Playing at a Distance

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Playing at a Distance

Borderlands of Video Game Aesthetic

Sonia Fizek

The MIT Press
Cambridge, Massachusetts
London, England

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The MIT Press would like to thank the anonymous peer reviewers who provided comments on drafts of this book. The generous work of academic experts is essential for establishing the authority and quality of our publications. We acknowledge with gratitude the contributions of these otherwise uncredited readers.

This book was set in Stone Serif and Stone Sans by Jen Jackowitz. Printed and bound in the United States of America.

Library of Congress Cataloging-in-Publication Data

Names: Fizek, Sonia, author.
Title: Playing at a distance : borderlands of video game aesthetic / Sonia Fizek.
Description: Cambridge, Massachusetts : The MIT Press, [2022] | Includes bibliographical references and index.
Identifiers: LCCN 2022000758 (print) | LCCN 2022000759 (ebook) | ISBN 9780262544627 (paperback) | ISBN 9780262372183 (ebook) | ISBN 9780262372190 (pdf)
Subjects: LCSH: Video games—Design. | Aesthetics.
Classification: LCC GV1469.3 .F56 2022 (print) | LCC GV1469.3 (ebook) | DDC 794.8/3—dc23/eng/20220603
LC record available at https://lccn.loc.gov/2022000758
LC ebook record available at https://lccn.loc.gov/2022000759

10 9 8 7 6 5 4 3 2 1

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Acknowledgments

Far too many people, places, and serendipitous moments have shaped this book to be able to mention them all. *Playing at a Distance* has traveled great distances, too, accompanying me during the most fervent times of my professional and personal life. It sat on endless flights between Scotland and Germany, traveled thousands of kilometers by train while I was searching for an academic home, and, in its final stages, ripened in the stagnant reality of the COVID-19 pandemic. Perhaps one of the most important times and locations for this project was years ago in Lüneburg, where as a postdoctoral researcher I met many inspiring media thinkers. I would like to start the long list of acknowledgments with one of them, who has become my life companion and the strongest support in the moments of doubt.

This book would have been very different—or may not have existed at all—had it not been for Anne Dippel. Our endless debates and intellectual "jam sessions" have laid foundations for central ideas developed on these pages. Only Anne knows how many freshly baked loaves of bread, mugs of coffee, and plates of soul-food delicacies helped me reach the finish line of what felt like a never-ending story. Our son, Milo Sander, made me see play with fresh, inquisitive eyes, generously allowing me to play with and alongside him, recharging the worn-out batteries of a parent in academia trying to juggle far too many balls simultaneously. I am thankful to our wonderful rainbow family for their support and for always bringing in good vibes—thank you, Hide and Imtiaz.

I would like to extend sincere thanks to Doug Sery for taking interest and a leap of faith in this work and giving me the power boost and freedom to write this book, and to Noah J. Springer for continuing this project and accompanying it to its successful end. The whole MIT Press editorial team

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has been invaluable. My special thanks go to Assistant Editor Liz Agresta, who has left no word unturned in making the best out of this manuscript.

Thank you to the reviewers who have provided me with the most insightful and critical feedback, pointing me toward unexplored thinkers such as the French philosopher Jacques Henriot.

I am grateful to my friend Monika Wasilewska for meticulously reading and editing every single endnote and bibliographical entry that appears on the last dozens of pages. Not every author is lucky enough to have such superb support.

Many friends and wonderful colleagues from the academic community have contributed as well; some directly, and others indirectly by allowing me to glide alongside their own lines of thought. Thank you to Seth Giddings, Melissa Kagen, Paolo Ruffino, Sebastian Möring, Darshana Jayemanne, Alenda Y. Chang, Mona Bozdog, Souvik Mukherjee, and many others. I am also grateful to Emilie Reed, Darshana Jayemanne, Zoyander Street, and the entire crew behind Critical Distance's "Keywords at Play" for giving me a platform to talk about many early concepts and ideas developed in this book.

Thank you to Gundolf S. Freyermuth and the Cologne Game Lab for welcoming me to their wonderful team in 2020 as an associate professor and giving me the peace of mind to finish this book. The students of Cologne Game Lab at TH Köln were the most vigilant gamers and inspiring discussion partners, and they gave me great examples to work with, including such wondrous and delightful games as *Tiny Bookshop* (2021), discussed in chapter 3.

I also want to thank all of my friends and colleagues for putting up with my belated email responses and far too few conversations, walks, and visits. Enrique Perez, thank you for your calmness, open ears, and the best ice cream to ice coat all the anxiety in the final year.

My former supervisor and friend Astrid Ensslin has always been an inspiring mentor to look up to.

I thank my family for always believing in me. Special thanks go to my sister, Anna; my mother, Jadwiga; my father, Mariusz; and both of my grandparents, who almost prophetically used to call me their "little scholar."

And finally, in a posthuman gesture, I thank the stars for being on my side, the River Tay in Scotland for endowing me with the most inspirational views from a "room of my own" in which to write, and the comforting buzz of my new home city of Berlin for putting things back into perspective.

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Prelude: Play at a Distance

> "There is no unmediated photograph or passive camera obscura in scientific accounts of bodies and machines; there are only highly specific visual possibilities, each with a wonderfully detailed, active, partial way of organizing worlds."
> Donna Haraway[1]

In 1935, Albert Einstein coined the famous phrase "spooky action at a distance"[2] to dismiss a controversial theory of quantum entanglement, according to which particles separated by great distances could influence one another without the need for direct physical interaction. In other words, despite occupying remote locations, the particles were perceived as intimately linked. At the center of this puzzle lies the materiality behind a medium of communication. For this distant entanglement to be true, the information exchanged between the two particles would need to move faster than light—an occurrence baffling, if not outright impossible, to the Newtonian interpretation of the natural world. How can two objects communicate over such great distances so instantaneously that the information traveling at the speed of light is unable to arrive before the entanglement takes place? Since this book is neither about quantum physics nor about natural philosophy, I will let this question rest as a playful cliffhanger. What I want us to take from this example, though, is the concept of *mediated distance*, which I argue is central to how we experience and make sense of games and play in computerized forms.

Distance is deeply engraved in the media landscape. Without literal distance, there would be no need for medium-aided communication or a theory of communication at all. Think of telephone infrastructures, digital networks, or such mundane devices as remote controls, which have become

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almost invisible daily companions of many TV-equipped households in the last several decades. It stands to reason that one of the most frequently used prefixes to describe diverse communication media is *tele*, the Greek root word for "distant." Telegraph, telegram, telephone, or television—all are media of telecommunication.

Distance lies at the very heart of games, too, especially in their computerized and mechanized realization. But contrary to the intuitive association the term may awaken, my aim here is not to study physical distances at play. I will not show how multiplayer online games bring together players from remote parts of the globe. Neither do I want to look into physical distances simulated in game worlds, however fascinating those manifestations of ludic distance may be. What I want to do instead is to present distance as a media aesthetic framework in order to challenge the common understanding of how we interact with technology in general and video games in particular. My goal is to analyze different forms of engagement with video games that require surprisingly little direct or close action from the human players. I want to propose a theoretical position that invites readers to rethink the human agent as a central player in the gaming performance. In this perspective, human players are not self-governing subjects but rather are subject to processes and procedures of technical media.[3] In other words, I question modes of analysis based solely on human players' agency and choices.

