatial configurations and relations, and it expresses the "feel" of the ambient. Understood in this way, empathy can be seen as a particular form of transmission and mediation that occurs on the surface of things and in the environment. I would ultimately claim that empathy is an atmospheric matter, activated in the projective layers of material surface encounters.[11] And these kinds of virtual encounters include all that passes on surface space, whether skin or screen.

In this sense, empathy can be further articulated in terms of a material passage and even interpreted as a form of "projection." An aid in advancing this interpretation comes from the writings of Wilhelm Worringer. The art historian writes that empathy is the virtual exchange of a vital feeling and represents a material form of encounter with aesthetic space. Let us listen to his specific words on this subject, which suggest that empathy may be configured as a kind of projection:

> A gratification of that inner need for self-activation [is] the presupposition of the process of empathy. In the forms of the work of art we enjoy ourselves. Aesthetic enjoyment is objectified self-enjoyment. The value of a line, of a form consists for us in the value of the life that it holds for us. It holds its beauty only through our own vital feeling, which, in some mysterious manner, we project into it.[12]

I return against the grain to Worringer's notion of empathy, in contrast to the opinion that empathy and abstraction occupy distinct aesthetic realms. In light of Lipps's theory of *Einfühlung*, we now fully recognize that one can virtually empathize with any spatial or abstract phenomenon. One can feel empathy with an abstract figure, shape, or form, and even empathize with an outline, a silhouette, a contour, or a line. Spatial construction is an active process that, as the art historian August Schmarsow also showed, engages our capacity to sense our surroundings haptically, and such a process can involve a kind of virtual projection from

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11. This subject is further explored in my book *Atmospheres of Projection: Environmentality in Art and Screen Media* (Chicago: University of Chicago Press, 2022).
12. Wilhelm Worringer, *Abstraction and Empathy: A Contribution to the Psychology of Style*, trans. Michael Bullock (Chicago: Elephant Paperbacks, 1997), 14.

within the subject onto abstract forms of space.[13] In this sense, we can further elaborate on Worringer's idea that the impact "of a line, of a form consists in the value of the life that it holds for us." A dynamic is created in an evolving, twofold empathetic exchange between subjects, objects, and spaces. At the heart of empathy is an image in motion, the expression of an internal movement, which arises in surface encounters. As Worringer himself would have it, empathy is the projection of a vital energy of the beholder and also a spirit that moves in matter. In listening to his words again, we may "sense" this matter of projected life energy in a passage in which he cites Lipps's own formulation of this projective resonance:

> The urge to empathy as a pre-assumption of aesthetic experience finds its justification in the beauty of the organic. . . . 'What I empathize into it is quite generally life. And life is energy, inner working, striving and accomplishing. In a word, life is activity.' . . . The crucial factor is, therefore, rather the sensation itself, i.e. the inner motion, the inner life, the inner self-activation.[14]

Recapturing Worringer's line of argument and taking it a step forward in a different direction, I therefore suggest thinking of empathy as something that moves, both inside and outside of oneself. Empathy is something that moves in us. It is also something that moves in matter.[15] This vital matter can be a projection of our inner activation—that is to say, a material manifestation of our inner motion. Conversely, the energy of space and the vibrancy of matter can virtually transfer onto our bodies. What is at stake, then, in addressing empathy, is a relation that can be understood as a real form of projection. This necessarily involves engaging with surface-space as a threshold or membrane, which has the capacity to hold in its very shape a set of projections between interior and exterior space.

13. On Schmarsow's theory of space, see Mitchell W. Schwarzer, "The Emergence of Architectural Space: August Schmarsow's Theory of *Raumgestaltung*," *Assemblage*, no. 15 (August 1991), 50–61.
14. Worringer, *Abstraction and Empathy*, 4–5.
15. On the subject of a vibrant materialism, see Jane Bennett, *Vibrant Matter: A Political Ecology of Things* (Durham and London: Duke University Press, 2010).

Projection and Surface Encounters

With this in mind, we can approach some final issues that pertain to sur-
face encounters and projection. I am interested in the creation of per-
meable membranes that can offer the possibility of material aesthetic
encounters. In this sense, l want to draw attention to the "surface tension
of media" because this phenomenon can open up a space for material
relations in our virtual times, and because, at the same time, it can
advance the idea that surface encounters on screens can project a form of
empathy. Let me offer a telling example of these possibilities as material-
ized in the luminous use of visual technology and new media practiced in
the public art of Krzysztof Wodiczko. Since 1980, this artist has produced
more than eighty large-scale public projections on buildings, in many dif-
ferent countries.[16] Wodiczko uses the medium of projection to make the
face and façade of architecture into a dense surface, creating a perme-
able site for mediated, virtual experiences of memory, history, and sub-
jectivity. In this way, he exposes the actual architecture of projection, in
a mediation of various mediums that is material and creates empathy.

Wodiczko's projections sensitize us to the texture of the surface onto
which the image is projected. The space onto which these images are
projected is never invisible but always rendered tangible. In *The Tijuana
Projection* (2001), for example, Wodiczko animates the human body in
projection against the body of a building's form. The face of a woman
mouthing her story is projected as if her facial skin were adhering to
the spherical surface of the dome of the city's Centro Cultural, and,
in this way, we are made to empathize with both face and façade at
once. In *Hiroshima Projection* (1999), gesticulating hands are projected in
close-up onto the moving surface of a river, thereby appearing to acti-
vate mnemonic flow and creating empathy with this fluid space. In these
works, the moving image is carved out of the material surface of the

16. See, among others, Krzysztof Wodiczko, *Critical Vehicles: Writings, Projects, Interviews* (Cambridge, MA:
The MIT Press, 1999); Andrzej Turowski, ed., *Krzysztof Wodiczko: Pomnikoterapia*, exh. cat. (Warsaw:
Zacheta National Gallery of Art, 2005); and Rosalyn Deutsche, "Krzysztof Wodiczko's *Homeless
Projections* and the Site of Urban Revitalization," in *Evictions: Art and Spatial Politics* (Cambridge, MA:
The MIT Press, 1998), 3–48.

architecture that supports it, animates it, and moves it. A form of mediation, the architectural surface acts for Wodiczko as a partition: that is, it functions as a visible screen of projection, which includes the projection of empathy.

Guests, an installation from 2009, makes this even more evident. Walking into the dark space of the Polish Pavilion at the Venice Biennale, you thought you were seeing eight windows, scattered on three walls, and, looking up, one skylight. But the walls had no openings. These frames were not carved in stone. The windows are projections—"screens" on which one can catch glimpses of the life of immigrants, the "guests" of the country we are in. *If You See Something…,* from 2005, was similarly structured. The surface of these imaginary windowed architectures functions as an elaborate form of mediation, for these luminous screens provide access to, and create empathy with, the personal narratives of society's invisible citizens. It is significant that the migrants are never seen or heard clearly. They appear as shadows through the light, silhouettes in a digital shadow theater. The interrelation of visibility and invisibility in society is concretely materialized here, uncovered on the nonexistent panes of glass windows that are dressed as screens.[17]

As we look closely at these walls, which act as windows, we can perceive them as actual screen surfaces.[18] In order to see, we must navigate through a surface that is visually configured as a white, dense material. A milky, textured substance appears to our senses, and, acting as a cover for the window-walls, it mediates the relationship between seer and seen. In this sense, we perceive the materiality of projection, which is digitally configured to approach screen surface. Closer to a veil or curtain than

17. See Ewa Lajer-Burcharth, "Borders," in *Krzysztof Wodiczko: Guests*, exh. cat. (New York: Charta Books, 2009), 32–45; and Lajer-Burcharth, "Interiors at Risk," *Harvard Design Magazine*, no. 29, Special Issue "What about the Inside?" (Fall–Winter 2008–09): 12–21.

18. My critical reading of Wodiczko's work here and in *Surface* owes much to private and public conversations with the artist, whom I wish to thank. See in particular Giuliana Bruno, "Krzysztof Wodiczko," an interview for "In the Open Air: Art in Public Spaces," a project of *Bomb* magazine and PBS's *Art 21*, Sculpture Center, New York, October 29, 2007, online at http://bombsite.com/issues/999/articles/3592 (accessed 29 April 2015).

to a pane of glass, this surface is the actual visual tissue of projection. And thus, as we try to make out the foggy figures of the displaced people and hear their stories through muffled sound, we experience the mediatic quality of the screen as a veiled, and veiling, surface.

In the installations of *If You See Something…* and *Guests*, screens can act as membranes. As the figures of the migrants move in a blur, their contours come in and out of focus, becoming more consistent as they approach the limit of the screen. The effect makes the screen feel like a tissue, a permeable, thin sheet that appears to move like a membrane being stretched. Some visitors to the installation come up to the site of projection as if wishing the space actually could extend or stretch like such a membrane. In turn, the migrants act as if the partition could bend or warp to create a passage, or as if it could be virtually traversed, like a veil. They push their bodies up to the surface and hold up hands, pictures, and objects as if wishing to push them through a layer of tissue. In many ways, this screen is shown to be elastic, flexible, and pliant.

Surface tension occurs here. This membrane is an actual screen also in the sense that it is a partition. On this site of partition, the migrants can negotiate status and story, for this membrane-like surface acts simultaneously as a protective layer and as a wall. There is substance, which is also a form of resistance, in this material of projection. As if to rebel against their status as shadows, the migrants push up against the partition as they would against a real border. But let us not forget that the virtual architecture constructed by Wodiczko is also a window; that is, it is the kind of architecture in which positions between inside and outside can be mediated. In this capacity as aperture, the resilient surface does not merely divide but also enables a passage—the channeling of empathy—which finally becomes a potential crossing of borders. Possibilities of openings and a hope of exchange can be sited on this composite, tensile, permeable screen that acts as a membrane of empathy.

Einfühlung: Atmospheres of Projection

Coated in the material fabric of projection, this space of traversal includes spectatorial projections and the transmission of empathy. As a visitor to this space, one is not safely positioned on the other side of the screen but rather stands on the border, for in order to perceive, one must virtually cross over and project oneself across the threshold. The fabric of this screen is so absorbent that it absorbs the viewer, too, in its surface tension. To look is to feel this tension, challenging, as the process of empathy does, who and what is outside and inside. One cannot simply stare passively at this surface. The tension of its tensile surface forces one to become engaged—to the point of wishing that borders might be crossed, and contact might be made through the membrane, across the fabric of the screen. Not only a site of critical distance, this kind of screen is at once resistant and embracing because it holds affects in its fabric. Its porous membrane enables the passage of empathy, which is itself a form of projection. In staging an epidermic form of exchange, this surface-membrane thus mediates the potential for relatedness and relationality that is inscribed in the material of projection.

The atmosphere of projection is thick. It is dense with moody, luminous light particles dancing in space, imbued with an air of cloudy, permeable palpability of virtual relationality. The visible is here "a quality pregnant with a texture."[19] Projection was indeed always an environment, and in recent times it is becoming even more of an atmosphere. Screen space is a site haunted by "the perturbations of surfaces."[20] And this is what creates that particular form of "feeling in" space that is *Einfühlung*.

To fully sense these textural matters, think of the material history of the screen as a form of mediation. After all, an ethereal consistency is the material base of the act of screening, as the idea of projection was, historically, born out of atmospheric surfaces. The act of projection was designed to make images flare out and move, in the way Lucretius envi-

19. See Maurice Merleau-Ponty, "The Intertwining—The Kiasm," in *The Visible and the Invisible*, trans. Alphonso Lingis (Evanston: Northwestern University Press, 1968), 136.
20. See Georges Didi-Huberman, "The Imaginary Breeze: Remarks on the Air of the Quattrocento," *Journal of Visual Culture* 2, no. 3 (December 2003): 280.

sioned it, surfacing from the fabric of light and the density of air. Early forms of projection, such as magic lanterns and phantasmagoria, were a weathered kind of space, imbued with vaporous things such as smoke and fog. Projection was also closely associated with elusive substances such as the hazy, misty quality of shades, silhouettes, and shadows. It is no wonder, then, that such materials of resistance and permeability, integral to the very activity of screening, would find their own digital substance in a new atmosphere of projection.

A place of passage and a point of contact between worlds, the screen continues to mediate today between materiality and virtuality, crossing the borders of mediums in surface tension and fostering the passage of *Einfühlung*. In the atmosphere of projection, a form of curtaining, partitioning, and partaking of space occurs, beyond medium specificity, in an architecture of "becoming" that connects and mediates texturally between art forms. Far from being responsible for dematerialization, the persistence of projection in the art gallery continues to refashion mobile and communal architectures of materiality. It even reactivates the public potential of the cinematic mode of exhibition, along with its potential to create empathy. And so, as the shadow theater that is cinema is reconfigured and rematerialized architecturally, and the white cube of the gallery turns luminously dark, we are given back the absorbent, envisioning, relational fabric of projection, displayed on yet another form of screen-membrane, where empathy can take place as a moving surface encounter.

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Design at the Border

Liminality, the Virtual, and Interior Transformation from Antiquity to Mixed Reality

Laura Hollengreen and Rebecca Rouse

Introduction

This chapter introduces elements of "liminal design," defined across historical and contemporary works as design that provides the "participant," "passer-by," or "pilgrim" with the potential of transformational experience via the liminal or betwixt/between. Drawing connections between theory, history, and practice in mixed realities and liminality, we are pursuing an emergent typology of liminal design abstracted from analysis of a trans-historical group of works that illuminates aspects of the ancient and medieval heritage of contemporary mixed reality (MR) technologies. This chapter is part of a larger ongoing project comparing examples of liminal design from the Middle Ages and contemporary mixed reality, which we begin here with three examples selected for the ways they resonate across many characteristics with the concept of the border. The works to be discussed in this text include Qal'at Sim'an, the martyrium and cult site of Saint Simeon the Stylite, and associated objects (5th century, Syria); *Border Memorial*: *Frontera de los Muertos* (2012, John Craig Freeman); and *Abraham Lincoln: War Veterans Project* (2012, Krzysztof Wodiczko).

While bringing a work from the early Middle Ages into conversation with contemporary MR works may seem quixotic, we find this transhistorical approach useful in overcoming the seduction offered by hyperbolic commentary on the purported newness of MR technologies' effects today.[1] Comparative historical analysis indicates that similarly complex effects were achieved by works of art and architecture in past contexts where creators and users sought to challenge the limits of spatial, social, and spiritual experience and achieve liminal transformation. Aligning these works from markedly different periods, contexts, and cultures can allow us to situate them along a continuum that emphasizes continuity in human approaches to the virtual as well as provides a more nuanced discussion of their differences.

Our approach is in the tradition of other media archaeologists who also find value in careful comparative exploration of today's new media in much older historical contexts.[2] Here we focus on two works of MR from 2012[3] during a formative moment in the medium's development, which

1. Examples of narratives that exaggerate the newness of MR technologies include M. Pell, *Envisioning Holograms: Design Breakthrough Experiences for Mixed Reality* (Woodinville, WA: Apress, 2017); Michael Gourlay, "Surprising Ways Mixed Reality Will Empower Us to Achieve More," in *FDG: Foundations of Digital Games* Conference, August 15, 2017; Kayla Kinnunen, "Microsoft's HoloLens and the Future of Human Computer Interaction," in *EMPAC: Experimental Media Performing Arts Center*, November 1, 2017; Helen Papagiannis, *Augmented Human: How Technology is Shaping the New Reality* (Sebastopol, CA: O'Reilly Media, 2017); and David Rose, *SuperSight: What Augmented Reality Means for Our Lives, Our Work, and the Way We Imagine the Future* (Dallas, TX: BenBella Books, 2021).