This proposition may sound a bit counterintuitive, so let me illustrate it with an example from decades before the emergence of the first video game. Imagine a self-playing piano, its keys moving automatically in a rhythmic dance as if pressed by a ghostly human virtuoso from another space and time. Until the 1920s, when the phonograph completely changed the musical landscape, self-playing pianos (also called player pianos) had been the only instruments able to mechanically store and replay recorded musical pieces.[4] Musical performances were literally punched onto a perforated paper roll, which enabled a faithful recreation of a concrete performance, played out at the listener's own convenience—a truly "spooky" mediated action. Since the era of player pianos, many other media (phonograph, radio, film, etc.) have decoupled space-time dimensions of otherwise synchronous human performances. Digital electronic computers, as the "newest" of all media, have also developed a special relation to the question of action at a distance, this time mediated not by perforated paper rolls but by encoded silicon circuits and digital displays.

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Video games have been primarily understood as objects to be actively engaged with, conflicts to be resolved, and meaningful actions to be taken.[5] Games are supposed to be ergodic, requiring a non-trivial effort from their participants.[6] They have been often described as inherently interactive, by theorists, developers and gamers alike.[7] In other words, most digital games, staged in the medium of a computer, could be described as "explicitly participational."[8]

Concepts such as participation, interaction, ergodicity, and human agency, all reflect in different ways the diminishing of mediated distance between the player and the game. Video games are supposed to immerse their players so that they "lose" themselves in the game worlds. The game's interface is usually seen as a barrier between the real and the simulated world, preventing the feeling of full immersion. Kinetic interfaces and VR are luring us with a promise to shorten this physical, cognitive, and semantic distance further, removing the symbolic interface in favor of the embodied one. This *suspension of disbelief*[9] (especially noticeable in VR technology) is founded on an imaginary of the subject merging with their aesthetic object. In video games, it is a combination of storytelling, illusion (whether optical, algorithmic, or embodied), and agency that reduces the distance between the real and the imagined.

But contrary to the popular imaginary of gaming, it is not solely defined by immersion via direct and close action. Play emerges out of a delicate balance between action and inaction. With each agential act comes a moment of pause, if not a stop. Vertigo is as much about losing balance as keeping it. Chance is a simultaneous acceptance of randomness and a firm belief in luck. Competition is the drive to win and the risk of losing. Mimicry is an act of imitation, close to its referent and yet distant enough to remain its parody. More importantly, to play is not only to engage but also to let go; to accept the agentiality of matter and to see oneself not as a player *in* the game world but a player *of* the game world, to paraphrase the feminist theorist Karen Barad.[10]

Play relies on those tensions and seemingly contradictory moments of passivity and activity, distraction and attraction, distance and closeness. This dynamic is very well reflected in the German adjective *spannend*, which is used to describe the fun property of games. The related noun *Spannung* points toward the concept of tension, suspense, or—to be even more precise in terms of media theory—the difference between the "plus" and

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the "minus" in voltage. *Spannung* is that which spans the gap between two states; in the case of video games, the active state and the inactive state.

To think in terms of distance, then, is to acknowledge those two states and that which spans them. Play, although defined primarily through the concept of focused activity, needs moments of inactivity. By bringing distance into the conversation, I want to shed some critical light on the inactive side of this ludic joint venture, which has not been given much attention in the study of play and video games. I see action and inaction as complementary and necessary critical dimensions—the yin and the yang of play.

The action-based, interactive, and participatory understanding of digital play and video games should not be regarded as an objective statement of the configurable and procedural capacity of the computational medium. Play and games are always "placed in context within broader value systems."[11] Therefore, understanding play and games is always filtered through underlying ideological values at play. The mainstream rhetoric of video games is an example of a modern Western rhetoric of play as progress, power, and the self. The forms of play that this book scrutinizes are often called "not-games." Consequently, the modes of play that are central to this project have little to do with individual optimization and empowerment through mastery and choice. My goal is to understand video games and play, looking beyond the modern rhetoric of the empowered progressing self.

Mediated Distance across Disciplines

As a concept rooted in media theory, digital humanities, and play theory, distance carries with it diverse interpretational perspectives; some problematizing the spatial and physical aspects of interaction, others employing distance as a semiotic gesture.

Distance takes a central spot in a recent media historical intervention by Florian Sprenger, Christina Vagt, and John Durham Peters titled *Action at a Distance* (2020).[12] In three intertwined essays, the authors problematize media as necessary material connectors in the context of spatial separation. They explore the materiality of communication and mediality of transmission, provoking new questions about human interaction within material and immaterial entangled infrastructures. They do this by reviving one of the most prominent conundrums in the history of physics (to which

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I alluded in the introductory paragraph of this prelude): the impossibility of interaction at a distance without physical touch or any other measurably mediating force.

Media are often seen as intervening forces able to shorten the distance, but they may also coproduce methods of analysis, which introduce distance into the cognitive process of analysis. Literary theory, for instance, contemplates the interplay between closeness and distance by juxtaposing the traditional interpretational method of close reading with so-called distant reading. The latter describes a computer-aided approach to reading proposed by Franco Moretti.[13] Unlike close reading, which requires in-depth study of texts, distant reading is about analyzing large amounts of metadata about literary texts. In other words, the method of distant reading distances the reader from the text and advocates for the analysis of metatextual data about a large sample of texts closely read by the machine instead.

Distance, then, lays bare a certain medial paradox. On the one hand, digital electronic media shorten the physical communication distance among its users; on the other, analytical methods based on big data may add distance between the theorist and the object of analysis. It gets even more complicated. In the formative years of game studies, many scholars wrote about the importance of "close playing" as a means of ludic analysis. Here lies yet another paradox: to "close play" a game, we need to introduce a *critical distance* toward the very object of play. The usually immersive act of play thus becomes a self-reflective act of distant play, in which the disbelief in the fictional game world is not suspended.[14]

Within the context of play, the importance of mediated distance was stressed by Brian Sutton-Smith, one of the most prominent play theorists of the twentieth century. At the first annual conference of the Digital Games Research Association (DiGRA) in 2003, Sutton-Smith's keynote speech encouraged the game studies community to look into symbolic dimensions of distance in video games. He argued that many video games are *distanced forms* of contest, as opposed to a sport like football, which requires bodily contact and therefore raises the chance of venting unmediated anger. In his view, a computer acts as a layer that symbolically distances the player from the direct bodily moment of play—"You are looking at a screen or you are manipulating the computer, which puts you at great distance."[15] Sutton-Smith understood the unique role of the computer as a machine for facilitating play and emphasized the highly mediated character of computer

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play. In it, he saw hope for providing child players with "defenses" against unmediated and direct forms of anger.