2. See Errki Huhtamo, *Illusions in Motion: Media Archaeology of the Moving Panorama and Related Spectacles* (Cambridge and London: The MIT Press, 2013); Errki Huhtamo and Jussi Parikka, eds., *Media Archaeology: Approaches, Applications, and Implications* (Berkeley and Los Angeles: University of California Press, 2011); Siegfried Zielinski, *Deep Time of the Media: Toward an Archaeology of Hearing and Seeing by Technical Means* (Cambridge and London: The MIT Press, 2006); Oliver Grau, *Virtual Art: From Illusion to Immersion* (Cambridge and London: The MIT Press, 2003); Alison Griffiths, "Sensual Vision: 3-D, Medieval Art, and the Cinematic Imaginary," *Film Criticism* 37/38, no. 3/1 (2013): 60–85; Alison Griffiths, *Shivers down your Spine: Cinema, Museums, and the Immersive View* (New York: Columbia University Press, 2008); and Lisa Gitelman and Geoffrey B. Pingree, eds., *New Media, 1740–1915* (Cambridge and London: The MIT Press, 2003).

3. 2012 was an interesting moment in the development of MR technologies, prior to encroachment from larger corporations. Mobile AR (on smartphones) reached a wider creative audience of makers and players with the 2011 launch of AR authoring tools LayAR and Aurasma, and Blippar in 2012. The AR game *Ingress* (precursor to 2016's *Pokémon GO*) was launched in 2012 as well. This wide variety of tools has since narrowed, as the field begins to leave its attraction phase today with larger companies such as

can be understood as a "media of attraction" phase.[4] Artifacts created in the attraction phase predate institutionalization of the media and exhibit a wide range of exuberant, experimental strategies that often draw on other traditions and techniques. Because media created during these early phases are often poorly documented and little understood, they are commonly infantilized by later theorists as unfinished or somehow lesser examples than works created during the later phase of media institutionalization and eventual canonization. In contrast with this normative approach, according to a biological model of development privileging later stages, we find value in examining media in the attraction phase, not least due to the common quality of designs in this phase, in which seams between modes of representation and intermedial elements are often exposed. This exposure can help in identifying both threads of connection and elements of rupture between media technologies and techniques of the past and present.

In her examination of medieval relics and 3-D cinema, Alison Griffiths notes that the experiences of each "are linked by their shared liminality and immanence, a dissolution of space and mental boundaries separating the earthly from the unearthly."[5] We see a similar connection across our set of examples, which bridges the earlier period of late antiquity or the early medieval with contemporary mixed reality technologies. While the rhetoric of three dimensionality is in play in our examples in different instantiations than in Griffiths's, we also find the quality of boundary-breaking liminality to be of note. Griffiths weaves together many threads of connection between her medieval and contemporary objects of inquiry, but she is careful to note key differences in their cultural function and reception: "In our image saturated twenty-first century, 3-D protocols can take us out of the mundane and into the realm of the pseudo-spiritual

Apple and Google providing proprietary software development kits for AR. Similarly, in 2010 the Kinect was launched, available for purchase separately from the Xbox, making it a relatively affordable option in terms of computer vision solution for projection mapping, leading to its uptake by artists for expressive work.

4. Rebecca Rouse, "Media of Attraction: A Media Archeology Approach to Panoramas, Kinematography, Mixed Reality and Beyond," *International Conference on Interactive Digital Storytelling* (Cham, Switzerland: Springer 2016), 97–107.

5. Griffiths, "Sensual Vision," 67.

. . . capable of triggering states of reverie, sublimity, or existential musings on our place in the universe, sensations that bind us emotionally to our medieval ancestors, even if their investments were devoutly Christian."[6] Similarly, while we work in this chapter to uncover similarities across disparate time periods and cultural contexts, we also highlight distinctions between artifacts due to deep social and cultural differences, distinct material affordances, and the limits of historical research regarding reception. We do not claim that examples from antiquity are the same as those created with MR today. Rather, there are threads of connection between the two traditions that are worthy of exploration to help designers today understand how their work is at least partly continuous with what has come before, and conversely, to help historians today see how what is studied from the past is re-fashioned and re-made in present contexts.

In examining our three examples, we situate the virtual not in a particular technology or technological imaginary, but rather at the "limen," or threshold. This limen is not necessarily architectural (although it can be); instead, it is deeply embedded within the psyche of the interactor, meaning we situate the experience of virtuality as linked to interiority. Liminal space allows access to a virtuality that lies beyond the everyday: in this case not necessarily a digital illusion but a very real "other" that provides interior transformational possibility to the interactor. By broadening our conception of the virtual beyond a narrow and recent computational meaning that dates from the late 1950s and is focused on digital illusion, we understand virtuality as a transcendent or otherworldly quality to which many expressive works, across different eras and technologies, seek to provide access. The etymology of the term "virtual" dates back to the thirteenth century, borrowing from the Latin *virtualis*, which meant powerful in producing an effect, or potent. This older meaning of the term is in opposition to later definitions emerging in the seventeenth century, which utilize the term to mean "very near" or "almost." It is the earlier meaning of the term with which we align our study, particularly as the subject of one of our examples, the fifth-century Saint

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6. Ibid., 78.

Simeon, was explicitly referred to as an "athlete of virtue" (see discussion below). Both "virtue" and "virtuality" point to a disciplined power, rooted in the "manly" (from the Latin *vir*, "man"). Virtuality, therefore, is a part of us, found within—although it is often activated by exterior experience, through conduits such as ritual, performance, narrative, or aesthetics.

We identify the experience of virtuality as partly informed by design, but also partly produced via interaction in a threshold space, where the person's or persons' experiences initiate a shift from the everyday into a heightened state of expectation, desire, freedom, fear, and—once on the other side of the limen—of ultimate transformation. HCI and design research has examined the concept of user movement through space and border crossings with concepts such as "onboarding"[7] and "trajectories;"[8] architectural research has investigated the movement of humans through space and perceptual properties of the view or vantage point;[9] and games for change have discussed design for change in player attitude or opinion, largely from the perspectives of persuasion or education.[10] Nevertheless, one concept of transformative experience design has not been widely examined: liminality.

7. Camilla Jaller and Stefania Serafin, "Transitioning into States of Immersion: Transition Design of Mixed Reality Performances and Cinematic Virtual Reality," *Digital Creativity* 31, no. 3 (2020): 213–222.

8. Steve Benford and Gabriella Giannachi, *Performing Mixed Reality* (Cambridge and London: The MIT Press, 2011).

9. John Peponis and Jean Wineman, "Spatial Structure of Environment and Behavior," in *Handbook of Environmental Psychology,* ed. Robert B. Bechtel & Azra Churchman (New York: John Wiley & Sons, 2002), 271–91; and Sonit Bafna, "Space Syntax: A Brief Introduction to Its Logic and Analytical Techniques," *Environment and behavior* 35, no. 1 (2003): 17–29.

10. Alissa N. Antle, et al., "Games for Change: Looking at Models of Persuasion through the Lens of Design," in *Playful User Interfaces* (Singapore: Springer, 2014), 163–84; and Carrie Heeter and Brian Winn, "Meaningful Play," *International Journal of Gaming and Computer-Mediated Simulations* 1, no. 3 (2009).

Drawing on classic definitions of liminality by Victor Turner,[11] under-standings of the aesthetics and politics of interstitial spaces by Marc Augé and Sarah Sharma,[12] and contemporary theories of mixed reality by Rebecca Rouse et al.,[13] we seek to elucidate the techniques and strategies that stimulate the promise of crossing the boundary from the physical into virtuality. The boundary we are interested in here differs from the boundary crossing discussed in the design of onboarding. While onboard-ing is concerned primarily with attracting a user to become a participant in an experience and educating the user about procedures for interaction, the boundary crossing we investigate is one that provides a deeper trans-formation—not from spectator to participant, but from one stage of con-sciousness or meaning-making to another. This deeper, more transformational boundary crossing has permanent effects. When an onboarded participant is done with a media experience, the participant is off-boarded; this transformation is temporary. An illusion-based experi-ence may momentarily surprise or entertain, but when the experience is over, the participant will return to a state of spectatorship or non-partic-ipation. Indeed, realization of the nature of the illusion (a dis-illusion-ment) is necessary to fully experience the pleasure of such interactions, because pleasure in the mediation (whatever the technology) is part of apprehending the artistry of the work. In contrast, when a liminal expe-rience is over, the interior transformation within the participant remains, since the power of the stimulating work does not rest on illusionism alone. In this sense, the virtual of the liminal experience is not identified with fakery, but rather with an altered state of mind, body, or soul. Lim-inal transformation may take many forms and might be as subtle as the realization of a new perspective gained while reading an effective work of literature or as marked as the transformation we experience moving through a social or religious ritual, such as a graduation or baptism.

11. Victor Turner, *The Ritual Process: Structure and Anti-Structure* (Ithaca: Cornell University Press, 1977).

12. Marc Augé, *Non-places: Introduction to an Anthropology of Supermodernity* (London and New York: Verso, 1995); and Sarah Sharma, "Baring Life and Lifestyle in the Non-Place," *Cultural Studies* 23, no. 1 (2009): 129–48.

13. Rebecca Rouse, Maria Engberg, Nassim Parvin, & Jay David Bolter, "MRX: An Interdisciplinary Framework for Mixed Reality Experience Design and Criticism," *Digital Creativity* 26, no. 3–4 (2015): 175–181.

Indeed, our conception of the virtual locates it *at the limen*, where multisensory engagement with the virtual offers real engagement with the spiritual or transformative in entanglement between the architectural, the material, and the corporal. In this framework, the limen may be structural, artifactual, or even human, as in the "liminal personae" described by Turner. As Turner sees it, the liminal may also provide potentials for political and social transformation on a large scale:

> The anti-structural liminality provided in the cores of ritual and aesthetic forms represents the reflexivity of the social process, wherein society becomes at once subject and direct object . . . in [liminality] are generated new modes, often fantastic, some of which may have sufficient power and plausibility to replace eventually the force-backed political and jural models that control the centers of society's ongoing life.[14]

Through liminal experience, people are put into relation with one another and themselves (their own interiorities and others') in new ways, a process described by Turner as "communitas," "reveal[ing] however fleetingly, some recognition…of a generalized social bond."[15] Perhaps optimistically, Turner sees the potential of material and political transformation of society via reflexive, relational, and ritualized processes.

It is important to note the cultural and social differences not only between the examples we examine, but also the theoretical frames we apply in interpretation. Turner's writing, which dates from over fifty years ago and is focused on the study of indigenous cultures, is in some ways situated quite far from current social and cultural experience in western societies in the second decade of the twenty-first century. In investigating the nature of liminality as betwixt/between in our three examples below, we will introduce more contemporary theorists, such as Marc Augé and Sarah Sharma, to provide additional insights into the qualities, experiences, and politics of liminal spaces.

14. Turner, *The Ritual Process*, vii.
15. Ibid., 96.

A Triptych: Column/Saint, Desert/Martyr, Monument/ Veteran

Focusing on the characteristics of location, scale, time, sensory experience, interaction, indexicality, and ethos in each example (see Image 6.1), we draw out the ways in which virtuality is animated across media and time. It is at the interface of the sensory that we locate the interior limen, between exteriority and the inner self. We suggest that through the alignment of this interior limen with the limen of the larger experience design, an invitation into transformational experience is extended. The chapter closes with a set of specific design considerations regarding the production of the liminal for designers working with MR technologies today and in the future.

Image 6.1. Images of the three example works. Left: John Craig Freeman, Border Memorial: Frontera de los Muertos, showing participant view of 3D model calaca skeleton figure overlay through the phone screen at the Arizona/Mexico border, 2012 (image permission from John Craig Freeman, augmented reality public art, Lukeville, AZ, 2012). Center: Basalt relief carving of Saint Simeon atop his column with acolyte bearing incense approaching via ladder, Syria, 5th-6th century CE (image permission pending from the Staatliche Museen, Berlin). Right: Krzysztof Wodiczko, Abraham Lincoln: War Veteran Projection, showing video of veteran projection mapped onto Lincoln statue in Union Square, New York City, 2012.

Borders of Sanctity in Late Antiquity

Disturbing or exhilarating mixing of different realities, invitations to immersion, uncanny presence in the absence of the body, even the portability of objects that work as portal thresholds to something different that lies beyond: these are not just the hallmarks of virtual interiorities today, but have characterized many transformative, liminal experiences and their props in the past. A remarkable example with multiple layers comes from late antique Syria.

In the fifth century CE, a troubled or needy pilgrim might have left where they lived to seek an audience with the famous Syrian hermit, Simeon the Stylite, at the remote desert site later known as Qal'at Sim'an (see image 6.1, center). Simeon is documented as pioneering the ascetic practice of distancing himself from others by standing, uncovered, atop a column (which was heightened several times) for up to four decades, the better to devote himself to worship of God. For this reason, he is known as St. Simeon Stylites (from the Greek *stylos*, "column") the Elder (ca. 386–459 CE), which distinguishes him from another later Simeon who sought to emulate him. His self-imposed exile from human society, evacuation of the ground plane, elevation towards the sky, and unrelenting practice of standing and genuflecting while in prayer took his body to ascetic extremes of bodily mortification while focusing his attention and activity on venerating God. Simeon's adoption of a column as his architectural prop made sense within both the general religious history of the Ancient Near East—in which mountaintops and artificial mounds were seen as places to communicate with God—and the built environment of the ancient Mediterranean region, which employed Greco-Roman columns liberally.[16]

Like other early Christian holy men and women, Simeon was celebrated as an "athlete of virtue," someone who exercised a discipline of the body that was linked to a training of the soul:

16. Laura Hollengreen, "Qal'at Sim'an: A New Venue of Power in Late Antique Syria," in *Proceedings of the 2021 ARCC* [Architectural Research Centers Consortium] *Conference* (2021): 275–82.

The weirdness of St. Simeon's dwelling on the column, his obsessive actions of bowing, the refusal of food except once per week, his stench and indifference to physical degradation: all took Simeon out of a comprehensible personal, subjective, and social realm and into a kind of pure "objectivity." Peter Brown argues that his objectivity in relation to non-ascetic mortal men gave Simeon something of the strangeness and supra-humanity of an ancient oracle (Brown 1971): indeed, he became the mouthpiece of the Christian God, wielding power (*dúnamis*) as traditional authorities waned.[17]

Ironically, respect for this extreme piety on the part of a man seen as an angelic figure, poised between heaven and earth, seeking total solitude, brought pilgrims to him who were seeking mediation with their God or their fellow people. In this way, St. Simeon's isolation was transformed into a center of activity. Simeon himself enacted a limen on his column-stage, linking lives and problems that were earthly, corporal, and mundane with access to a power that was heavenly, spiritual, and extraordinary. In this way, he worked a transformation in the pilgrim petitioners, who—according to the various miracles and other stories in the early *Lives of Simeon Stylites*—found healing, a path to conflict resolution, release from terror, and other changes to their daily lives.

It took a village of sorts—a full monastic community—to manage the pilgrim crowds, welcome them, accompany them into Simeon's presence, house and feed them, perhaps baptize them, and provide other ministries. As a result of these needs, a large, multi-functional monastic complex was built: its centerpiece was a huge church built around the site of Simeon's column (an eroded remnant of which was in situ until recently) that provided for both the regular liturgy of the church and the commemoration of the holy man. On site and in representations elsewhere, the column served as the most significant—and, indeed, readily recognizable—attribute of the saint and, after his death and the removal of his body, as an index of his presence. It continued to be the focal point of the monastery, the hill-top, and the whole surrounding area: in this way, Simeon's column was in spatial and visual dialogue with the columns of other stylites in the region (as charted recently by Lucas Schachner

17. Hollengreen, "Qal'at Sim'an," 277.

with GIS data).[18] In his long survey of late antique stylitism, David Frankfurter notes that what was new with Simeon was not the column, per se. Instead, it was the spatial liminality of being elevated and poised between heaven and earth.[19] According to Peter Brown, Simeon's column was his primary tool in the "craft of the [new, Christian] self."[20] The column-top meeting place of two worlds was thus the locus of an individual's agency; such agency could, in turn, change society. The column remained meaningful as the contact relic that testified to Simeon's ongoing power of intercession and miracle-working in place, localizing the holy for human perception. Simeon himself is described in late antique sources as "the wall" and "the tower,"[21] terms which may have resulted in the place name Qal'at Sim'an, literally "Fortress of Simeon." In an unstable society, the holy man, wall, and tower gathered and defended the faithful for a new God. Simeon worked an inner virtual, and sometimes an outer material, transformation through healing, adjudication, and his pious example.

In order to document, remember, and re-activate this one-time miraculous encounter with Simeon, pilgrims could buy a *eulogia* (Greek for "blessing") to take home. Unlike a souvenir meant to remind one of pleasant travels, this sacred object was fabricated on-site of local clay and imprinted with both an image of the saint on his eponymous column and the palm print of the craftsman who formed the token by hand (see image 6.2). There is, then, a double indexicality of site and touch for an object that was regarded as impregnated with the power of the saint and which could travel in ways the man himself did not. At the site and on the object, the saint could be seen on his column at the apex. The convex-sided lozenge shape of the token may even have suggested the entirety of

18. Lucas Amadeus Schachner, "The Archaeology of the Stylite," in *Religious Diversity in Late Antiquity*, ed. David Gwynn and Susanne Bangert (Leiden: Brill, 2010), 380.

19. David T. M. Frankfurter, "Stylites and Phallobates: Pillar Religions in Late Antique Syria," *Vigiliae Christianae* 44, no. 2 (1990): 168–98.

20. Peter Brown, "The Rise and Function of the Holy Man in Late Antiquity, 1971–1997." *Journal of Early Christian Studies* 6, no. 3 (1998): 603.

21. Peter Brown, "The Rise and Function of the Holy Man in Late Antiquity." *Journal of Roman Studies* 61 (1971): 90.

the hilly site and the arduous experience of it by pilgrims.[22] Indeed, while the fame of this "stationary" stylite was later compounded by the spectacular architecture of the church and monastery built after his death (the church alone could accommodate 10,000 worshippers and is one of the most significant examples of late antique architecture between the fourth and sixth centuries), the transformation at work in the visitor was also concretized in and maintained by contact with the object taken home. It offered the intimacy of something handled—putting maker and owner hand-in-hand in a culture in which touch could have significant spiritual impacts—and provided access, through memory, to the liminal experience of pilgrimage.

Image 6.2. Eulogia or "blessing" pilgrim token of St. Simeon Stylites the Elder, made at Qal'at Sim'an, Telneshe, Syria, 5th-6th century CE (artist's rendition by Rebecca Rouse). 23 x 18 x 8 mm. Ashmolean Museum, Oxford, AN1980.48A. Left: The body of Saint Simeon and the structure of the column are merged on the recto of the object. Right: The palm print of the maker of the token is visible on verso.

22. Heather Hunter-Crawley, "Divinity Refracted: Extended Agency and the Cult of Symeon Stylites the Elder," In *Lived Religion in the Ancient Mediterranean World: Approaching Religious Transformations from Archaeology, History and Classics*, ed. Valentino Gasparini et al. (Berlin: de Gruyter, 2020), 277.

National Border in the Desert

In 2012, artist and educator John Craig Freeman released *Border Memorial: Frontera de los Muertos* (see image 6.1, left), a public art project in the form of a mobile app that provided an interactive MR approach to perceiving the problem of migrant deaths in the desert Southwest.[23] After downloading the app (sadly no longer available), users could point the phone's camera at the landscape and view—via GPS data—specific sites of migrant deaths. These sites were augmented on screen in commemoration with digital models of *calacas*, skeletons which are commonly seen at Mexican *Día de los Muertos* festivals.

The political context for Freeman was that of federal border policy beginning in the early 1990s. During Operation "Hold the Line" (1993) and Operation "Gatekeeper" (1994), migrants from Mexico and Central and South America were increasingly shunted away from the border regions of California and Texas and into the arid lands of the Sonoran Desert in the Tucson, Arizona, sector. These lands are sparsely populated and subject to searing temperatures and lack of groundwater during the extended warm season from April through October. Accordingly, the number of migrant deaths in the sector rose dramatically. While it has not been possible to identify every body found, Freeman and others brought attention to the scale of the tragedy and the myriad sites where migrants breathed their last.

The thing that is "real" in the MR environment of *Border Memorial* is the place, the specific locale where a life was lived and lost, of which the GPS data is an index. Freeman banks on the participant's immersion in the landscape of the site, which, given the absence of the bodies after their remains have been collected and removed, he characterizes as "hauntological." That the victims lack names and faces, represented only as *calaca* avatars, is in part probably pragmatic: the data is likely incomplete. Yet this absence also acutely sensitizes participants to the massive scale of the deaths of migrants in this part of the country. That real-

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23. John Craig Freeman and Jessica Auchter, "Border Memorial: Frontera de los Muertos," *Hyperrhiz: New Media Cultures* 12 (2015).

ization is brought home for participants as it takes place by means of a portable handheld device, one which has become an omnipresent extension of our own bodies in contemporary society. On his website, Freeman likens this to the haptic experience of architect Maya Lin's *Vietnam Veterans Memorial*.[24] This analogy goes only so far, however. The haptic experience at the memorial in Washington is at the scale of the participant's whole body, which, in walking the delimited length of the memorial, tracks the thousands of names that unspool on the wall and sees itself reflected in the polished surface. There is a groundedness in Lin's work that reflects the weight of bodies and supports the weight of grief, making Freeman's free-floating c*alacas* seem not just ephemeral but lightweight in other ways as well. While Freeman's aim is a noble one and the body of the participant is brought to the site, the lack of individuation (in contrast with the multitudinous names on Lin's *Memorial*) and, more crucially, the relatively pallid embodiment via the use of unchanging and stylized imagery on a small screen, blunts the effectiveness of the project. Personal name and impersonal imagery are not equivalent, something Freeman certainly acknowledges; he seeks to defend his project as being about "human beings . . . within our social and political communities" of memory and memorialization, rather than about specific migrants.[25]

Border Memorial: Frontera de los Muertos takes the participant to borderlands, a political limen at which each country begins its presencing[26] that becomes an existential limen, transforming migrants into martyrs. In this sense, the MR project goes to the ultimate site(s) and spaces for people on the move whose numbers might suggest the community Turner evokes, a community enlarged by those participants using Freeman's phone app. Marc Augé's work, however, re-identifies such liminal or interstitial spaces as "non-places" of anonymity for most people in contemporary society. Focusing on the aesthetic and procedural quality of spaces such as airports, border crossings, motorways, and supermarkets, Augé provides a conception of life today in what he terms "super-

24. John Craig Freeman, "Border Memorial: Frontera de los Muertos,"
   https://johncraigfreeman.wordpress.com/border-memorial-frontera-de-los-muertos/.
25. Freeman and Auchter, "Border Memorial."
26. Homi K. Bhabha, *The Location of Culture* (London and New York: Routledge, 2004), 1–12.

modernity" as marked by a trilogy of surfeit: "overabundance of events, spatial overabundance, the individualization of references."[27] He defines these supermodern non-places in opposition to the places of modernity, theorized by anthropology and "defined as relational, historical and concerned with identity."[28] In contrast to the organic societies of modernity that created places, supermodernity creates non-places, which are marked by "solitary contractuality," continually addressing inhabitants as individuals who may be networked (and thus exposed) but are not members of any community and who are subject to the transactional processes of global capitalism.[29] Non-place is identified with both a loss of the local or the particular, but also a paradoxical global homogenization—meaning the inhabitants of contemporary non-place (which has the potential to arise in any place, at any time) "are always, and never, at home."[30] Augé is careful, however, not to paint non-place as dystopia, instead identifying the experience of non-place as a kind of relief or relaxation into relative anonymity, playing on the double meaning of the "duty-free" zone of an airport, free of both tax and normal expectations, structures, and behaviors. Even in proximity to others, some are privileged to find the "unique luxury of being 'alone at last.'"[31]

There is then an ambivalence or duality in Freeman's *Border Memorial* which locates the participant in a specific place (or acknowledges it when the participant is already there) but also reveals the non-place of contemporary statecraft, with the implacable plight of those who die there in numbers, often anonymous and disregarded. This is valuable work in the service of documentation and public education, but from our perspective it does not succeed in bringing participants to an interior emotional limen, a reluctance justified as not reifying the migrant body or biography. With this choice, the project does not end in the powerful transformation that is the promise of true liminality. Freeman indicts the necessity of "biopolitical struggle" in which certain bodies matter and

27. Augé, *Non-places*, 40.
28. Ibid., 78.
29. Ibid., 94–96.
30. Ibid., 107–09.
31. Augé, *Non-places*, 6.

others don't, but then replicates the anonymity of the latter by means of a spectral presence that is too abstractly communicated in graphic terms to be strongly felt. A recent article on the project by Alyssa Quintanilla notes "the continuous need for collective and communal mourning, not for specific people but in individual places."[32] But how communal is mourning that is stimulated by individuals with their personal cell phones out in the desert? They participate in a network but are not (yet) a community. And why should individual places be prioritized above specific people? The index of the martyred migrant is rendered legible only in computational terms, as a GPS coordinate, in order to deliver this data to the participant's cell phone location with accuracy. While accurate, the use of the index in this case does not evoke a feeling of the virtual presence of the lost other or an evocation of presence via absence as we will see is done in our final case study discussed below.

Domestic Racial Borders in the City

Another MR project also intended to call attention to an oppressed group in American society debuted that same year. Krzysztof Wodiczko's *Abraham Lincoln: War Veterans Project* (2012) was on view in Union Square in New York City for a month in late fall (see image 6.1, right).[33] The Square features a memorial statue of Abraham Lincoln erected in 1870, onto which images of contemporary veterans of the war against terror in Iraq and Afghanistan, and the earlier war in Vietnam, were projected while recordings of their voices played. Wodiczko had explored projections onto monumental, celebratory, and memorial public structures in earlier projects,[34] but the choice of a figural ground for the projection mapping in *War Veterans Project* brought the work more fully into the realm of the uncanny, as is still evident in recordings and photos. Adopting postures similar to those of Lincoln, the contemporary figures who were filmed adhere to the statue's contours and thus seem to inhabit it: in that pos-

32. Alyssa Quintanilla, "Mourning Absence: Place, Augmented Reality (AR), and Materiality in *Border Memorial*," *MAST (Journal of Media Art Study and Theory)* 1, no. 2 (2000): 103–23.

33. Krzysztof Wodiczko, "Abraham Lincoln: War Veterans Project,"https://www.krzysztofwodiczko.com/public-projections#/new-gallery-31/.

34. Duncan McCorquodale and Rosalyn Deutsche, eds. *Krzysztof Wodiczko* (London: Black Dog Publishing, 2011).

session, they bring dead material and a dead man to life. The frisson of the work derives not simply from the confusion between (or layering of) what is dead and what is alive, inert, and dynamic, but also from the fact that many of the veterans involved are Black. Not even Lincoln, revered champion of the Union with its commitment to the abolition of slavery, can convey the experience of Black Americans. The veterans speak of the trauma of war that affects soldiers of color disproportionately due to their high enlistment rates: its sensory overload, its chaos, the lack of individual agency, and the fatalism that it encourages. They do not complain, though; they simply tell—and, in the telling, they call into question the grandiosity of memorial artwork and the claims that it represents a public which, in fact, is mis-represented as unitary.

The monument which Wodiczko adopted as site for this MR work is no longer the destination it was intended to be at the time of its erection.[35] Indeed, within the quotidian bustle, dense inhabitation, and historical amnesia of global cities like New York, it and other such sites risk lapsing into invisibility, if not actually losing their status as "places." As a slim oval of park and plaza space sandwiched between tall buildings, busy streets, and subway entrances, Union Square is less destination than other Manhattan parks and more thoroughfare. Experienced briefly on a

35. The statue of Abraham Lincoln was an addition to the early nineteenth-century Union Square (originally Union Place), named not for the "Union" that was the United States but for the intersection of two major streets (Bloomingdale Road, now Broadway, and Eastern Post Road, later Bowery Road and now Fourth Avenue), later developed into a park and already ornamented with sculpture. At its beginning, the square was part of a largely residential neighborhood which, after the Civil War, became increasingly commercialized. The Lincoln statue by Henry Kirke Brown, dating to 1870, was critically panned at the time of its erection. For decades afterwards, it was located in a prominent spot in the southwestern part of the square but was re-located during a wholesale remodeling in 1930 to its current spot, facing south, near the square's northern edge. For more information, see the official website of the New York City Department of Parks and Recreation: https://www.nycgovparks.org/parks/union-square-park/history and https://www.nycgovparks.org/parks/union-square-park/monuments/913. Although now placed on an axis with the equestrian statue of George Washington (1856), also by Brown, at the southern end of the square, the Lincoln statue does not enjoy as spacious a setting or the open vistas that characterize the former and that used to belong to it as well. A recent article on the statue recounts early celebrations focused on the statue but ends with this sad commentary: "While no longer maligned, it [the statue] is more often simply overlooked." See Tom Miller, "Henry K. Brown's Much-Maligned 'Abraham Lincoln' Statue – Union Park," *Daytonian in Manhattan*, August 22, 2011, http://daytoninmanhattan.blogspot.com/2011/08/henry-k-browns-much-maligned-abraham.html. Wodiczko brought the statue back to life, temporarily, in more ways than one.

pedestrian's or motorist's journey, it may be seen as a place of traversal, where little is asked of the passer-by. Still, the non-places of contemporary capitalist co-option do not provide to everyone the "relaxing anonymity" and "unique luxury" of which Augé wrote. While the politics of the non-place are structured so that those in power are made to feel their traversal is naturally "smooth," others who do not conform to certain political categorizations (of race, class, gender, religion, nationality, ability, etc.) will find the traversal of the non-place to be a much rougher ride.[36]

In this context, Wodiczko succeeds in suggesting a possible re-creation of place and the construction of community by using the digital to create a limen. Contemporary bodies are indexed in their filmed images and recorded sounds, which are then projected onto the iconic historical monument. In projecting images of multiple veterans over time, Wodiczko honors the individuality of each but also reveals the common military training for the battlefield that distinguishes them from most of the work's viewers: passers-by who have chosen not to share in that experience. Several pairs of distinct realities are "mixed" here. A civilian leader fabled for his intelligence and modesty is mixed with the kind of rank-and-file soldiers who do the bidding of the President. A memorial once sanitized of ambivalence and ugliness is augmented by the gory details of actual service. A figure deemed worthy of remembrance is paired with the forgotten of society, only here and now—temporarily—given face and voice. Following Lincoln's gaze, which rests on a central point in the park that hosts a large flagpole on a pedestal, the projected gaze of the veterans' own glances now also casts their vision toward one of the ultimate American symbols: the flag. This layered gaze toward the flag highlights the complexity of nationhood, the multiplicity of perspectives represented (or not represented) by this symbol, and how its meanings are con-

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36. On this point, Sarah Sharma provides a deepening of Augé's perspective, drawing our attention to the politics of non-places in the twenty-first century: "the non-place operates under a mixed regime of camp and spectacle, wherein bare life and the cultivation of lifestyle enter into an interdependent relationship." Sharma identifies the interdependence or entanglement of these two types of spaces in contemporary society, cautioning against an overly sterile or apolitical understanding of the non-place: "Non-places are built environments that are not only built by people but cleaned by *people.*" "Baring Life and Lifestyle," 146.

tinually contested over time. The passer-by is invited to linger, look, and listen but is given no stable place from which to observe, as the comparative back-and-forth of perceptions, meanings, and symbolisms calls into question the fixity of both past and present. Past and present interrogate, destabilize, and complicate each other. Wodiczko describes this approach in which historical edifice and living veterans are brought into conversation with one another and passers-by as follows:

> Bringing back the past to think through it[,] so maybe the mistakes of the past will not repeat themselves again, that's something monuments can do, only if we help them. We must keep in mind that the veterans, themselves, are monuments. They are living monuments to their own trauma. So, this kind of project gives them something very precious, to be speaking monuments.[37]

Precisely because of the reliance on individual images and voices, Wodiczko's work is more affecting than Freeman's. The underlying narratives are compelling in both cases, but the (re)presentational choices are more successful in *War Veterans Project* because they are rawer: they do not default to stylization or tradition. In fact, they call stylization and tradition into question, with the contemporary veterans' voices not only speaking their own truth but also evoking the absence of decades of earlier veterans' voices. In so doing, an opportunity for transformation and freshly realized communitas is proffered. Passers-by cannot easily remain aloof and uninvolved: whether White, Black or of another race, they are implicated, individually and personally, in the manifest ongoing racial contestation of our country and our ongoing militaristic legacy. Even if passers-by do not directly engage one another, they are called into relation with the fourteen veterans animating the monument, the legion of other veterans referenced by extension, and invited into a transformative consciousness and new understanding regarding both the interrelation and disjunction between those who serve and those who do not.