The French philosopher Jacques Henriot, in his treatises *Le jeu* (1969) and *Sous couleur de jouer: la métaphore ludique* (1989), reflected play through the key symbolic figure of distance. He founded his theory of play on a semantic core derived from a mechanical understanding of play. The latter points towards *distance* as a necessary condition for play to occur. Play denotes a space or a gap, which literally leaves room for play in mechanical machinery (e.g., gears, hinges, joints). Distance, then, is a symbolic interval that makes it possible for a game to take place at all. In other words, any game requires distance to be created and maintained between the player and the said game. Playing is a dialectical operation that relies on the player's internal interpretation of play. It belongs to the order of the signifier; play is only a matter of meaning. In other words, the sense of the game is produced by the player thanks to their playful attitude, but this sense is enabled only by the player's distance towards the game, as interpreted by Maude Bonenfant, a Canadian semiotician and play scholar.[16]

For me, distance at play is, above all, a medium- and matter-centric perspective that sheds light on a diversity of delegated, automated, and otherwise distant experiences of play, all of which tend to be pushed to the edges of gameness. To understand the diversity and ambiguity of digital play and the role of the human player within, we need to rethink time and again what it means to play.

Media Aesthetic of Play

My understanding of video game aesthetic stems from a medium-centered approach to play. One of my primary inspirations is the work of Walter Benjamin, who wrote on the then-new media of photography and film in the early decades of the twentieth century. Many of his works shed light on how technical media and their means of production change the aesthetic experience thereof. In his famous essay "The Work of Art in Times of Technical Reproducibility," Benjamin investigates the effects of technical reproducibility of images on their audience and on the perception of visual art in general.[17] I would like to draw a similar parallel between computational processes and the way they shape the aesthetic experiences of digital games. In that sense, the aesthetic of play I aim to engage with could be regarded

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as a media aesthetic, since it is embedded within specific medial processes. I want to explore these processes and show how they, in turn, shape what we perceive as gameplay or playful practices.

Let me illustrate the above point with an example. It is not exactly the same aesthetic experience to play ping-pong and *Pong* (1972). Even the most realistic, modern sport video games (e.g., the FIFA and NBA 2K series) provide an experience much different to that of football or basketball on a physical court; although the fundamental rules of the game remain unchanged. In other words, computers mediate play. And the process of ludic mediation is shaped by the processes and infrastructure of the computing machine. The medium changes the ludic message. As Jussi Parikka once wrote, "the way we see, think and memorise, dream and hallucinate, are conditioned mediatically."[18] This applies to play as well.

What I want to argue in this book is the following: to theorize the experience of (game)play within the digital, we need a medium specific or medium-centric aesthetic perspective—one that is able to think with and within the digital medium. We need a digital aesthetic that would be able to address the "discrepancy between continuity of sensation and the discreteness of digital technology."[19] The aesthetic of digital games leaning on analog concepts misses the point, or, at best, provides for a preliminary point of departure. Analyzing digital gaming through analog media such as literature, theater, film, or photography surely yields crucial insights. Nevertheless, these fail to address the specificity of the computational medium. This book is an attempt to theorize the experience of playing video games by putting the digital medium at the forefront, sometimes at the expense of the human player. Ultimately, it asks what it means to experience a digital game aesthetically through the computational medium and how to understand play if we are not involved as close agents and direct controllers of technology—or, to put it in other words still, how the computer influences aesthetic practices of play.

It should come as no surprise that to understand how we play in the twenty-first century, we need to take into account the computer medium. Early on in the history of game studies, the German media theorist Claus Pias presented an insightful media theoretical analysis in *Computer Game Worlds* (2017).[20] Alexander Galloway's *Gaming: Essays on Algorithmic Culture* is another example of how to "do" media aesthetic of video games.[21] Ian Bogost's *Unit Operations* and the concept of procedural rhetoric exposes

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the inner workings of the computational medium in how we make sense of video games.[22] Miguel Sicart devotes the final chapter of his book, *Play Matters*, to play in the computerized medium.[23] *Playing at a Distance* wants to build on this tradition by rethinking how the computer medium molds the aesthetic experience of play.

Indirectly, if not by title association, this book addresses Brian Upton's work on the aesthetic of play.[24] As much as I agree that play is something that reaches beyond video games, and that many novelties of the digital gaming medium can be found in earlier playful forms, I do not share Upton's media-unspecific conviction that the gameplay experience of a first-person shooter is comparable to reading lines of Homer. Digital media are fundamentally different from their analog precedents, and the difference does not necessarily lie in their interactivity, nonlinearity, or multimodality—features that "sell" the new medium rather than critically look into its core. It is the discreteness as opposed to continuity that differentiates digital and analog media. It is their divisible and modular structures that have fundamentally changed the experience of play. And although the urge to play is predigital and reaches far beyond video games—or, for that matter, any games (defined as structured systems with rules)—a given medium molds the experience of play in the rhythm and shape of that particular medium. This, in turn, influences the aesthetic reception of play. After Claus Pias's media-historical investigation of play, Upton's comparison of the first-person shooter to Homer's *Iliad* and *Odyssey* seems a medium-agnostic rhetorical trick at best.[25] The human stories of war, loss, and love we tell might share some ahistorical similarities, but the question is how those stories are experienced situationally and locally in a given medium. Oral storytelling, stage performance, and narratives written on a scroll or in a codex (a book form consisting of separate sheets of paper bound together) create diverse, if not fundamentally different, aesthetic experiences.

But the story of the media aesthetic of distant play does not end with the medium. To end with the medium is to simply flip the coin; to take agency away from the human and to attribute it to "dead" matter instead; to claim that things, too, have agency.[26] Instead of offering a symmetrical story of agency in video games, I want to show how matter comes to matter, how it is configured, and how it reconfigures.[27] In such a light, the player is part of the gaming situation; they are not *in* but *of* the game world, configured and co-constituted by it. Play, then, is neither a human nor a nonhuman act.

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Play emerges out of complex material, human and nonhuman ludic entanglements. It is a relation that forms the relata, not the other way around. To put forward such an understanding of play, I reach out to agential realism, a philosophy of posthuman performativity proposed by Karen Barad. In doing so, I also want to position my take on the media aesthetic of play in the new materialist and posthuman tradition while remaining in dialogue with other game scholars and colleagues such as Alenda Chang, Brendan Keogh, Darshana Jayemanne, Justin Keever, and Justyna Janik, among others, who have employed posthuman perspectives in their own explorations of play.