37. MoreArt, "Krzysztof Wodiczko, Abraham Lincoln: War Veteran Projection, 2012," posted 2012, Vimeo video, 3:04, https://vimeo.com/51821413.

In each of the examples above, the physical and the virtual augment one another: the saint on his column and both the later architecture of the site and the take-away tokens, the border and 3D digital models, the statue and projections. All of the works are memorial in intention, but according to a conception of memorialization that, in each case, was new at the time. In the case of the medieval saint, memorialization is part and parcel of the cultivation of the saint's cult, even as his holy power can be manifested in objects associated with his body but far from it physically. Liminal experience and transformation are likewise rooted in a dialogic encounter which augments one's person or thinking with something or someplace other. The deaths of migrants are memorialized by a digital means of marking, thus making visible their locations even when the bodies of the dead are no longer present. Finally, the traumatic experience of war veterans, like the trauma of the political refugee, is memorialized in ways that, like the border memorial, call into question the unity, coherence, and meaning claimed of political histories and contemporary policies. The otherwise distant service of the invisible veteran is rendered visible and audible. We can see these transformations in relation to Jay Bolter's discussion of different aesthetics in different media.[38] The transformations may be spectacular, permanent, and cathartic (as in a saint's healing); contemplative, contextualizing, and *reflexive* (as in Wodiczko's projection, fostering a new understanding of US society and history); or provide access to the true nature of the consuming and fluid socio-political and economic space in which we live and move (as in Freeman's app). As the twelfth-century medieval monk Abbot Suger once remarked of the decoration of his new Gothic Church of Saint Denis near Paris, the "dull mind [of the uninformed participant, the indifferent passer-by, the helpless pilgrim, or even the monk] rises to truth through that which is material" as perceived by the senses, but, "transferring that which is material to that which is immaterial" arrives at a "dwelling, as it were, in some

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38. Jay David Bolter, "The Aesthetics of Flow and the Aesthetics of Catharsis," in *Technology and Desire: The Transgressive Art of Moving Images*, ed. Rania Gaafar and Martin Schulz (Bristol, UK, and Chicago: Intellect, 2014), 121–35.

strange region of the universe which neither exists entirely in the slime of the earth nor entirely in the purity of Heaven."[39] The limen presents a mixing of realities which augment one another and make possible new perspectives and new life.

Elements of Liminal Design

Reflecting on our trio of examples, we have abstracted a set of elements and created an initial taxonomy that captures the essential qualities of each example. This allows a deeper level of comparison and makes it possible to suggest strategies for the designer that can effectively contribute to the experience of liminality and interior transformation. The elements of liminal design we identify are: *location*, *scale*, *time*, *sensory experience*, *interaction*, *indexicality*, and *ethos*.

Location

At Qal'at Sim'an, the location was initially configured as a minimalist non-place, outside the boundaries of any town, with the column of the saint rising out of a rocky promontory in the Syrian desert which he had chosen as a site of self-imposed exile from human society. Later, a pilgrim drawn by the fame of the miracle-working saint and who wished to visit the stylite undertook an arduous climb up the hillside, an ascent up a Sacred Way that eventually arrived at the foot of the column.[40] Later still, the location was expanded into a vast monastic and pilgrimage center. In the case of *Border Memorial*, the participant is invited to explore a variety of locations, some located in the remote desert and others in towns, cities, or suburbs along the Arizona/Mexico border. The designer is constrained by the documentary nature of the work and has no control over the locations chosen for the participant to traverse, since locations are derived from a set of GPS data coordinates recording where those migrating have been found dead. The participant may experience these loca-

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39. Erwin Panofsky, ed. and trans., *Abbot Suger on the Abbey Church of Saint-Denis and Its Art Treasures* (Princeton: Princeton University Press, 1946), 49, 63, 65.

40. Ann Marie Yasin, "The Pilgrim and the Arch: Paths and Passageways at Qal'at Sem'an, Sinai, Abu Mena, and Tebessa," *Excavating Pilgrimage: Archaeological Approaches to Sacred Travel and Movement in the Ancient World*, ed. Troels Myrup Kristensen and Wiebke Friese (New York: Routledge, 2017), 166–86.

tions at any time of day, or season, meaning there is great variation in the environmental qualities of the encounter in the landscape. In the case of *War Veterans Project*, the installation is placed in the high-traffic, urban location of Union Square but is shown only at night, after rush hour, during a few weeks of the year when light conditions are best for highlighting the projected images and noise levels are low enough to allow for the audio of the installation to be heard by passers-by.

Across our three examples, we see a range of design strategies in terms of location: Qal'at Sim'an provides an example of a project that progresses from use of a found space (the desert environment where the saint first erected his column) to a highly designed, immersive architectural environment with the later construction of the church and monastery. In the case of the church, the designer had to respond to the surrounding environment and work within the constraints of the landscape but had more effective control over the pilgrim's experience of the space. *Border Memorial* takes a seemingly neutral approach, which we might even identify as a "found space" approach, connecting to the early Modern avant-garde practice of "ready-made" sculptures by artists such as Duchamp, who took found objects and presented them within the artistic frame to reconfigure them as art. Similarly, Freeman has placed the *Border Memorial* locations ("found" GPS coordinates) into an artistic frame, exhibiting this work at institutions such as MoMA.[41] Wodiczko's approach, finally, might be described as a blended approach to space in terms of design strategy. He uses a "found" space (the public space of Union Square) but only during particular times when he has some expectation of general uniformity of environmental conditions. While the designer still has limited control over the space in this case, he has made a careful selection of the available conditions that best suit his work. In this way, Wodiczko takes an existing urban node and remakes it, bringing to it new life.

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41. An early version of *Border Memorial* was installed in the MoMA outdoor sculpture garden, as part of the self-described "Augmented Reality Art Invasion" guerilla-style AR exhibition on October 9, 2010, organized by Sander Veenhof and Mark Skwarek. The MoMA installation of the work has a different ethos from the site-specificity of the desert and brings with it the curated sanction of the high art world, as opposed to the remote, DIY aesthetic of the Arizona version.

Scale

At Qal'at Sim'an*,* Simeon stood aloft, roughly 60 feet above pilgrims, and was accessible physically only by a ladder, which an acolyte climbed daily to bring food and petitions to him. The sense of scale was later augmented by the construction of the vast church which, while providing a regular liturgical space in its eastern arm, was spectacularly centered on the column. This attribute of the saint's asceticism came to symbolize him altogether in the absence of his bodily remains, which had been taken to the Cathedral of Antioch. The scale of *Border Memorial* is even larger, covering many miles. This stands in contrast with the scale of the MR interaction, which is miniaturized, and is viewed by an individual through the hand-held mobile phone screen. In the case of the *War Veterans Project*, the projections are precisely scaled to the large statue, with the footage of veterans posed in the same stance as the underlying sculpture of Lincoln. The sculpture itself is larger than life-sized, and rests on a fifteen-foot-high pedestal, meaning the projections and the statue itself are easily visible to passers-by.

Here, too, we see variation in the ways in which scale is in play. While *Border Memorial* is the project that covers the largest area in terms of square miles, this scale is experienced by the participant through the miniature window of the smartphone of a singular individual. The hermeticism of scrutinizing things alone on a small screen telescopes the experience down to the individual who is removed from the immediate social context. The scale of *War Veterans Project* is closest to human scale, at just fifteen feet above the heads of passers-by, and the projections are precisely scaled to the statue. At Qal'at Sim'an, the site evolved over time from a singular prop and later monument to a saint's piety to a very large pilgrimage complex of monastery, hostels, baptisteries, and more. Still, the opportunity to buy a small, hand-made and hand-held pilgrim token meant that one could take the world of Simeon and the power of the saint home.

Time

The experience of time also varies across our examples for participant, passer-by, and pilgrim, respectively. For pilgrims coming to Qal'at Sim'an, the temporal experience was one of dramatic climax at the end of a personal, intentional journey that might have been local and thus short or supralocal and longer. Anticipation likely built over the duration of the journey, as the saint on his column hovers into and out of view, depending on the topography. The location where the participant encounters *Border Memorial* also affects the experience of time. For instance, a participant might spend an entire day following a trajectory from location to location along the lengthy border area augmented by Freeman. Encountering *Border Memorial* in the art museum context, such as it was shown at MoMA, might result in a much shorter encounter of only a few minutes, in which the participant might call up the 3D models to see a demonstration of how the application would function in situ. With *War Veterans Project*, it is possible some will not stop at all, but only glance or catch a brief snippet of audio. Those who do stop to witness the piece, or those who were alerted to its installation via interviews or other publicity and have come intentionally to view it, may stay for the entire 23-minute video loop and even watch the piece more than once.

In terms of time, *War Veterans Project* is likely intended as a roughly 20-minute encounter, *Border Memorial* is likely intended as a day-long exploration to be experienced on-site, and the experience of time on the way to and at Qal'at Sim'an likely extended to the whole life of the pilgrim. A healing or teaching by a holy man was not only a solution in the moment to a troubling problem but reached back in time to the model of Christ through the life of the individual, exemplary holy man and forward to the reunion with Christ at the end of time. In this way, miracles wrought by Simeon belonged to the entirety of salvation history and thus worked on a vast temporal scale.

Sensory Experience

At Qal'at Sim'an, the sensory experience of approach to Simeon entailed the muscular exertion of a steep climb, intermittent sight of the saint until one stood at the foot of his column, and auditory reception of his words. This experience might have been individual but was more likely undertaken as part of a crowd; in both cases, it was managed and mediated by the monks at the site. The formal enlargement of the complex into a full-fledged monastery and orchestration of the pilgrimage extravaganza testify to the ecclesiastical, institutional interest in overseeing and framing the cult of such a holy man. The sensory experience of Qal'at Sim'an was thus significantly transformed over time, with the proliferation of framing devices (a triumphal arch, building portals, etc.) which prepared the pilgrim and, at each point in the journey, refocused attention on what was to come. Finally, the *eulogia* which one could take home introduced an explicitly tactile dimension: it was a small object which could be handled or worn. Such objects were often kept close to the body.

For participants of *Border Memorial,* the sensory experience can vary dramatically based on which sites are visited, at which time of day, during which season of the year, and so forth. The sensory experience of the cell phone is not reflexively referenced in the piece; instead, the device is used as a transparent interface to access the digital layer of the piece. Because of the great variation across sites in *Border Memorial,* it is hard to say exactly what the participant would take in sensorially in terms of light, smell, sound, form, texture, and so on. The sensory experience of Union Square is more constrained and therefore easier to capture as one of urban bustle, with the accretion of layers of history in its range of nineteenth- and twentieth-century architecture, the neon signage of contemporary shop fronts, the green space of the small park and pavilion, and a subway entrance. Multiple sculptures are situated in the small park, including George Washington on horseback, the Marquis de Lafayette, and Mahatma Gandhi. Passers-by are mostly accustomed to not seeing these sculptures: during their daily trajectories through the city, such accoutrements to public space can become largely invisible to the habitué of the area. For this reason, there is considerable shock in seeing one

of the statues brought to life, as it were, through video projection and sound. This displaces and decontextualizes the prop, enticing the attention of the passer-by to look and listen anew. The tight coupling of the projection mapping with the underlying sculpture—which occasionally results in strange disfigurement of the projected face, as Lincoln "peeks through"—can also provide an experience of the uncanny in the shifting junction/disjunction between three dimensional and projected form, an illusion of the inert brought to life through the video animation and sound.

Interaction

Interaction at Qal'at Sim'an was more ritualized than with the contemporary examples and mediated by human actors more than by technology. This is the example that works most successfully across scales of space and time. And because the site was one of ascetic practice and religious veneration, it was freighted with both individual and shared meaning from its beginnings, unlike the non-places of capitalist supermodernity. Interaction in *Border Memorial* is facilitated by the movement of the participant in space which calls up the 3D *calaca* models as markers at each site where the body of a migrating person was found. Nevertheless, the memorialization of each person who died is not advanced or internalized by the participant, who simply watches abstract imagery on a small screen. In the case of *War Veterans Project*, the Union Square passer-by is enticed or challenged by the voice and image of the veterans, one of whom explicitly implores the passer-by to "do something for the veterans!"[42] The voice is one typically not heard so directly. This example provides opportunity for interpretive interaction, as well as interaction with other passers-by who also pause to view the piece. While there is no haptic element, the scale of the representation is closer to human scale than that in *Border Memorial*, and personal reflection is stimulated by the personal stories of the veterans. One feels implicated.

42. Maria Niro. "Krzysztof Wodiczko - Abraham Lincoln: War Veteran Projection by Maria Niro (c) 2012," posted 2012, Vimeo video, 2:56, https://vimeo.com/53446621.

Indexicality

At Qal'at Sim'an the indexical can be found in two places. The first is the eroded remains of one drum from the column of the stylite, an index marking and representing where he once stood. Only recently, it was displaced from the original base of the column by shelling (perhaps by Russian forces supporting President Bashar al-Assad) in Syria's ongoing civil war, in what can only feel like an architectural and cultural martyrdom, though its aims may have been more pragmatic.[43] The second site of indexicality is the design of the pilgrims' tokens, intended to be taken home with the pilgrim as a way of extending access to the site and the saint. On their upper side, they carried an image of Simeon atop his column and indexed the site through the local clay used in fabrication of the objects, which bear indexical traces of their makers' handprints. For *Border Memorial*, the GPS location data for each *calaca* 3D model indexes the body of a migrating person found dead. The application functions by also collecting indices of participants' own bodies and tracking participant GPS coordinates in order to accurately call up the 3D models in the correct locations. While the indices of the absent bodies of the dead migrants and the present bodies of the living participants are thus brought into relationship within the app, this happens at the level of code: it is machine-legible but less human-legible. In terms of *War Veterans Project*, the video footage represents the fourteen recorded veterans indexically, in contrast to the iconic sculpture of Lincoln underneath, which bears no actual trace of Lincoln himself. Passers-by are thus invited to perceive the authenticity of the veterans, via the cinematic index, in contrast to the representational icon of Lincoln.

43. Shannon Steiner, "AYS: UNESCO World Heritage Site of Qal'at Sem'an Damaged in a Russian Air Strike," *Are You Syrious?,* May 13, 2016, https://areyousyrious.medium.com/ays-report-unesco-world-heritage-site-of-qalat-se-man-destroyed-in-a-russian-airstrike-c2ea4d36b8f3
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Ethos

Our three examples vary from the didactic to the affective to the spiritual. The ethos at Qal'at Sim'an is one of religious belief and practice, as pilgrims sought a model for how to live a life pleasing to God, advice about how to solve problems of everyday life, and healing from what ailed them. The *Border Memorial* application is didactic in its approach, seeking to raise awareness and educate participants about the vast scale of the loss of life at the border by transforming the non-place of the border into a place of meaning-making and public education. Finally, the *War Veterans Project* also has the aim to raise awareness by highlighting the often ignored or silenced voices of veterans, but the approach is not didactic. Instead, the piece takes an approach that focuses on affective response with the veterans describing deeply disturbing wartime experiences and the realities of ongoing trauma. This emotive approach is intended to encourage a direct, empathetic connection between the passers-by and the veterans. Where Freeman's approach is systemic, Wodiczko's is more personal, though also suggesting broad political and social issues. Each location potentially involved a transformation that is the promise of liminality, but variously a transformation of soul, head, or heart.