Dis-Playing Video Games

Out of the considerations on distance, media aesthetic, and posthuman performativity emerges my reinterpretation of computer mediated play as *play at a distance* or *dis-play*. And so, to dis-play is to be at a distance from an active and direct moment of play (from the Latin *dis-*, away, apart), to delegate the immediate action towards the machine, participating in the (algorithmic) spectacle (display) instead. To dis-play is also to unfold, to become, and to emerge by gradually opening up in its entirety (from the Latin *displicare*, unfold). And finally, to dis-play is to participate as one of the other possible agents in a distributed algorithmic entanglement. Playing at a distance is a medium-centric, posthumanist, and performative perspective, challenging the notion of the player and the played. Its aim is to decenter the human player and display other agents at play. The manifestation of play on the screen, in the case of digital games—that which is displayed—is a representational image of multiple agencies: the instantiation of rules, the execution of code, the cognitive and physical actions of the player, and the material possibility of play (raw materials used in manufacturing hardware components, the labor involved in assembling console hardware, shipping vessels carrying gaming consoles overseas for sale, access to electricity, etc.).

I see dis-play as a theoretical perspective grounded in its time, one that helps to understand the current computer gaming moment. It encourages thinking outside of the primacy of the thumb, questioning agency and direct control—qualities that have been almost synonymous with video games and technology. But it is not only games that exemplify the act of dis-playing; other digital practices unfold at a distance, too. Social media platforms such as Facebook, Twitter, and Instagram require only relatively

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short moments or bursts of activity. Collectively we produce a "living" space that acts 24/7, changing every time we leave it and further feeding off of our intermittent moments of action whenever we come back to it. Live-streaming services such as Twitch are more persistent than ever, allowing us to pop in and out at our leisure and in our own available space with no commitment or effort required; rather than being put on the spot or having to play the game themselves, viewers simply watch others play it instead. Watching, spectating, or lurking have become recognizable play forms in their own rights. This form of spectatorship surpasses the merely aesthetic level of the interface or the perceived image. What we are dealing with here is an algorithmic spectacle where images become "functions in the mathematical realm."[28] Perhaps the most illustrative example of such a spectacle, stripped to its bare ludic bones, is *Number* (2013) by Tyler Glaiel, a self-playing idle game depicting numbers going up. Consider also the more recent *Universal Paperclips* (2017) by Frank Lantz, about an AI that makes paperclips: "It's free to play, it lives in your browser, and all you have to look at is numbers."[29]

It is no coincidence that distance playing comes to mind at a time when automation, algorithmic agency, bots of all kind, and deep learning occupy news headlines worldwide. It is also not entirely coincidental that self-playing and idle games have appeared in the wider consciousness in recent years, or that a self-playing video game has been displayed in one of the world's major art galleries.[30] Such automated experiments may be the new ludic frontier or a whimsical temporary experiment in the larger history of digital games and media. Whichever turns out to be true, this book is about to capture them in the moment and offer a compass to navigate through those barely explored distant worlds.

The problem of defining or claiming the true aesthetic experience of video gaming has appeared under many names—casual gaming, walking simulations, or cozy gaming—all standing in opposition to the "real" gaming experience, which is supposed to be hard-core, difficult, attentive, and connected with the investment of considerable amounts of time. In their latest book *Real Games* Mia Consalvo and Christopher A. Paul examine this question by asking what happens when a game's gameness is called into question.[31] They explore dominant culture discourses about legitimate games from a rhetorical perspective, reaching out to popular press, essays, and blog posts. My book, by contrast, approaches the question of gameness

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by trying to develop a new language for the media aesthetic experience of digital play, which may in the end contribute to a wider understanding of what digital games and gaming are in all their diversity of experiences and forms.

Finally, I would like to look at games not only as the epitome of participatory culture or the most iconic digital examples of the "interactive turn" but also as the experiments and outcomes of the "material turn" and the "automatic turn." [32] The latter has led not only to the automation of drudgery but also, subversively, pleasure. Automated digital play has also followed in the footsteps of high-end programming languages, which tend to delegate and automate many parts of the code; distance, then, is hard-coded into the infrastructure of the digital machine. Distant play allows me to revisit crucial concepts, such as interactivity, control, hands-on participation, and human agency, among many others. In doing so, I hope to capture emerging digital practices and carve out new ways to describe them.

Chapter Overview

My interpretation of distance in and at play reaches out to a variety of interdisciplinary theories, building on such concepts as interpassivity, ambience, automation, and intra-activity, among others. Each chapter presents a different aspect of playing at a distance, putting a specific game, play format, genre, or ludic phenomenon under the magnifying glass. In the words of the historian Sigfried Giedion, "The sun is mirrored even in a coffee spoon."[33] It is, after all, the modest objects of everyday life, "usually not granted earnest consideration," that have a great power to shape our modes of living, and illustrate the changing world around us.[34] Many of the games I mention in this book are modest objects (and sometimes subjects) of play—minor games, niche genres, or experimental modes within bigger games or play practices—that complicate rather than explicate gaming.[35]

Chapter 1, "Beyond Interactivity," brings together thinkers and theories that challenge interactivity as the pivotal concept necessary to understand digital media and video games. Alongside many other scholars, I show that interactivity as a leading conceptual axis of video games fails to account for a diversity of play forms. The chapter lays analytical ground for the rest of the book and is filled with examples of computer-mediated play that are otherwise difficult to classify or, in the worst case, dismissed as "notgames."

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Chapter 2, "Interpassive Play," opens up a discussion on the emerging practice of playful involvement with self-playing systems, and the sort of play that is characterized by distance and delegation rather than close and focused engagement. It explores the peculiar phenomenon of delegated pleasure and extends it to that of delegated play. The chapter also unpacks the theory of interpassivity, developed by the contemporary Austrian philosopher Robert Pfaller, to demonstrate how it applies to video games, with a specific focus on the genre of "idle" games.[36]

In Chapter 3, "Ambient Play," I explore the concepts of ambience and background aesthetic. To understand the enveloping capacity of video games, I propose a twofold interpretation of ambience as either *operational* or *affective*. The first perspective points toward background processes of the computer as well as games and gameplay forms seamlessly embedded within the daily rhythms of their players, and the latter discusses ambience in relation to a slow and flaneur-like experience of play.

Chapter 4, "Automated Play," sits at the crossroads between human agency and computer automation. It is an attempt to sketch a media archaeology and history of automated play, bringing player pianos, playful automata from the Enlightenment era, and current artificial intelligence (AI)–driven agents into the game. The chapter begins with a short history of the automatization of mind, juxtaposing the twenty-first-century computer program AlphaGo against the eighteenth-century chess-playing automaton. It then looks into the mechanization of physical skill, drawing parallels between contemporary mods used to automate tedious gameplay and late nineteenth-century instruments such as pianolas, which turned a highly skilled human act of musical play into a relatively uncomplicated semiautomatic activity. Ultimately, the chapter aims to offer possible directions for critical inquiry into automation in and around play.

Chapter 5, "Intra-active Play," repositions the categories of players and games as subjects and objects, arguing that a different story of play needs to be put in place. Games change us as much as we change them (most of the time, literally). Out of this observation emerges a pledge for a posthuman and performative media aesthetic of play, drawing heavily from the philosophy of Karen Barad.

Chapter 6, "Spectated Play," is a contemplation of the visual and computational aspects of digital play, offering a reconciliation between the analog and the digital. The image, or that which is displayed, plays a central role in

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video games. The recent turn toward spectacle in gaming culture (exemplified by Twitch streamers and professional e-sports) has brought the element of displaying play to a new dimension.

The book culminates in a conclusion called "Postlude: Distance at Play," in which I try to bring together all the diverse perspectives on play under the banner of *distance*, doing away with binarism and reviving the ambiguity of and at play. Play at a distance privileges neither the visual nor the procedural, neither the active nor the passive, neither the performed nor the spectated, neither the player nor the played. It strives to offer a situated, performative, and, most crucially, a mediated reading of play—one in which agency is not a property possessed by a human player but a force distributed within and across the ludic entanglement.

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1 Beyond Interactivity

"You're not in control."
Black Mirror: Bandersnatch (2018)[1]

Interactivity has occupied a comfortable central spot in popular discourse around video games and has often appeared as the driving paradigm in scholarly work, repeated like a cybernetic mantra every time the uniqueness of the new digital medium was called into question. It has become a marker differentiating digital media and their flagship entertainment form, video games, from older media such as film, television, photography, and print. And since video games belong to computational rather than optical media, they seem to have been in need of such a unique differentiation marker. Perhaps the study of video games needed a starting point that would not only favor computation and action over representation but also, crucially, develop a theory of action that would be based on the reduction of its significance in older media.[2]

Positing interactivity as the leading conceptual axis of computational media, however, fails to account for a myriad of playful forms and play situations. Only by looking beyond both its paradigm—and thus human control and agency—can we become receptive toward other aesthetic modes of engagement with playful technologies. Putting interactivity under scrutiny will lay ground for numerous concepts rooted in media theory, feminist theory, and philosophy. This chapter is an attempt to situate this book and its theoretical toolbox in the context of a diverse body of scientific perspectives—both long-standing and contemporary—that directly or indirectly problematize the interaction paradigm. The drive to do so has been ignited by years of didactic experience as a media and game studies theorist,

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and by teaching in international game design programs, where I was all too often exposed to students' firm belief in the unique interactive capacity of the video game. This chapter, therefore, is perhaps the most urgent read for novice students and designers who would like to critically reread the history of interaction in video games. Media and game theorists may find this chapter a rather familiar (but hopefully refreshing) read, preparing some ground for what is about to come in the chapters that follow, which propose concrete lenses going beyond the interactive paradigm. Ultimately, I want to argue for a media aesthetic of digital play that embraces a variety of ludic experiences mediated by computation. In any case, this chapter, which I have often called into question myself, has allowed me to carve out my own position on the complex question of video game aesthetic.

Critical Confusion

Interactivity gained particular momentum in the late 1980s through the 1990s. It emerged as a demarcating line between the so-called new media and old media such as print, photography, and, most of all, film. Video games became the most recognizable examples used to illustrate the cultural shift from mass media of spectacle or representation to mass media of simulation and computation.[3] Computational media, the *coolest* of all, are characterized by high levels of participation and responsiveness.[4] And interactivity is supposed to be the primary sociotechnical marker of participatory culture.

Drawing on the work of Margaret Morse, the Chicago School of Media Theory took up this configurable potential of the computational medium, defining interactivity as "the ability of the user to participate in the creation or modification of the medium."[5] In *Hamlet on the Holodeck*, Janet H. Murray locates the primary representational property of the computer in its capacity to render responsive behaviors; in other words, to facilitate interactivity.[6] In game design, it is often seen as "a cyclical process in which two actors alternately listen, think, and speak to each other."[7] In all the above examples, the assumption is that there exist two independent *relata*: the user and the medium, the game and the player, or the human and technology. Interaction may be seen as a unilateral process, a reflex reinforced by a cause-and-effect chain: I press the space key, and the figure on the screen jumps in response to my input.

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Interactivity has even inspired the rise of a whole new discipline. The field of human–computer interaction rests firmly on activity theory, the idea that a human is an intentional subject acting on dead matter. It is the human engagement with digital technology that is of paramount importance.[8] Activity theory looks at how people act with technology, failing to account for how technology influences and acts with people. To a large degree, this framework has shaped the popular discourse around what it means to interact with a video game. The simple concept of a feedback loop—I act on something and receive immediate response to my act—has rarely been questioned outside of academia. A problem arises, however, once interactivity is coupled with such terms as freedom, control, and choice—all of paramount importance in the grand fantasy of mastery over a video game. It does not account for the power technology has over humans and the infrastructures and machines that guide our daily rhythms, make decisions on soon-to-be automated battlefields, and affect the political scene, albeit with no direct human-like intentionality. Action theorists would have us believe that computers are simply tools that mediate between people and the world, but in reality they are media that "determine our situation."[9] By extension, computer games determine our play or "define what it means to play in computerised societies."[10] In much of his early work, Seth Giddings emphasizes this need to shift the attention away from established notions and toward a more nuanced understanding of the gaming "event" as one brought into being by complex human and nonhuman agencies.[11]

Interaction is also a foundation for many other concepts resting on the shoulders of the human player's action and the computer's response to it, such as choice in nonlinear storytelling (decision trees), agency, control, player effort, and many others; some belonging to the realm of theory, others reflecting a more applied and design-oriented angle. In many cases, interaction (or the lack thereof) has placed some genres at the edge of the heart of gameness; for example, Conway's automated *Game of Life*, hypertext fiction, and *Dear Esther*, which gave rise to the genre of walking simulators.[12] For many gamers and game designers, games that prioritize such practices as walking, exploring, contemplating, and reflecting are not interactive enough to be classified as "real" games.[13] The more often buttons are pressed, choices are made, and challenging actions are executed, the more "gamey" and hence interactive the video game seems to its players.

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Despite the early allure of interactivity, many media and art theorists have expressed skepticism toward the concept. Espen Aarseth, for instance, views interactivity as "a purely ideological term, projecting an unfocused fantasy rather than a concept of any analytical significance."[14] To alleviate that murkiness, he introduced the notion of *ergodicity*, which describes the degree of nontrivial effort that is required in order to traverse the text (in a broad sense). Similarly, Lev Manovich finds interactivity too broad a concept to be truly useful, if not entirely redundant.[15] Instead of thinking about new media as interactive, he defines them in terms of five principles: *numerical representation*, *modularity*, *automation*, *variability*, and *transcoding*. Dominic Arsenault and Bernard Perron argue that the players do not act so much as react to the game and, in turn, the game reacts to them. And since it is the game that begins the "conversation" with the player, they do not interact with it but *inter(re)act* instead.[16] In that sense, video games may be described as inter(re)active media. More recently, Brendan Keogh made an even bolder statement, undermining the special status granted to video games entirely: "I reject the notion that a *pure uniqueness* of the videogame form ever truly existed beyond the rhetorical strategies of a new media industry (and subsequently scholarly discipline trying to demarcate a discursive space for itself)."[17]