Design Strategies for Liminality

The three potent examples described above have allowed us to develop a set of elements of liminal design and analyze the various ways in which each element is deployed across a range of contexts. Stepping back to reflect on the two works which seem to us most effective in creating a liminal experience—Wodiczko's installation and Qal'at Sim'an—we see that the presence of elements of indexicality and interaction stand out. Indexicality operates both as an effective way to entice or attract the passers-by or pilgrims into the experience. Both the uncanny play between the indexical video and sound of living veterans with the underlying, iconic Lincoln statue and the vertical columnar form as a literal pointer to Simeon's status at/as the apex of liminality call out to the passer-by or pilgrim to come forth and take notice of this invitation-into-relation with a virtual other. This being-in-relation-with is key to the quality of inter-

action made possible in these two examples. In both cases, the passer-by or pilgrim is not called to traverse the limen alone, but rather in dialogue with others, both present and not. Interestingly, the literal presence of another does not seem to be necessary to achieve this calling-into-relation via interaction when the use of indexicality is strongly in play. The power of the index-as-trace may effectively stand in for the presence of the absent other, as we see in the continued power of Simeon's column following his death. Virtual evocation of the absent other is critical to the possibility of transformation because it is transportative, working as a portal to a different world of understanding and, potentially, political action or healing.

In future research, we aim to assemble a typology of liminal designs which will address both objects and environments. Five opportunities for liminal design are sketched below but will be elaborated in subsequent publications.

Objects:

- Handheld objects, such as tiny medieval manuscripts, so-called "prayer nuts," and digital devices today: these offer an immersive world in the palm of the hand and invite the interactor's self-projection into the space of the object or representation.

- Wearable objects, such as medieval reliquaries and "smart" clothing today: these provide a haptic experience that transforms the body into a hybrid or cyborg entity, making it a vehicle of transformation.

- Figural works of art that "come to life," such as those described in medieval miracle stories and in immersive volumetric video capture or natural language AI interfaces: these cross an uncanny boundary between that which is inert or dead and that which is alive, bringing the interactor into a space that is betwixt/between and, therefore, ambiguous.

Environments:

- Built environments that flood the senses in an immersive expe-

rience, such as medieval cathedrals, nineteenth-century the-
aters, theme parks, and modern environments of total design:
these invite the ecstatic surrender of their occupants.

• Extreme environments, such as the cave, desert, ocean, or
mountaintop: these suggest extreme practices and experiences
that take the interactor out of the realm of quotidian experience
and to the limits of consciousness.

This typology should allow scholars and designers to address a wide
variety of projects and design strategies. With respect to the examples
discussed above, the categories of "art that appears to come to life"
and "extreme environments" would seem to be particularly operative.
A breaching of boundaries, essential to liminal experience, is activated
when art appears to come to life. One of the most spellbinding, indelible
experiences of the uncanny occurs when the seemingly incontrovertible
difference between an inert object (even something that was once alive)
and an animate being is confused, confounding the viewer's sense of
presence and agency. Implicitly, something that has come to life can then
operate in the world, either benevolently or malevolently. Wodiczko's
mesmerizing and spooky *War Veterans Project* discussed above in fact
blends this type of liminality with that of the wearable object, as the
"dead" monument of a historical leader wears the "live" skin of some-
one else who is animated in projection. And at Qal'at Sim'an, an extreme
environment offers an explicit departure from home and the known world
into the forbidding edge conditions of nature. In the past and today,
sparsely inhabited sites in the desert, the sea, and the mountains tempt
those who wish to test themselves outside the social structures that con-
strain them in the city and domesticated landscape. From Early Christian
saints in the Egyptian and Syrian deserts to contemporary loners, those
who choose to go to the extremes experience the transforming immen-
sity, isolation, and indifference of nature. Others, like the contemporary
migrants and refugees highlighted by *Border Memorial*, may be forced into
such environments in punitive political contexts. The perceived or actual
risk is death. Virtual reality simulations of extreme environments detach

the participant from an immediate context—typically achieved by donning an isolating headset—and invite her to test the constraints of the normal physical world through an experience of free fall or other exhilarating, perhaps frightening, ordeals.

By presenting this set of elements of liminal design, and an initial structure for a typology of liminal designs, we have provided a new understanding of transformational experience centered on the concept of the limen. This lens offers designers a historically informed way to consider the development of experiences in which interior transformation of the participant is sought and offers theorists and historians a design-oriented perspective to consider in the analysis of such works.

Coda: Discarded Jeans

Coming back to the Arizona/Mexico border, a final example invites the reader over the limen. We offer this example in the tradition of the found object or ready-made, as a complement to the discussion of Freeman's work.

> During a walk in a state park south of Tucson, I happened upon something unexpected. I was walking through scrubby vegetation around the marshy edge of a lake under scattered tree cover when I came upon a pair of discarded jeans, lying just off the path on the ground. The jeans seemed forlorn, lying supine under a bush near the marshy, muddy verge of Patagonia Lake in Southern Arizona. They had been shed like a snake's skin and left behind. No wonder their owner took them off—it's uncomfortable wearing wet jeans. I imagine their owner sitting down briefly in a shady spot, one that felt protected from sight, in order to tug them down. But to abandon them? Was that intentional or were they simply forgotten in the mental fog of other considerations and worries or under threat?

The jeans looked unwearable. Still, like the carapace of a beetle, they seem to retain the shape of the body that once filled them, a fleshy, rotund, vital body. A spectral presence clung to them by virtue of their utter familiarity as everyday attire; as relic, they evoked the person who had left them behind.

The site was near the border, a place of illegal migrant movement, of desperate striving towards a safer future. Perhaps the jeans' owner took them off but then went on to security. I hope so—fervently. But I will never forget the uncanny frisson associated with both their abandonment and their perdurance in that place. In that moment of pause and perception of the jeans, my movement through the space was interrupted, just as the owner of the jeans had paused to remove them.

The jeans as index of the missing other were an affective calling-into-relation with the absent owner, a powerful trace making visible the body that once occupied that space, through a common object, easy to identify yet also singular in having belonged to an individual. Abandonment suggests lack of value, an association that easily slides from forgotten objects to disposable people. Perdurance, on the other hand, suggests a material substance that is obdurate, a physical subsistence asserting its own agency, regardless of human choice. Seeing these jeans, so ordinary, so redolent of heavy use, so disregarded, abandoned in a place of movement and transition, highlighted for me the fraught limen of life and death, awareness and indifference.

Just as the Duchampian tradition of the ready-made challenges what counts as art, by relocating overlooked or discarded everyday objects of capitalist production from the non-place of detritus into the place-making frame of the art gallery, so, too, we present this final example as a scholarly version of the ready-made, to trouble notions of designed experience, and expand what counts as a scholarly object of inquiry. While the discarded jeans were not a designed artwork or installation, by placing them within the scholarly frame of writing here, we enact a performative shift that re-claims them as worthy of note. Moving forward with our research into liminal design, we thus also aim to expand our awareness beyond examples commonly framed as designed to encompass happenstance experiences that likewise powerfully invite us into liminal awareness.

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The Always-On Storyscape

Cinematic Subsumption, Pervasive Narrative, and Ambient Story Spaces

Gregory Turner-Rahman

Casual Distraction

This chapter introduces and explores the notion of pervasive story spaces that result from a confluence of several specific display and virtual production technologies. Pervasiveness, as I envision it here, relates to elements of narrative—primarily representations of space—that extend beyond some closed story structure and are persistent over time. The discussion here, however, begins with a short description of ambient video and more recent ambient ASMR productions. I then review **cinematic subsumption**, or the history of the commingling of physical and virtual space, to sketch the trajectory from contemporary immersive storytelling to the proposed ambient and pervasive narrative spaces. This effort details the potential of designed environments that subtly communicate story.

I argue that ambient video—often described as an eschewing of narrative for ambiance—when coupled with augmentative technologies becomes an ambient story space that provides a rich platform for a radical, pervasive form of storytelling. Storytelling and ambience are, of course, not mutually exclusive. The proliferation of visual technologies—including cell phone and drone footage, among others, both in physical and digi-

tal environments—creates a visual landscape that could enable contiguous long-term, quasi-passive exposition and even substantially different types of interactions with non-player characters. The result will potentially be a different type of transmedia storytelling.

The Birth of Ambient Music and Video

Any discussion of ambient audio and video must begin with two sources: Brian Eno's ambient music and, subsequently, Jim Bizzocchi's ambient video. Brian Eno is an American musician, producer, and composer. Throughout the 1970s, he explored minimalist and automatic music while engaging with artists such as Philip Glass, John Cage, and David Bowie and groups like Pink Floyd. Jim Dale, in a description of ambient music for the *Barbican*, highlights the fact that the entire genre can be traced back solely to Eno.[1] While there were earlier creative endeavors such as Erik Satie's "Musique D'ameublement," or furniture music, it is Eno who synthesizes previous experimentation and thus defines the parameters of this type of music.[2]

Dale further describes Eno's exploration as "a through-line here of experiment and chance, but also of expression as part of an environmental consciousness, understanding the architectures of everyday life."[3] Eno stated that the music must be as dismissible as it is interesting. As Eno conceived of it, ambient music was derived from minimalist and avant-garde efforts and was a purposeful de-emphasis of melody in favor of atmosphere.[4] He thus coined the term "ambient music" to describe automatic music that takes on an aspect of the environment and happens at

1. Jon Dale, "An Introduction to Ambient Music," *Barbican,* April 1, 2020, https://sites.barbican.org.uk/ambientmusic.
2. Mark Prendergast, *The Ambient Century from Mahler to Moby: The Evolution of Sound in the Electronic Age* (London: Bloomsbury, 2003).
3. Dale, "An Introduction."
4. Prendergast, *Ambient Century*, 93–94.

a gradual pace.[5] The result of experimentation, such as running tracks of recorded sounds next to one another so that something new and automatic would result, would blur sound and music.[6] What was created could be set as a background and engaged with haphazardly or even not at all.

Jim Bizzocchi tells us that Brian Eno's exploration of ambient media included video painting that challenged the "rigid relationship between viewer and screen" that television and film had maintained since their inception.[7] Two decades after Eno, Jim Bizzocchi borrowed the same experimental ethos and applied it to video. Bizzocchi championed the rapidly evolving, high-definition video recording and display technology that could showcase ambient video artworks.[8] Much like ambient music, Bizzocchi's video pieces are designed with lengthy playtimes and to intentionally not always be the viewer's focus. He describes the rules defining ambient video structures as such:

- First, it must not require your attention at any time.

- Second, whenever you do look at it you are rewarded with something visually interesting.

- Finally, because ambient pieces are designed to play repeatedly in our homes, offices, and public spaces, they must continue to provide visual pleasure over repeated viewings.[9]

Ambient video is intended to be something with which one can casually interact. Examples used in Bizzocchi's ambient artwork are natural vistas that make the display technology operate as a virtual picture window of sorts. For instance, his piece *Winterscape* (2007) presents a snowy, white landscape that slowly reveals a solitary tree. The background shifts and transforms to present a hillside and then sharp crags of a mountain peak. The sound of the wind is mixed with the soft humming of wooden instruments. The effect is a subtle, almost imperceptible change over time and

5. Ibid.
6. Ibid.
7. Jim Bizzocchi, "The Aesthetics of the Ambient Video Experience," *The Fibreculture Journal* 11 (2008).
8. Ibid.
9. Jim Bizzocchi, "What is Ambient Video?," *Ambient Video,* June 2012, https://ambientvideo.org.

a sense of peacefulness. Bizzocchi's other works include similar natural scenery that seemingly flood the frame and blend over time. In other pieces, the imagery shifts so subtly it appears we are looking out onto a nearby landscape or a detail of that scene.

Bizzocchi's works have been presented primarily in film festivals, gallery settings, and conferences. They are hand-crafted compositions of fictional scenes;[10] the films blend and flow from one scene to another. The natural environment is both an object of study and a scenographic background. While there is change over time, there is no conflict, no typical narrative arc. The ambient videos provide a quiet, contemplative respite from overwhelming, hyperkinetic media. This slow and unobtrusive visual poetry is the radical nature of this work.[11]

Lo-fi Chillhop and Ambient ASMR Video

By 2016, the popular cooptation of both Eno's and Bizzocchi's works, I would argue, comes with the fusion into animated lo-fi, hip hop, or ambient YouTube videos. Lo-fi is a sort of DIY music that often features repetitive drum tracks and piano jazz chords accompanying simple animations. Lo-fi hip hop or *chillhop* videos provide hours of music intended for casual interaction. The music is typically accompanied by short looping animation often in a Japanese anime style with characters reading, studying, or just relaxing and watching a natural landscape or city scene. Some animations forgo the character and instead focus on a locale or environment.

Concurrent with lo-fi chillhop videos is the rise of the Autonomous Sensory Meridian Response (ASMR) videos. ASMR videos are often recorded with binaural equipment that produces an intense, three-dimensional soundtrack. ASMR sounds are said to produce a *frisson* or pleasant tingling effect on the listener's scalp. More importantly, ambient ASMR

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10. Jim Bizzocchi, interview with the author, 2022. Bizzocchi talked about how his ambient work is exploring the poetry of video. This is not intended as mass, commercial media.

11. Very few recent films explicitly acquiesce to their poetic nature and subtle pacing. Abbas Kiarostami's *24 Frames* (2017) is one such film that works in an explicitly similar manner to Bizzocchi's ambient works. The film is a series of 24 scenes made from digitally enhanced still images. It's not clear if Kiarostami had seen Bizzocchi's video work, but the works share a similar visual language.

chill videos forgo the anime-inspired imagery for representations of virtual locations. Ambient chill videos are typically based on a theme or even an era. Popular genres are the Cyberpunk and Victorian eras but there is seemingly every variation imaginable, from Elfin Coffee Shops and Ottoman Courtyard Gardens to Indian Maharaja Palaces. Seasonal ambient videos present bright cherry blossoms in full bloom or quiet anime-style scenes of waving fields of grass. Christmas ambiance videos typically play on nostalgia and put the listener in a small-town coffee shop or nestle them away in a cozy room next to a fireplace and a resplendent Christmas tree while a snowstorm rages outside a virtual window.

Ambient ASMR chill videos build upon the lo-fi chillhop movement by providing hints of story and have become a way for artists and musicians to produce something on YouTube with broad appeal but little effort or production time. The emphasis on the sound and visual design of these ambient videos are slightly more interactive than static chillhop. It is interesting, then, that the ambient movement continues in this manner. The ambient chill videos rely on several key qualities:

- A detailed visual representation of a fictional space, often rendered using 3D modeling tools

- Sounds that provide some context to time and space, happening off-frame

- Other humans should be alluded to but never fully visible

- The animation should loop occasionally but not enough that the loop becomes apparent

ASMR and lo-fi chillhop videos occupy a strange place in current online video culture. They are intended to be played primarily as background sound. This type of media has increased in popularity, perhaps due to the pandemic, because it can provide an odd sense of connectivity along with background noise and mood music.[12] *The New York Times* author Eliza Brooke describes how the ambient ASMR provided a themed connection

12. Eliza Brooke, "The Soothing, Digital Rooms of YouTube," *The New York Times,* February 16, 2021, https://www.nytimes.com/2021/02/16/style/ambience-videos-asmr-youtube.html.

back to work environments during the pandemic lockdowns.[13] This popular version of ambient video additionally provides a meditative virtual space or anti-anxiety alternative reality. For the remote worker or isolated college student, these videos create an atmosphere without the distraction of a narrative and the spoken word. The contemporary, popular version of the ambient video serves a purpose like Bizzocchi's and Eno's. The difference, I would argue, is that the viewer is rarely rewarded for engaging with the work. Bizzocchi's background as a cinematographer is apparent; his work is as skillfully edited as it is beautifully photographed. Significantly, Bizzocchi was creating videos that would take full advantage of higher quality displays.