Interactivity seems to have earned a prominent spot in the long line of confusing buzzwords and rhetorically empty terms that have nevertheless powerfully shaped the popular understanding of digital media and video games. It is as illusory as that of *technology*, the meaning of which evolved over the course of the twentieth century from a very specific one denoting practical art to a highly vague one used to talk about "an unbelievably diverse collection of phenomena—tools, instruments, machines, organizations, methods, techniques, systems, and the totality of all of these [. . .]."[18] Currently, media theory faces a similar challenge with the term *artificial intelligence*, which has been "cobbled together from a grab bag of disparate tools and techniques."[19] By taking interactivity yet again on board, I do not aim to add up to the general narrative of confusion; however, I do believe that it is important to understand the changes the concept has undergone in order to provide some orientation markers in the midst of this terminological maze. Only then can we propose alternatives to the mainstream view of video games as explicitly participatory and interactive and, furthermore, account for all the other examples of computer-mediated

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playful experiences that are otherwise difficult to classify and are, at best, typically labeled as "notgames."[20]

Infrastructures of Freedom and Control

Computer games often require their players to choose a path or utilize an object, perhaps two of the most common performative acts in adventure games. Activity (and thus interactivity), however, should not be conflated with freedom of choice, although it very often is. In an early piece on the ideology of interactivity presented at the first international DiGRA conference in 2003, Matt Garite observed that "video games grant players an unprecedented degree of freedom and control, while simultaneously bombarding them with a relentless series of limits and demands."[21] What these games actually offer is an *illusion* of freedom. After all, "the program administers only that which is possible under specific conditions."[22] The computer simulates only a fraction of what we could refer to as the player control; it is the read-only memory (ROM) that remains the real controller.[23] Let us take a look at two brief examples.

The conflated choice structure is well represented by the Blueprint Visual Scripting system available in Unreal Engine 4, developed by Epic Games (figure 1.1). Instead of writing code line by line, the designer or developer may represent choices and all functional relationships within the game in a visual manner, combining the nodes with "wires" and determining the relationships between them. This kind of ludic infrastructure underlies the logics of the game, the behavior of the entities within the physical game world, and the structure of choice for the player (closed and open doors, dialogue options available, loops and blind alleys, win conditions, etc.). In other words, Blueprint systems define object-oriented classes and objects of the game, providing an operational and logical framework for the interactive practice of playful communication mediated in and by a digital machine.

Digital play mediated by information technologies remains highly susceptible to the core infrastructures of those technologies; in this case, object-oriented scripting logics and if/then conditional statements characteristic of programming languages. Depending on the interpretation, they may be seen as those of freedom, choice, and diversity, or those of control, confinement, and only nominal variety. In the early 1990s, many regarded

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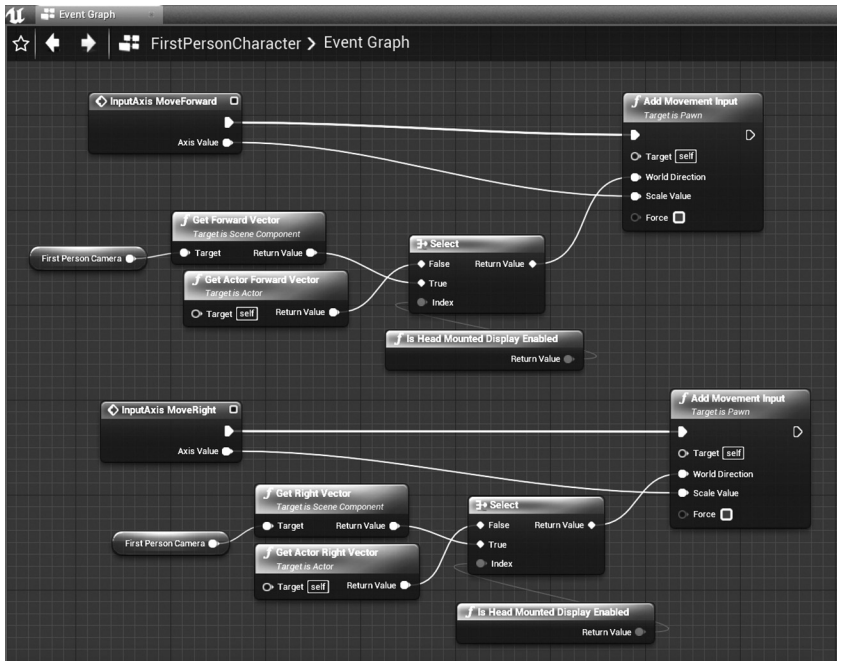

Figure 1.1
A first-person character blueprint in the Unreal Engine. Courtesy of Epic Games.

the internet in general and the structure of choice-rich hyperlinks or forking paths in particular as a marker of democratization. This belief in the emancipatory character of media is not necessarily unique: "telephone, radio, television [. . .] have all at one time or another been described as democratizing, liberating forces," although the freedom was assigned to quite different structural capacities of the medium.[24]

There were other, more skeptical voices, too. Manovich, for instance, believed that interactive digital media represent potential infrastructures of manipulation and control. Inspired by the criticism of the avant-garde digital art scene, he shared his opinion in a short article provocatively titled "On Totalitarian Interactivity." He began his evaluation of interactivity with a quote by Alexei Shulgin:

> Looking at very popular media art form such as interactive installation, I always wonder how people (viewers) are excited about this new way of manipulation on them . . . They are happily following very few options given to them by artists: press left or right button, jump or sit . . . Future now![25]

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As a post-Communist subject, Manovich saw interactive media as highly problematic. Instead of viewing them as vehicles for free exchange, democracy, and choice, he saw in them the potential of surveillance and oppression. (Little did Manovich know that digital media of choice would eventually be used to sway the democratic elections of 2016 in the United States and stir unrest in post-truth societies.)

A similar point was raised almost a decade later in Alexander R. Galloway's Allegories of Control trilogy, in which he argued that distributed digital networks, although historically developed as alternatives to hierarchical and centralized systems, indeed turned into "the most highly controlled mass media hitherto known."[26] Similarly, in *Control and Freedom: Power and Paranoia in the Age of Fiber Optics*, Wendy Hui Kyong Chun developed her argument from the problematic tension between freedom and control, which led to a polarized understanding of digital technologies and the internet as tools that either promise freedom or control their users.[27] Societies structure technologies, which in turn influence how people work, communicate, and, without a doubt, play. To lean on Langdon Winner again: "Many technical devices and systems important in everyday life contain possibilities for many different ways of ordering human activity."[28] This notion can be seen as either empowering or restrictive, depending on the ideological perspective or the context of its use. In other words, technology can obfuscate a choice or seem to offer it. Video games are no different in this respect.