Bizzocchi's work came at a pivotal moment when televisual technologies were developing rapidly towards thinner, higher-resolution displays. When he wrote "The Aesthetics of the Ambient Video Experience" in 2008, the first LCD televisions had only been on the market for two years. Those displays were not yet high-definition and tended to not have the svelte profile of contemporary televisions. What Bizzocchi saw, however, was a time that had yet to arrive when high-definition, large-scale display technology would be widely available. The optimal sort of ambient system requires ultra-high-definition imagery of at least 4K resolution. In fact, it was not until the recent introduction of OLED and micro-LED panels that larger displays provided the type of increased resolution and color replication that the captivating imagery of Bizzocchi's ambient work really requires. In that sense, ambient video, as predicted by Bizzocchi, was truly ahead of its time. Several other technologies could quickly bring changes renewing an interest in the ambient systems: room-size displays, dynamic imagery driven by game engines, and augmented reality equipment. These disparate innovations are part of the long history of our desire to enter the image and the logical extensions of the built environment that foment that expectation.

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13. Ibid.

A Brief History of Cinematic Subsumption

For over 100 years, the intertwined history of filmic story spaces and the built environment has been evolving. Dave Gottwald and I have outlined a sequence of spatial regimes that link key historical moments when cinematic imagery and the built environment "collide and collude."[14] We have described how film sets beget the theme park model and then, similarly, interactive digital games borrow not only from animation and film but the theme park as well. Additionally, we define how the complexity of digital games leads to the production of the game engine: a sophisticated software tool that allows for real-time interactive models, textures, lighting, and physics. I will elaborate below.

Cinematic subsumption is the "promulgation of story-based, immersive visions of space."[15] I, along with Gottwald, have argued that set design for films, theming, and video games have altered our expectations for the built environment. Gottwald and I have thus outlined a series of spatial regimes that describe our relationship with filmic imagery: architectonic, filmic, thematic, electronic, holistic, and emic. To further elaborate, we begin with the **architectonic regime** that describes the entirety of the built environment prior to cinema. What is significant is that architecture, for much of history, is considered a rational, programmatic organization of space that has been designed primarily through abstracted drawings.[16] Architectural design, once built, is fundamentally a realized interpretation of that drawing, that image.

14. Dave Gottwald and Gregory Turner-Rahman, "Toward a Taxonomy of Contemporary Spatial Regimes: From the Architectonic to the Holistic," *The International Journal of Architectonic, Spatial, and Environmental Design* 15, no. 1 (May 2021): 109–27, https://doi.org/10.18848/2325-1662/cgp/v15i01/109-127.

15. Dave Gottwald and Gregory Turner-Rahman, "The End of Architecture: Theme Parks, Video Games, and the Built Environment in Cinematic Mode," *The International Journal of the Constructed Environment* 10, no. 2 (April 2019): 41–60, https://doi.org/10.18848/2154-8587/cgp/v10i02/41-60.

16. Dave Gottwald and Gregory Turner-Rahman, "Omnull Space: Methods and Modes of Post-Architectonic, Screen-Based Augmented Reality," *Proceedings of the Twelfth International Conference on The Constructed Environment*, 2022, https://youtu.be/BMxZJyPCdR0.

The **filmic regime** arrives with several advancements in motion pictures: better film stock, better lenses, and, most importantly, camera movements that require more elaborate set pieces. In the 1920s, those sets called for more substantial building methods in lieu of the theater flat construction, thus, film studios sought and hired more architects. More important, however, is that there was the use of hyperbolic, set-like buildings and referential styles in some of the actual architecture of that period, such as the Van de Kamp windmills or the more common Spanish style homes that can still be found in Los Angeles today. This architecture is more elaborate set piece than historically informed building. By the 1950s there were several projects where movie-set-like buildings replaced traditional architecture with themed spaces.

The **thematic regime** is highlighted by two key developments: Disneyland and Las Vegas. The former is Walt Disney's attempt to place his guests within a movie-like environment, even going so far as to fire the architecture firm he originally secured to design his showcase theme park. He instead hired art directors to go beyond mere buildings to create unique experiences that instead place theme park visitors within a facsimile of the cinematic image. Similarly, Las Vegas's themed environments showcase experiences that focus visitors on the entertainment and gambling spaces by also borrowing the language of the filmic regime.

The **electronic regime** utilized the language of both the filmic and thematic regimes. Throughout the 1980s and 90s there was an exploration of electronic games' immersivity relying on structure, presentation, and functionality. Structure pertains to a game's coding while presentation refers to the graphical display. The functionality relates to the game parameters built into the dynamics of the virtual environment.[17] The push for more immersive gameplay led to the first-person shooter genre that requires elaborate digital environments, including three-dimensional representations of game spaces, with the player acting as a sort of camera. By the end of the 1990s, game environments included the use of sophisticated physics, lighting, and textures. Game design firms coded

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17. Dominic Arsenault and Pierre-Marc Coté, "Reverse-Engineering Graphical Innovation: An Introduction to Graphical Regimes," *Game: The Italian Journal of Game Studies* 2 (2013).

game engines that could easily manage all aspects of gameplay and environmental effects. Those same game engines, in turn, could be used for any type of game, and thus they became severed from the original game franchises to which they were connected.

In the **holistic regime**, the game engine comes full circle and is used in filmmaking and the visualization of architectural products. The Unreal engine, for example, allows creators to quickly sculpt and composite scenes for games or films that are photoreal. Movie studios thus developed virtual production studios like ILM's StageCraft which uses warehouse-sized micro-LED panels surrounding actors in a soundstage. Mixed with practical sets, StageCraft creates a vivid, virtual environment for actors and eliminates the need for green screens—the featureless, fluorescent green soundstages. Footage from green screens could be edited digitally and the green color replaced with digital scenes. StageCraft instead provides a large, high-definition virtual set that, when combined with practical sets, creates a hyperreal space that can be easily manipulated and moved around the actors.

The **emic regime** has yet to arrive. Gottwald and I foresee a time when the use of virtual spaces—in unison with physical environments filled with different screens, including virtual and augmented reality goggles—will create a flexible, virtual landscape that will expand our experiences through rich interactions and various types of storytelling. In the next section, I will elaborate on these technologies and that trajectory towards the always-on storyspace.

Your House as a Set

The purpose of outlining cinematic subsumption is to describe the significant ways we have tied our physical environments to filmic imagery. Films, theme parks, and electronic games do not cease to exist, of course, but their attributes and supporting technologies get (re)combined to provide new storytelling opportunities and ultimately newer media.[18] It is

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18. Jay David Bolter and Richard Grusin, *Remediation: Understanding New Media* (Cambridge, MA: The MIT Press, 2003).

foolhardy to predict what will come of the emic regime, but we can be certain that our interactions with one another will continue to happen within rich representations available to us in a variety of screens. Virtual and augmented reality technologies are only part of this rapidly developing system of integrated imagery. With VR and AR systems will come significant advances such as eye-tracking, high-dynamic range lighting, greater resolution with adaptive focus, and higher refresh rates that will better replicate natural vision and make headsets less cumbersome. Yet, virtual production and other examples of interactive imagery, such as large digital dashboards and in-store displays, point toward the incorporation of even larger-scale, higher-definition imagery that does not require wearing something over one's eyes. Walls are now giving way to larger televisions and, with the increase in quality, virtual and augmented reality headsets will work in unison to provide sophisticated parallax and visual effects. The efficiency of both will be such that it may be that our displays remain on for long periods of time, providing a constant flow of information and imagery.

Our screens will serve multiple purposes. Gottwald and I have outlined **omnull** displays as a logical extension of the ever-increasing, large-scale, high-definition televisions.[19] We foresee a time when the omnull display will envelop entire rooms and will give way to more spatialized presentations, such as an open connection to another location. They present large collections—bulletin boards or even bookshelves—that spatially store information and links to other resources. But instantly, omnull systems can become windows to other spaces rendered in the game engine, or those spaces could be live feeds from actual sources such as drone footage, action-cams, cell phones, and even doorbell camera feeds. From security footage to fictional spaces that engage us, large-scale displays will be presented as part of a broader, literal informational landscape. Regardless, what is presented will be an endless barrage of ultra-high-definition imagery filling the viewer's visual field.

19. Gottwald and Turner-Rahman, "Omnull Space."

Large-scale displays will alter the way we think about the spaces in our homes. We will have life-size imagery with which to interact. Walls can literally be presenting anything in ultra-high-definition clarity. What is represented will range from long-term static imagery to interactive environments that shift in viewpoint according to our movement. Motion sensors will monitor our interactions and will provide a different, more active presentation to engage the viewer.

Rooms will then become sets. Several recent Microsoft experiments have given us indications of what this could look like. The IllumiRoom was a concept using projected imagery that augmented Xbox console game graphics beyond what is presented on a television screen.[20] The imagery fills the entire visual field of the player with every surface mapped by a Kinect sensor. In various modes, the focus is always on the gameplay, but the scenery is projected around the player onto the surfaces of the objects in the room. The result goes beyond the presentation of the game environments by providing additional lighting, special effects, and interactive opportunities.

IllumiRoom and a similar project, RoomAlive, map game spaces over existing furniture and architectural features.[21] The result mimics earlier virtual environments such as CAVEs (Cave Automatic Virtual Environment). Developed in the early 1990s, CAVE systems are immersive, virtual reality spaces that also use projected imagery. CAVE systems are still in use today, and the projection systems are being replaced by larger mini-LED displays. CAVE-like systems, along with smaller and more comfortable virtual and augmented reality headsets, could become more common in our homes. And with them will come the need for newer imagery and entertainment. The always-on informational landscape becomes a type of distraction. Walter Benjamin outlined two types of distraction: "pas-

20. Brett R. Jones, Hrvoje Benko, Eyal Ofek, and Andrew D. Wilson, "IllumiRoom: Peripheral Projected Illusions for Interactive Experiences," *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, 2013, https://doi.org/10.1145/2470654.2466112.

21. Brett Jones, Rajinder Sodhi, Michael Murdock, Ravish Mehra, Hrvoje Benko, Andrew Wilson, Eyal Ofek, Blair MacIntyre, Nikunj Raghuvanshi, and Lior Shapira, "RoomAlive," *Proceedings of the 27th Annual ACM Symposium on User Interface Software and Technology*, 2014, https://doi.org/10.1145/2642918.2647383.

sive" and "active."[22] Benjamin describes film as an active distraction and architecture as a passive one.[23] We willfully engage with film as a distraction; architecture exists as a backdrop. The confluence of architecture and media environment—a constant flow of filmic imagery—makes ambient video work as passive distraction.

Jim Bizzocchi presaged this moment of always-on media spaces when he created and began writing about ambient video. His more recent experiments in generative ambient video further his vision.[24] The notion that ambient systems could compile and present unique, generative representations expands his original work immensely. But the legacy of the ambient video artwork, along with the popular outshoots such as ambient chill videos, shows there is significant demand for longer-form pieces. Unlike the ambient YouTube counterparts, Bizzocchi's work perhaps offers a more compelling vision of a production that can engage viewers but also can be left as background imagery. Bizzocchi's work similarly showcases the thoughtful construction of each sequence. What Bizzocchi reveals is not a documentary, however, or looping animation. It is far more compelling than netcam footage from a fixed camera presenting a raw live feed. Bizzocchi's generative work would provide a model for the persistence of the imagery on an always-on display. Artworks will take on a new importance as a subtly transforming backdrop. Ambient videos will define the mood and meaning of a moment or space. Each room with a similar display becomes a set of sorts, and that space can be engaged with or remain a passive distraction.

22. Walter Benjamin, "The Work of Art in the Age of Mechanical Reproduction," in *Illuminations: Essays and Reflections*, ed. Hannah Arendt, trans. Harry Zohn (New York: Schocken Books, 1969).

23. Oliver Beasley, "In Search of Distraction: Representing Benjamin's Everyday Experience of Architecture" (Master's thesis, University of Westminster, 2015), 3–4.

24. Arne Eigenfeldt and Jim Bizzocchi, "Ambient Landscapes," *Proceedings of the 6th Conference on Computation, Communication, Aesthetics & X,* 2018, https://2018.xcoax.org/pdf/ xCoAx2018-Eigenfeldt.pdf.

Pervasive Narrative and Ambient Story Spaces

The always-on informational landscape is not a fantastic construct. Consider that the average American is watching a screen for 10.4 hours a day.[25] Regardless of where one is in the world today, they are surrounded by multiple screens, each vying for their attention. While the amount of time one spends on phones and in front of the television varies, it is rare to be without some sort of electronic display. In the contemporary American home, there is at least one television and most likely a desktop or laptop computer screen. Larger, persistent displays will require interesting programs and imagery.

The popularity of ambient chill hop and ASMR videos[26] shows the need for a diversity of long-form programming. Popular long-form videos tend to be marketed as study music. The visuals are subdued, and the music is unobtrusive. Ambient ASMR videos provide a glimpse at what might happen if there was just a hint of narrative unfolding over time: there is rarely, if ever, a traditional narrative arc. Any "story" is loosely crafted, and it is primarily conveyed through ambient sound, but there are hints of what pervasive storytelling in this format might look like.

Additional works, such as Norwegian "slow TV" program "Bergensbanen Minute by Minute – train journey across Southern Norway" which presents the 7-hour train journey from Bergen to Oslo along the Bergen train line, also challenge our notions of television storytelling. Train journeys do have a narrative arc—albeit a slow, mostly conflict-free story—but one with a clear start, middle, and, of course, denouement. Yet this long-form television program encourages an alternative type of interaction. It is difficult to imagine anyone sitting down to watch the entire journey from beginning to end, thus the storytelling, at some point, becomes ambient. This type of programming has more in common with Andy Warhol's 8-hour epic *Empire* than it does with most television storytelling. *Empire*

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25. Rebecca Moody, "Screen Time Statistics: Average Screen Time in US vs. the Rest of the World," *Comparitech*, March 21, 2022, https://www.comparitech.com/tv-streaming/screen-time-statistics/.
26. *College Music*, a "lo-fi hip hop" music channel, currently has 1.25 million subscribers, and *Miracle Forest*, an ambient ASMR site, hosts 200,000 subscribers.

is an art film that shows the Empire State Building and the passing of time. For the film, Warhol set up a static view that frames the Empire State Building and films it in real-time; clearly, *Empire* was not created for mass consumption or for presentation in the home environment.

Slow TV and ambient video both present the potential of pervasive narratives where a story continues whether the viewer is engaged or not. That story can unfold at varying speeds and can include moments of intended interaction or can remain solely as background. The imagery will continue regardless until, with the use of sensors, movement is detected when someone engages with the display. Once the viewer looks away, the story ceases to happen. The spaces presented in displays will then act as windows that show actual spaces or they may present an artificial feed from elsewhere in the world. The window outlook shifts according to your location in a virtual space, as modeled in the game engine, and in this model, the viewer becomes the player in a game environment, becoming the camera in the virtual production soundstage. The home then acts as a hybrid living environment and set.

Informational displays can become a part of the story. Various media, including drone footage, cell phone pictures, and live feeds, could augment the always-on story space. Electronic game environments could consume any space, providing players with the opportunity to monitor interactions. Game spaces might appear through virtual windows that can be expanded to open a portal into that fictional world. Or, perhaps, we could have narratives that continue after a primary episode airs and provide additional information about that story—we could see the characters going about their daily lives. Perhaps the viewer is entrusted to accompany others on a stake-out, or maybe we see a hallway in a haunted estate home or the guest wing during the night of a murder in a mystery movie.

The always-on display might extend beyond the omnull room and reach out to the viewer through our other screens. For instance, characters could text viewers, enticing them to return to the story. Those text messages and images on our phones might come from characters in the story, or perhaps the phone becomes a remote control with which we fly a helicopter in the search for a missing character. Regardless, the ambi-

ent aspect of the presentation will assure a constant connection to story worlds. "Blade Runner Blues – Rain 8 Hours"[27] is a meditative ambient video based on the Ridley Scott film *Blade Runner* (1982) and its sound-track by Vangelis. It presents a single scene showing the hero, Deckard, standing at a balcony overlooking a rain-soaked cyberpunk cityscape. The soundtrack repeats and is augmented by the never-ending patter of heavy rainfall. The video has some 2 million views; a shorter one-hour version has just over 1 million views. Elements from the *Blade Runner* franchise are remixed in this production, but this is clearly in the vein of the other ASMR videos. There is no narrative to speak of, but the potential for expanded game and movie properties is clear.

Conclusion

Cinematic subsumption is a concept that explains the connectivity between our image worlds and our physical reality. As visual creatures, our interactions with those worlds happen primarily through screens. Our one-hundred-plus years of interacting with filmic imagery and our desire to be enveloped by virtual spaces comes to fruition in a long procession of developments, including themed spaces and electronic games. When faced with isolation during the pandemic, ambient virtual worlds became the substitute for everyday social spaces and work environments. But, more importantly perhaps, was the use of popular ambient spaces to counter the demands of email and video conferencing.

Ambient video and music, by their very design, are set as background and can be interacted with at leisure. The popular evolution of the ambient video—lo-fi chill or hip hop and ASMR videos—serve as unobtrusive media, providing a calming soundtrack and limited animation scenes with which one can engage with at their convenience. The ambient ASMR genre has evolved to provide fantastic scenes that transport more viewers to fictional spaces. The popularity of these videos—like other long-form or slow television—reveals a need for a different type of media that can be tied back to the work of ambient video pioneer, Jim Bizzocchi. Bizzocchi's

27. Cole Phelps, "Blade Runner Blues - 8 Hours," 2019, https://youtu.be/ypJHCm0Omao.

earlier ambient video used filmed footage of natural environments that were skillfully edited into slow changing sequences. The radical nature of ambient video is that it can move from active to passive distraction, or it can provide a rich, compelling interaction.

The varieties of ambient production, when combined with larger displays including wall-size televisions, could provide compelling, open stories that work in the same manner as ambient video. These stories might rely on sensors to ascertain when viewers are more engaged and, when it senses they are not, become more ambient imagery. Displays will function as informational landscapes and ambient imagery will work alongside and with presented data. Our spaces will provide both active and passive distraction. The opportunity, then, is to create persistent narratives that both allude to and extend stories. The larger formats of the coming display technology and AR/VR systems will mean that our domestic spaces will become more set-like. Regardless, ambient media in larger, high-definition formats will act as meditative, augmented reality and respite from chaotic and frenetic media.

An Ambient ASMR Playlist

For a curated selection of ambient ASMR videos, please visit https://tinyurl.com/yr9rdhv5.

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Spaces of Possibility—Spaces of Purpose

The Emergence of Narrative Space in Theater, Film, and Games

Ulrich Götz

Reading Space—Writing Space

The title of this collection, *Virtual Interiorities*, inherently acknowledges the constitution of "exteriorities." For it is only within a frame of reference that qualities of an inner life—and corresponding ramifications for the frame that contains it—can be described. The consideration of "interiorities" thus requires a model of "space" in which they are inserted. This concerns both virtual and real spaces, because "virtual interiorities" relate to the system of the virtual just as artificial, physical objects relate to the genius loci in reality. This chapter elaborates on how the mutual exchange between theater, film, and games informs spatial understanding and can be described as "narrative space."

Discussing the properties of real, physical space is already an extremely vague endeavor. Such attempts can only describe areas and qualities of spatial characteristics in part: they are valid only under certain conditions and remain blurry. Works addressing the cultural meaning of the spatial immediately admit the limitations of their assertions.[1]

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1. Stephan Schwingeler, *Die Raummaschine. Raum und Perspektive im Computerspiel* (Boizenburg: Verlag Werner Hülsbusch, 2008).

There are several reasons for the impossibility of formulating conclusive answers to the question of "space" and its properties. The first reason lies in the human experience of spatial surroundings. We instinctively move and orient ourselves in spatial scenarios; to a certain extent, this is a corporeal automatism. As spatially-acting beings equipped with highly developed sensory capacities (and today, technological sensory systems), we adapt to a wide variety of spatial situations. One can even improve "spatial abilities" through training, as exercised by fire departments or in architectural education.[2] At the same time, however, this instinct and implicitness renders distanced analysis difficult: space guarantees the ground beneath our feet and limits our view into the distance. Furthermore, another reason results from the aforementioned adaptiveness because it leads to contextually-dependent and specific understandings that correspond to differing terminologies, interpretations, and readings of space. Thus, historically, culturally, disciplinarily, and even regionally, there are strongly divergent perceptions of "space" and the substantive meanings the term encompasses. Our perception of space is therefore not universally valid and varies greatly. The following examples illustrate such different interpretations of the spatial.

In *A Thousand Plateaus*, Deleuze and Guattari outlined their influential distinction between "smooth" and "striated" space.[3] This model essentially divides space into two categories across all scales. Striated space has individual characteristics, reference points, and numbered units; in contrast, smooth space is boundless, is distributed without positionality, and is "directional rather than dimensional or metric."[4] This concept not only describes static states, but also refers to constant upheaval: "smooth space is constantly being translated, transversed into a striated space; striated space is constantly being reversed, returned to a smooth space."[5] The city and the sea can be considered an exemplary pair of opposites according to this concept, in which it seems "as if the sea were not only

2. Andri Gerber, *Training Spatial Abilities: A Workbook for Students of Architecture* (Basel: Birkhäuser Verlag, 2020).

3. Gilles Deleuze and Félix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia*, trans. Brian Massumi (London: Athlone, 1987).

4. Deleuze and Guattari, *A Thousand Plateaus*, 479.

5. Ibid., 474.

the archetype of all smooth spaces but the first to undergo a gradual striation gridding it in one place, then another, on this side and that."[6] Since the multitude of spatial phenomena cannot be described by one central concept, Deleuze and Guattari elaborate sub-models, showing how smooth and striated spaces behave in fields like technology, mathematics, music, and aesthetics.

The antithesis of new definitions is the rejection, modification, or distortion of existing forms of perception and spatial orders. The reasons for such changes can relate to the transformation of technological or cultural epochs, or contemporary trends. In Deleuze and Guattari, such processes can be seen as re-transformations of striated space into smooth space. The Situationist International,[7] including founding member Guy Debord, sought new and purposely vague spatial readings within the frame of their artistic practices, where previously ambiguity had been denounced. They described *dérive* as a method for fundamentally renewing the experience of urban space: if, for example, maps from completely different cities are used to conduct urban walks, "planned" surprises and new impressions can be provoked.[8] The "psychogeographical thinking"[9] of the Situationists starkly contrasts with the alleged objectivity of satellite imagery and mapping of even the most remote regions, which have completely revolutionized our understanding of spatial relationships in just a few years. Comparably far-reaching changes in spatial orders typically arise from hostile military takeovers or colonialist territorializations. In this context, the North American survey grid imposed by European colonizers is probably one of the most dramatic historical changes of spatial understanding, realigning an entire continent along arbitrary orthogonality and chartability.

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6. Ibid., 479–80.
7. The Situationist International (1957–1972) explored art, politics, architecture, and urban planning, among others. Their controversial actions and concepts still influence the academic discourse on spatial strategies today.
8. Guy Debord, "Theory of the Derive," in *Situationist International Anthology*, ed. and trans. Ken Knabb (Berkeley, CA: Bureau of Public Secrets, 1981 [1958]), 50–4.
9. Ibid.

A Changing Understanding of Space

The fabricated orders of the spatial are fluid and valid for a limited period of time. Even the personal, corporeal experience of space is only subjectively valid, its broad application limited. Globally, there are significant differences in the culturally-conditioned, individual perception of scales—from personal requirements to the interpretation of spatial situations and design of everyday objects. However, regarding the intellectual interpretation of the spatial, a subjectivizing restriction is even more urgent, since here the concept of space is constantly changing. As *A Thousand Plateaus* shows, it may be necessary to disperse definitions of the spatial into disciplines that purport different conceptualizations. Yet this text reveals that such definitions should be considered but momentary, subjective stances, especially when applied to other disciplines. For example, Deleuze and Guattari even propose a smooth and striated "model of physics," including aspects of labor and the state, yet do not reflect on fundamental twentieth-century insights into the reciprocal conditions of space and time.[10]

Even a precursory glimpse into the history of technology and art indicates evolving ideas about the perception of space, reflected in how it is conveyed. Methods of depicting space change across epochs: for instance, the *bedeutungsperspektive* of the Middle Ages was replaced by the geometric perspectives of the Renaissance.[11] This was later revolutionized by Joseph Nicéphore Niépce's (1765–1833) invention of photography. Today, we are accustomed to three-dimensional image-worlds from graphics, film, and games, generated by computer algorithms and compositing processes.

Not only technological and methodological innovations drive the change of spatial concepts and its representations, but there are also demands for a renewed perception of reality. To briefly mention paradigmatic examples from art, there were abrupt changes in style in French painting, spanning from Gustave Courbet's (1819–1877) realism to Claude Monet's

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10. Deleuze and Guattari, *A Thousand Plateaus*, 488–489.
11. "Bedeutungsperspektive" is a term for the representation of human figures, in which their social status determines their depicted size.

(1840–1926) impressionism and Georges Braque's (1882–1963) cubism, which resulted in changed spatial concepts. Insights from related disciplines often initiated these changes: "With pointillism, Georges Seurat reproduced the visual of the 'pitting' of the first daguerreotypes."[12] Schwingeler notes the "transformation of perceived space into mathematical space," followed by a change "from mathematical to digital space."[13] Existing perceptions only seem self-evident until subsequent methods or visual styles prevail.

What was once an avant-garde concept soon becomes the basis for a changed conceptualization of space. Architecture students train "spatial abilities" through the cognition of perspectives and sections in 3D models of architectural precedents.[14] The imagery required for this can be generated with comparative ease today. A few decades ago, it would have required immense effort to produce, and the corresponding questions of spatial imagination would hardly have arisen. Research at Zurich University of the Arts investigated practicable extensions of living through the use of virtual reality (VR).[15] Results reveal the means by which a home can be scanned three-dimensionally, imported into a game engine, and subjected to game mechanics. Familiar living environments are thus transformed into a fantastical multiplayer setting, which one occupies with one's own body. The resulting hybrid spatial construct combines the features of VR with augmented reality, such that the body itself becomes a part of the expanded virtual world. Such an individual, interactive form of agency could provide a solution to Virilio's criticism, who laments the "evaporation of visual subjectivity"[16] in a technicized environment.

12. Paul Virilio, *The Vision Machine* (Bloomington, IN: Indiana University Press, 1994), 15.
13. Schwingeler, *Die Raummaschine*, 48.
14. Gerber, *Training Spatial Abilities*.
15. Chris Elvis Leisi, "Virtual Real Rooms. Immersionsmechaniken in überlagerten VR-Räumen," Master's thesis, Zurich University of the Arts, 2021, https://gamedesign.zhdk.ch/diplom-2021/projekte/virtual-real-rooms-1/.
16. Virilio, *Die Sehmaschine*, 47.

This suggests how the advent of VR could signify the next evolution in spatial thinking: corporeal space overlapping with virtual space. Of course, this would require further development of VR interfaces which—with their clunky goggles, vertigo, and disorientation—provide merely an approximation of how real space might combine with artificial space. However, in contrast to previous eras, when the greatest challenges entailed creating real-spatial infrastructures and overcoming physical distances, today, they seem to comprise balancing digital dynamics with human (inter)action, which unfolds globally and simultaneously.

The New Stars of Narrative Methods

The spatial has gained significant importance as a topic in the performative and communicative disciplines over time. Eras long passed presented visual objects mainly in terms of action: comparatively unspecific backgrounds were contrasted with human figures and the activities they performed. Such constellations evolved into situational representations, corresponding with an increased importance of where and in what context action occurred. The meaning of space expanded to become an ever-present frame of reference, in which facts were more vividly portrayed through spatial contextualization. Today, therefore, we discuss a relatively nascent category of spatial constructs, namely "narrative space."

After a gradual, century-long paradigm shift, narrative now presupposes a plausible mediation of the spatial. Modern, media-based visual communication is inconceivable without the inclusion of spatial references. Even before a plot commences, the camera's "establishing shot" clarifies the frame in which action occurs. Modern news studios produce reports in green screen studios, where real film footage of the speakers is folded into the virtual space of recordings and infographics to create hybrid spaces. Such technologically elaborate combinations should not be understood as composed of interchangeable, and thus unimportant, virtual components; on the contrary, the situational contextualization between plot and surrounding space is the ultimate in modern storytelling. Narrative and spatial representation have become inseparable.

It is remarkable how advances in spatial representation have departed from the realm of tangible experience based on human perception. When hybrid spaces are not created from real and virtual images, real cameras present breathtaking panoramas that remain inaccessible to corporeal experience; therefore, they gain a virtual dimension themselves. For example, in coverage of sports or cultural events, spider cams race across playing fields on hoists and cameras pan over the audience on the jib of a crane. Until recently, helicopter cameras were exclusive to expensive film productions, yet aerial shots from drones are now a standard part of even local news reporting. Extremely fast-moving virtual camera shots in animated films are aimed at the youngest audiences but would have been considered unbearable to watch just a few decades ago. Spectacularly spatial images in motion are the new stars of narrative methods.

Narrative today is practically always accompanied by a spatial depiction. But is this combination really so self-evident, or should we remain astonished? At what point can we speak of the new meaning of the spatial as narrative space—what marks the threshold? The exact point of transition to the ubiquitous application of narrative spaces cannot be precisely dated. However, it is possible to distinguish eras: at first, spatial methods of narrative appeared sporadically, and later they were used continuously.

The Emergence of Narrative Space

For instance, the narrative practices of antiquity cannot be deemed narrative spaces. Greek and Roman theater established a clear architectonic structure to present plays to the audience and the components of the building supported the narrative. Entrances were dramatized as architectural elements, articulating the arrival or departure of the actors, while hoisting systems facilitated the deus ex machina of unexpected appearances. These spaces were designed for performing, but the spaces themselves did not yet have a performative character. A manifestation of this assertion is the strict separation of acting and audience prevailing at the time: the audience was not required to comprehend the spatial implications of the staging to follow the plot. In contrast, in the Baroque era, the spatial complexity of set design was very advanced: painted back-

drops staggered in rows created the illusion of depth and facilitated scene changes. In modern theater, performances contend with a stage confronting the audience with their own subjective points of view. Actors emerge from within the audience, the spaces of stage and audience are reversed, the abstracting proscenium stage thematizes the isolation of the stage itself, and actions extend deep into the audience who are no longer seated frontally, but instead follow the action from a variety of positions. This can even encourage the audience to view the same production multiple times, as visual projections and special effects connect it to the world beyond the stage.

In European painting, Joachim Patinir (c. 1480–1524) constructed the *weltlandschaft*, which marked a pinnacle of the representation of space in the visual arts. This mannerist trend in landscape painting created ideal landscapes intended to represent the entire world. The paintings are captivating not only for their spatial qualities—which create great depth through color gradients and a staggered composition of elements in the landscape—but also for their narrative richness, depicting detailed scenes in various parts of the background. European landscape painting continually developed the combination of spatial representation with narrative.[17] Yet, even if such trends should be acknowledged as spatially-based narratives in retrospect, does it imply the ubiquitous presence of narrative space in the visual arts of that time and a corresponding recognition thereof by the public? The extent to which critical reflections on space have been established as an autonomous and widely accepted field today can be observed among contemporary artists.[18] They question the methods and history of spatial representation, utilize manifold perspectives that are impossible in reality, and refer to the concept of "magical-technological portals" from fiction as a means of jumping in between places, worlds, and dimensions. Such topics reveal just how much the understanding of space has become inherent to artistic reflection.

17. Nils Büttner, *Geschichte der Landschaftsmalerei* (Munich: Hirmer Verlag, 2006).
18. Ulrich Götz, "Zugänge zu Zwischengängen - Konstruktion eines räumlichen Modells," in *Digitale Moderne - Die Modellwelten von Matthias Zimmermann*, ed. Natascha Adamovsky, (Munich: Hirmer Verlag, 2018), 230–249.

This makes a strong case for considering narrative spaces a cultural practice solidifying at the end of the 20th century. Prior to that, isolated cultural disciplines occasionally linked the design of space with narrative; these tendencies have only recently crystallized into a movement simultaneously encompassing all cultural disciplines. Thus, a previously unobserved concentration of spatial narrative methods, parallel to the rapid development of methods of representation, can be noted.