Such examples externalize what some media critics have known for quite a while: that interactivity, choice, and freedom constitute a Western technocratic myth of individual empowerment within and through the digital—all signs of social and technological utopianism. But it is power, not empowerment, which is inscribed into the technological dispositif, argues Dieter Mersch in the provocative essay "A Critique of 'Algorithmic' Reason."[29] Drawing on Fred Turner's book *From Counterculture to Cyberculture*, he goes on to highlight how the countercultural movements of the 1970s and, later, the 1990s misunderstood a computer as a tool of emancipation and counteroffensive against state control.[30]

As complicated and choice-rich as they are, video games may be also seen as infrastructures of predetermined choice actualized by the player. The richer the choice, the stronger the illusion of control and mastery over the system.[31] We may develop a feeling of control over the game and its

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outcomes, when in fact all we can do is perhaps join the "totalitarian" ludic structure—that is, a structure that exercises control over the unconstrained freedom of our imagination and association and maps it onto a neatly carved-out, rule-based cybernetic system.[32]

Another way to think about the controlling and measuring dimension of the computer is to look at its core—say, an Intel core. The central processing unit (CPU) is more or less a very precise clock generator, repetitively synchronizing its circuits' operations and oscillating a set number of times per second. For example, a 1 GHz CPU is processing at the speed of one billion cycles per second. A computer is a highly rhythmized machine. Likewise, digital play is a highly synchronic experience. Thinking media archaeologically, computer games are rhythms of human–machine communications. In other words, a cybernetic infrastructure of video games is a perfect example of a chrono system regulating our rhythms.[33]

We can rarely do everything that pleases us within game worlds, despite the marketing promises of the game developers and their belief in the godlike abilities of the programmers and game designers to summon virtual worlds into being. Adventure games offer their users incomparably less freedom than what was planned for the operators of Memex.[34] The closest approximations to that dream of freedom are sandbox or simulation games, whose rules are so derivative and emergent that they indeed simulate free choice or skillfully muddle the underlying rule set; and games such as *No Man's Sky*, which rely on random, procedurally generated game worlds—the supposed variety and diversity of the system itself and not of our doing within it. Friedrich Kittler's assertion that "media determine our situation" suggests that a game as a system determines gameplay or our capacity to control it.[35]

Mind the Mind–Body Gap

Perhaps one of the most interesting critical remarks related to the widely accepted view of interactivity as something unique to digital media, hypertext, and video games is that of *ellipsis*. In the cognitive sense, all preceding media are interactive, asking readers, viewers, or listeners to fill in the missing information. As an opening example, let us consider literature, usually juxtaposed to video games as the noninteractive sparring partner in the

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clichéd battle between narratology and ludology that never actually took place. Umberto Eco observes that

> any narrative fiction is necessarily and fatally swift because, in building a world that comprises myriad events and characters, it cannot say everything about this world. It hints at it and then asks the reader to fill in a whole series of gaps. Every text, after all, is a lazy machine asking the reader to do some of its work.[36]

Other examples point toward "missing" parts of objects in modernist painting, or moving the eyes—or even the whole body, when viewing sculpture or architecture—according to visual and auditory cues in visual arts or film. When understood literally, Manovich notes, interaction is equated with

> strictly physical interaction between a user and an artwork (pressing a button), at the sake of psychological interaction. . . . The psychological processes of filling-in, hypothesis forming, recall and identification—which are required for us to comprehend any text or image at all—are mistakenly identified strictly with an objectively existing structure of interactive links.[37]

As provocative as Manovich's remarks may have seemed in 1996, they are an echo of a much earlier theory of cognitive interactivity, one published eighty years prior on the cusp of a newly developing medium and the accompanying critical discipline that emerged alongside it. In *The Photoplay: A Psychological Study* (1916), the German psychologist and film theoretician Hugo Münsterberg developed an early conception of the relationship between film (photoplay) and its audience.[38] His was an interactive theory built around mental acts requiring a high degree of cognitive activity that occur while experiencing a photoplay: attending, remembering, and expecting. He also drew attention to the so-called play of association: "We may have associative ideas, which find their starting point in outer impressions."[39] We see a landscape on stage or on screen, and a myriad of our own subjective associations follows. Münsterberg juxtaposed this free play of association with a suggestion that is forced on the audience in the case of the preceding medium that is theatrical play: "If two men begin to fight on the stage," he remarks, "nothing remains to be suggested; we must simply witness the fight. And if two lovers embrace each other, we have to see their caresses."[40] Münsterberg regarded such highly *suggestive witnessing* as a passive activity; we remain "passive to the wonders which are unveiled through the imagination of the person in the play" as opposed to the subjective and thus active imagination of the film viewer.[41] For Münsterberg,

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viewing a complex collage of cinematic images set in motion required not as much of a passive capacity to witness as an active ability to process, interpret, and associate—in other words, the ability to fill in the missing gaps.

I do not aim here to argue for or against the interactive capacity of film. I would like to simply draw our attention to a recurring pattern in the way newly occurring media are perceived. With the invention of every new medium, we seem to land in the possession of a *medium-in-plus*. To work with the metaphor of memory rather than anticipation, in every medium the previous medium resounds; the content of the medium is always another medium.[42] According to this logic, *photo* + *play* builds on photography, and *video* + *game* builds on its immediate predecessor—the moving picture. Smitten by the uniqueness of newly arriving technologies, we seem to regard the "old" media as limited or less capable than the new, conditioned somewhat automatically by the uncontrollable speed of technological advancement and the belief in new technology's unique powers to equip us with more control. To quote Paul Virilio, "A higher speed eliminates all the others in the end . . . there are no more horses in the streets of Paris, and there will never be more horses."[43]

A similar medium-progressive narrative has granted the concept of interaction the power to define a new digital medium after cinema. If film was able to offer the spectator a cognitive sort of agency, a video game was supposed to offer a physical one, giving the player the capacity to influence or change the perceptible form of the medium. And this ability came with the invention of a machine very different to a film camera, a procedural and "smart" machine that could respond to human input in a meaningful way and, more importantly, be configured. A video game required a very peculiar type of machine that was allegedly capable of engraving the stream of consciousness in code and externalizing it on the screen. The hyperlink has become the physical instantiation or representation of the nature of human mental processes. This externalized mental structure has been conflated with liberty; the grand freedom of choice enabled or determined by the complex decision trees that underlie the narrative navigation through vast commercial video game worlds. "The cultural technologies of an industrial society—cinema and fashion—asked us to identify with somebody's bodily image. The interactive media ask us to identify with somebody else's mental structure."[44]

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Fantasies of Mastery

Technical things have political qualities; "they can embody specific forms of power and authority," Winner noted as early as 1980.[45] Computers and video games as technical things are not free of politics. Furthermore, the aesthetic of digital play is not apolitical. We should always see play as a meaning-making practice rather than an activity predicated by technology and based on a mastery of a purely technical skill. Video games privilege certain forms of control, fantasies of highly challenging technical mastery, a virtuosity exercised feverishly in the "man cave" during long hours uninterrupted by sleep or female intervention.[46] And all this despite a highly female-dependent herstory of hardware production. A very fitting example is the famous ZX Spectrum computer, produced from 1982 to 1992 by the Timex Corporation in Dundee, Scotland, where I spent a few crucial years teaching video game theory and design. Spectrums were assembled by the women of Dundee in the now long-defunct Timex factory. Even the Wikipedia entry for the Spectrum fails to credit the work of thousands of women who contributed to the expansion of gaming culture. Their story was not considered crucial enough in the technological grand narrative of gaming of the United Kingdom. The empowering hardware for interactive flashy software carried in itself the all-but-empowering endgame of its production. Mona Bozdog, a performance designer and media scholar who gave the female ZX Spectrum workforce a voice in her mixed-reality project *Generation ZX(X)* (figure 1.2), writes: "The ZX Spectrum has been highly influential in the careers of many developers across the UK while the labor behind it has remained mostly invisible."[47] To design the experience, Bozdog employed her own design practice of "storywalking," centered around walking as an aesthetic, critical, and dramaturgical practice.