Three specific cultural disciplines have mutually constituted one another to form a triangle, which justifies, shapes, and advances the notion of narrative spaces today: theater, film, and gaming. Theater is steeped in the traditions of narrative and performative practices from cultural history. Mirroring rapid technological developments, the field is undergoing major changes in form and content: stage space is changing, and its order is being deconstructed and expanding into the virtual. Through technological innovation, theater now embraces film once again—the medium it originally generated—which itself increasingly utilizes theatrical elements. Many set designs for large film productions are now so complex that actors are only filmed on green screens, and the entire scenography is subsequently generated by computers. Concomitantly, film strives to leave the surface of the screen behind, creating the illusion of real—although fantastical—space through immersive experiences, 3D projections, and VR, as if the audience were physically present, like in theater. In doing so, theater and film utilize technologies and processes developed for the visualization of video games. Over five decades, games have laid the foundation for narrative spaces par excellence, from spatially-based narratives in the early text-based adventures of the 1970s to contemporary photorealistic and interactive real-time renderings. These methods influence theater and film, making use of the perspectives and strategies developed in these respective fields. The three cultural disciplines of theater, film, and gaming all adopt a decidedly spatial approach in their methods that is interpreted individually, but forms a powerful, culture-shaping alliance between them. Their connection and mutual exchange define the conceptualization of narrative spaces.

Diverging and Reconnecting

It is obvious that theater is the ancestor of film. However, film developed explosively, in directions the theater could not follow. A new approach to locations and sets, a shifting gaze and specific camera angles, special effects, and editing specialized its narrative methods, and initially distanced it from theater. Since developing high-tech visualizations for video games,[19] the bilateral relationship between theater and film has expanded into a triangular constellation in which not only evolutions but reconsiderations and mutual influences occur. One cannot assume games have emerged from film, merely as a further technological leap enriched through the dimension of interactivity. On the contrary, the text-based adventure stories of the 1970s—the first truly narrative games—are more comparable to scripts or stage directions in theater. Since no one could foresee the visualizations that would be possible in the future, narrative spaces in computing emerged in the terms of expression available at the time: written texts. Only much later, with the rapid increase of graphic rendering capacities, did the goal of emulating the visual-narrative model, shaped by film, emerge in gaming. This orientation towards cinematic points of view had consequences for the conception of many games, because even though "cinematic approaches would not necessarily be relevant to the narrative in games, they shape the conventions of how something can be presented in a continuous sequence of virtual spaces, and thus, what can even be told at all."[20]

In the triangle of theater, film, and games, some narrative conventions fade, while others establish themselves as transdisciplinary features. The illusion of spatial depth, for example, was created on the classical stage with staggered backdrops; a very similar spatial model is used in animated films by laterally shifting between slides of fore-, middle-, and

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19. In order to meaningfully compare theater, film, and games, this chapter limits discussion to distinctly narrative games. Many analog and digital games do not have a narrative focus, instead concentrating on game mechanics (e.g., *Ludo, Uno, Tetris, Candy Crush Saga*, etc.). Such game genres are not elaborated upon.

20. Ulrich Götz, "On the Evolution of Narrative Mechanics in Open-World Games," in *Narrative Mechanics: Strategies and Meanings in Games and Real Life*, eds. Beat Suter, René Bauer, and Mela Kocher (Bielefeld: Transcript Verlag, 2021), 166.

background. In games, a similar concept originated the genre of side scroller and platform games, translating centuries-old techniques into a digital medium. When the curtain falls between the acts in theater, it marks an impressive caesura in the narrative, representing leaps in space and time. Through sophisticated processes, film editing distills the effect of the curtain to fractions of a second, cutting between settings, scenes, times, actions, and reactions seamlessly, either in continuity or with a deliberate break. Games still struggle to translate this long-perfected narrative style. The inflationary use of portals—gates that transport players to another place in the virtual world—attests to the structural conflicts of storytelling in games, because "in the vast majority of cases, progress in the plot of a digital game is equated with progress in spatial environments."[21] Where film has perfected the cut, the logic of narrative spaces in open-world games snowballs into enormous virtual environments.

Across all three disciplines, similarities in narrative methods lead to constant parallelism and exchange. Fluid transitions have long existed, particularly along the axes of theater-film and film-games, including in content, personnel, or production methods. Omnipresent digitalization is generating universal tools for multimedia productions, dissolving rigid disciplinary boundaries. This confluence results not only in theoretical comparisons, but practical exchanges. On one hand, this adjacency leads to the convergence of content and methodology; on the other, hybrid connections forge new formats. For example, institutions educating students in all three disciplines of theater, film, and game design—which were previously taught separately—have recently begun to combine content through joint laboratories and workshops.[22] Restrictions on performances during the COVID-19 pandemic starting in 2020 led web-based content and VR productions to blossom in theater productions for audiences at home. Thus, with the advent of VR, overlaps developed along the games-theater axis complete the triangle described above.

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21. Götz, *Narrative Mechanics*, 165.
22. At Zurich University of the Arts, the Immersive Arts Space was formed from competencies in theater, film, and games: https://blog.zhdk.ch/immersivearts/.

Where Recipients and Agents Meet

The construction of narrative spaces is determined by a triad of components. To discuss them, it helps to imagine three simultaneous shows, sessions, or performances all about the same topic, but distributed across theater, film, and gaming. In this kind of thought experiment, these basic elements of narrative space crystallize through comparing the disciplines that reveal their similarity, yet clearly demarcating them from one another. First, this involves the location of recipients; second, the narrating agents; and third, the places where action is performed. As it turns out, these components are not only represented in three dimensions, but produce an expanded conceptualization of space.

The play begins but long before the action commences on stage. To meet as an audience in the foyer, to experience the performance collectively, to see one another sitting in the shadows of the auditorium: this defines a social frame, adding a dimension to the narrative space embodied by the architecture of the theater. The curtain rises, as does the collective sense of anticipation. The audience remains in this state of suspension throughout the performance, participating intensively without engaging. Nevertheless, the actors sense feedback emanating from the audience—even if only in the moments of complete silence when the drama unfolds. In theater, this process is termed co-presence: the mutual presence of the actors and the audience bearing witness to the events of the performance. The course of these events is anticipated, but unpredictable.

The film begins similarly. The curtain also rises for the recipients in the cinema, but it is merely a sentimental reminder of theater. While the curtain in theater possesses a narrative function—it conceals the set and establishes separation between audience and actors—the curtain in front of the empty cinema screen conceals no narrative mystery. In the narrative space between events on the screen and the audience, there is no element of unpredictability. There is no co-presence with the actors, no substantive exchange among audience members, nor any particular spatial relationship between audience and movie theater. Consequently,

as Johannes Binotto observes, "The space in which films are screened appears, in fact, as a replaceable frame."[23] In an era where streaming is increasingly shifting the reception of films to the private sphere, the narrative dimension of a specific site of reception—the cinema—is beginning to disappear altogether. In its place is the purely personal, private experience, the kind of experience characteristic of gaming.

Walter Benjamin aptly observed when comparing spaces in theater with those in film that "It is indeed a different nature that speaks to the camera from the one which addresses the eye."[24] Accordingly, the human gaze perceives different spatial qualities than those captured by a camera in the same location. Thus, if significant differences can already be discerned between these types of narrative spaces in real space, the leap to virtual spaces appears even greater. Initially, Virilio appears to confirm Benjamin by asserting that "The space of sight is accordingly not Newton's space, absolute space."[25] However, it is thought-provoking to acknowledge that the recipient's gaze in games encounters computer-generated absolute space which tries to emulate real spatial conditions at all costs, achieving high narrative qualities.[26]

Despite the differences between the three disciplines, there are clear commonalities in their construction of narrative spaces. Johan Huizinga's seminal description remains valid: "The card-table, the magic circle, . . . the stage, the screen, . . . they are all playgrounds in form and function," that are "isolated, hedged round, hallowed; within them, special rules hold good."[27] It is sensational how Huizinga—long before the advent of computer-based games—highlights the spatial nature of the disciplinary similarities. He explains boundaries, constitutes "inside" and "outside." In theater and gaming, the demarcation of the "magic circle" is usually

23. Johannes Binotto, "Kino als Hütte: vom Potential des Vorführrraum," *Filmbulletin* 47, no. 264 (2005): 51–9.

24. Walter Benjamin, *A Short History of Photography*, trans. Stanley Mitchell (London: Monogram, 1972), 7.

25. Virilio, *The Seeing Machine*, 62.

26. Ulrich Götz, "From Asteroids to Architectoids: Close Encounters between Architecture and Game Design," in *Architectonics of Game Spaces: The Spatial Logic of the Virtual and Its Meaning for the Real*, eds. Andri Gerber and Ulrich Götz (Bielefeld: Transcript Verlag, 2019), 201–214.

27. Johan Huizinga, *Homo Ludens: A Study of the Play Element in Culture* (London: Routledge & Kegan Paul, 1949).

obvious. It clarifies which rules prevail, where this validity ends, and what is allowed within this domain. In film—which can span many set locations—a comparable framing guarantees the "bracketing" of continuity and closure. The fundamental relatedness of spatial properties described by Huizinga manifests in the exchanges or combinations of discipline-specific narrative spaces, possible or imaginable, as seen in the theater to the film, the film to the game, or games as theater.

Narrating agents, whether actors or avatars, drive plot and form another disciplinary bridge. In the case of games, this requires closer consideration. One could find it surprising that human-like figures have typically been used for narrative, even though it is extremely elaborate in terms of design; moreover, completely different types of narrative agents would be conceivable in the virtual world. However, action in games only has narrative relevance when it can be attributed to human motives. The interactivity of games must be considered. Even if the only objects interacting in games have no anthropomorphic characteristics, narrative attaches itself to the question of who prompted this action and who profits from it. Furthermore, interactions are embedded into game mechanics to motivate players, so actions executed by avatars are inherently linked to game mechanics, as well as objectives corresponding to human motives, rendering them narratively relevant.[28] The co-presence between actors and audience members in theater thus corresponds to an avatar representing the player in gaming.

Avatars are hybrid entities. On one hand, they narrate their properties to recipients. On the other hand, the player's actions and intentions are projected onto their surfaces. This is particularly apparent in "customizing," when an avatar's appearance can be changed to reflect player preferences. In addition to this fusion of narrative agent and recipient into a single entity, there is a remarkable, even unexpected, continuation of the traditional audience model. The social frame of the audience even arises for gamers if they belong to a multiplayer community and experience their fellow players' actions along with their own avatar. This effect is further

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28. If a computer competes against itself in chess, can the resulting computational process be called a "game" at all?

amplified when millions of people watch gamers on live streams as they play and even respond to audience commentary. For many viewers, the only way to gain access to some games is within the reproduction of a classic audience model. This constellation also goes beyond theatrical co-presence: the "double avatar" emerges when game players themselves become narrative agents for spectators who in turn attempt to influence game players.[29] This leads to the continuation of a relationship between recipient and agent that is ultimately millennia old, typically used in sporting competitions in which the audience cheers on athletes who are supposed to perform the desired actions as proxies.

Spaces of Possibility—Spaces of Purpose

If one were to compare and categorize the expanded concepts of space in theater, film, and games, their narrative spaces do contain essential differences. In creating such models, the "framing" conditions—or "exteriorities"—emerge. Depending on these parameters, the fabric, materiality, orientation, and meaning of such spaces become apparent in their interior. Thus, this determines the nature of their "interiorities." The practical implementation of projects and productions determines how real or virtual spatial constructs generate spatial settings in the disciplines of theater, film, and games, corresponding to specific conceptualizations of action, use, and visualization.

How narrative spaces relate to the passage of time is crucial for spatial categorization. Theater is marked by action to be performed in the near future. The audience is attracted by experiencing—along with the actors—events that may soon be repeated in the next performance but are unique to one iteration. The narrative space of theater looks forward, according to narrative planning. This orientation is fundamentally different from film, which is inevitably oriented towards the past. Film is defined by action that has already happened and was previously recorded and produced. Therefore, in film production, particular skill lies in creating the illusion of action as if it were unfolding in the now, when in fact it

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29. Götz, *Narrative Mechanics*, 167.

is already long completed.[30] The montage creates a sequence of momentary events by creating a new, coherent time structure from past scenes through the editing process as if it were a play. This inevitably leads to the question of whether a particular version of a film was, in fact, the only way to convey a particular story. Subjectivity of directing and editing in relation to narrative become apparent when a "director's cut" presents alternatives to the original storyline.

In observing the passage of time, it becomes apparent how the narrative space of the film is subject to predetermined objectives. Its reference to the past establishes a "space of purpose," in which individual elements—camera shots, scripts, acting, etc.—contribute to an overall sense of narrative. In this respect, film has realized the ideal of theater which strives to achieve the most perfect presentation possible: the prompter personifies the effort to be as close as possible to the ideal performance. Nevertheless, it is inherent to the performative nature of theater to (re)act in the moment. In its orientation towards the future, therefore, a theatrical space of purpose commingles with the "space of possibility" in which spontaneous aberrations can occur at any time. Narrative spaces in film are defined by action that has already happened, presented to the audience with certainty. Theater is defined by action that should happen. Games permit a third variant: action that could happen. This possibility is facilitated by the corresponding interaction model and game mechanics (or appears by mistake as a bug or a glitch). However, whether or not the possibility ever arises remains uncertain.

The relationship between games and time is complex and, depending on the gaming mode and genre, full of variations. Despite the vast expanses of some game worlds, however, there typically are no signs of aging nor any other irreversible processes. Instead, there are visual effects and mutable game states: the sun rises, the world turns to twilight, assets and scores increase. Single players can usually pause their games and restart later from the same place or even return to a previous game state. Single-player games with an irreversible passing of time, or those subject-

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30. Documentaries are an exception, as their depiction of the past serves another purpose.

ing players to "permadeath," are a rare exception.[31] Most games equate the passing of time with progress, which manifests in sequential progression and status changes. This repetitiveness reveals a neutral relationship between games and time. The resulting structure can, again, be described as a space of purpose. Unlike film or theater, however, the narrow focus of such narrative spaces unfolds through highly constrained interactions—within a game world, significant only in terms of the rules it follows—rather than from a single, ideal narrative. While the interactive nature of games promises myriad approaches to achieve a target, all of these paths are, in principle, conceived and contained within the "magic circle."[32] As such, the challenge is usually virtuosity, not originality of interaction. In many cases, a contradictory tension arises in maximizing the freedom of interactions within the framework of a predetermined environment.

However, some games address precisely this constraint. If an established space of purpose is paired with an unpredictable space of possibility, if game mechanics and narrative enter into unexpected connections, "epic" moments in gameplay of unique situations that could not have been anticipated arise. Elaborate game productions try to cultivate such deviations structurally by enabling players to intervene creatively in the game world or by facilitating the dynamics of unforeseeable processes in multiplayer environments. Games also have greater ramifications, becoming the subject of other disciplines. In *How to Disappear*, the contribution by artist collective Total Refusal to the Berlin International Film Festival, they deconstruct the logic of the shooter—one of the most constrained narrative spaces in game.[33] Total Refusal were able to hack the game mechanics of a multiplayer scenario to create the possibility of producing their film. This leads to the discussion of a topic diametrically opposed to the game's intent: whether one can desert a war game. The predetermin-

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31. The game mechanics of permadeath eliminate a player irrevocably from the game after a defeat.
32. Huizinga, *Homo Ludens*.
33. Lemonade Films, "How to Disappear by Total Refusal," posted 2021, Vimeo video, 21:06, https://vimeo.com/533455589.

ing character of the game mechanics is revealed because "Battlefield only consists of a battlefield,"[34] without space for critical social discourse. It is in this transition from spaces of purpose to spaces of possibility that art is created.

Considering their increasing interconnectedness, further innovative and inspiring combinations of narrative spaces from theater, film, and games are to be expected. Whether these new hybrids can be described as spaces of purpose or spaces of possibilities—or if they can assume forms we cannot yet discern today—remains to be seen.

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34. Lemonade Films, "How to Disappear," 1:40.

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about the etc press

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