As we have observed by now, the concept of interactivity brings with it critical and ideological baggage of all kind. It also carries a critical weight founded on the opposing figures of the gamer and the nongamer, more often than not a highly gendered divide. Until recently, most playable characters—as opposed to accompanying nonplayer characters (NPCs), such as the princess companion in *Prince of Persia: Sands of Time* or the sorceresses who provide assistance to Geralt of Rivia in the *Witcher* series—have been predominantly male, as has the archetypical figure of the gamer (recall the

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Figure 1.2
A participant "storywalking" the playful performance *Generation ZX(X)*. Courtesy of Mona Bozdog; photo by Erika Stevenson.

#GamerGate controversy of 2014). The fantasies of ludic control and interactivity are thus fantasies that do not necessarily empower all human subjects. They predicate rules of access and privilege a certain set of actors over others—as playable characters, as gamers, even as game developers.

To paraphrase Vinzenz Hediger, a film theoretician who asked much the same of cinema, it seems impossible to describe modes of play without regard for issues of identity politics.[48] If the gaze in cinema is male, so too is the fantasy of mastery in digital technology and video games. Many contemporary writers have problematized interaction, pointing toward a diverse body of play forms that contest the mainstream male fantasies of mastery. Some lead a direct argument around interaction, whereas others problematize mainstream gaming through alternate play forms and formats. Brendan Keogh, for instance, emphasizes that interactivity as such has been built on a masculinist hacker mythos celebrating control, challenge, and high effort as the main modes of interaction with technology and computer games.[49] The fundamental question resounds: Are there modes of engagement with video games and computers—besides highly operational

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rule-based performances within the game's system—that are partially dismissed due to their less interactive (or so-called feminine) nature?

Melissa Kagen sees wandering and walking as alternative and, at the same time, highly gendered modes of expression and experiencing of games. In her analysis of the game *Firewatch* and its playable protagonist, Henry, she emphasizes how "traditional games enable players to live out a fantasy of performing hypermasculine acts" while walking simulators rest on the ludological act of what may be called passive nonperformance.[50] In *Firewatch*, the player is left with little to do besides walking and communicating via walkie-talkie. The game's mechanic does not allow the player to fully control the game world through interacting with its objects, an expectation so common to most video games and one that Kagen frames as a "central tenet of hypermasculinity."[51] *Firewatch* is an example of a walking simulator, a game subgenre that exemplifies the so-called notgame or antigame, one that subverts traditional video gaming tropes and offers alternative ways to play. Such alternative means of play, where interaction with the game relies not on manipulating endless numbers of interactive objects or shooting enemies to gather experience points but rather on the exploration of the character's inner state while traversing the game environment, has been often dismissed as less active and thus feminine. Wandering as a primary game mechanic, Kagen argues, has been framed as a gendered practice, one that strips the player of their agency and games of their seemingly essential attribute of interactivity.[52] The emergence and greater acceptance of diverse forms of play coincides with the dissolution of the hard-core gamer identity.

Similarly, Bo Ruberg problematizes the mainstream video gaming narrative through their work at the intersection between games and queerness. They point to queer play as a mode of resistance toward traditionally male gaming paradigms. Throughout the years, they have developed a queer theoretical lens; one that goes beyond the issues of representation and sees the act of play as one that has always had a queer potential. The queerness of play practice is visible above all in its relationship to intention and time. In this reading, for instance, the well-known alternative play strategy of "speed-running" may be interpreted through a queer lens. Colloquially speaking, queer playing may be described as "playing the wrong way" or following one's own "logic of desire" while playing.[53]

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Beyond Operational Control

There are many diverse forms of play, including practices and designs, that do not necessarily foster action; on the contrary, they invite the player to watch, wait, and "feel the restlessness one feels while in a waiting room."[54] The interactive paradigm prevalent in a theoretical understanding of digital media and video games is predicated on the fantasy of control over a cybernetic system. It is an extremely operational and thus hypermasculine perspective that conceals all those other forms of playful engagement with technology. To talk of interactivity as the main aesthetic denominator in video games is to fall back on the old paradigms of digital liberation and male control.

Interactivity, promising a clean understanding of our place vis-à-vis technology (i.e., as almighty controllers and operators), further disintegrates in the age of smart machines, algorithms, and automated work processes. Outside of the world of video games, fantasies of empowerment, control, and mastery are dissolving. Perhaps it is more important to look for other ways to frame our engagement with and within the (game)world in more diverse ways. A video game, as the most prevalent art form of the digital age, has the potential to grant its players more diverse and equally engaging ways to perform, beyond those of interactors trapped in a reward-based Skinner box. Brendan Keogh makes a similar statement in his analysis of embodied play:

> It is no longer sufficient to evaluate video games on purely technological terms. It is not sufficient to differentiate video games from other screen media because of some unique possession of "interactivity" or ability to "immerse" the player. It is not sufficient to say that a videogame allows the player to choose what to do when a film does not.[55]

In many ways, I pick up where Keogh and other theorists mentioned in this chapter left off. In the chapters to follow, I will propose possible theoretical lenses and concepts that will allow us to see what may lie beyond interactivity and gendered operational control. I will take a closer look at such concepts as interpassivity, delegation, automation, ambience, intra-activity, and spectacle, all of which contribute to the understanding of the media aesthetic dimension of digital play.

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2 Interpassive Play

A Chinese (200 years ago or more)
Visited France and went to the ball.
And some asked whether he knew it?
Others whether he himself could do it?
"We call it dancing," replied he, nodding his head,
"But we have others perform it instead."
Theodor Fontane[1]

I am situated in a firelit room. The fire is roaring, and the room is hot. The wood piles up, so I use some of it to stoke the fire. A stranger shares the space with me. She can build things. I disregard her for the time being. Soon, a mysterious wanderer arrives with an empty cart and inquires about wood. Shall I give her one hundred logs and hope she will reciprocate the gift sometime in the future? I do not trust strangers, so I turn her away. The fire keeps roaring. The builder says that, in exchange for thirty logs, she can make a cart for carrying wood. The rickety cart will carry more wood from the silent forest surrounding the firelit room. I head off to gather wood there. The builder assembles one lonely hut, then another. In no time at all, a tiny village grows, attracting more gatherers. No longer do I have to worry about collecting the wood myself. The hut now stores 271 units of wood, and they continue to pile up.

The fire is flickering. The water is boiling. I am out of the game, taking a short break to brew a cup of tea. While I'm away, the log count increases to 3,203 and continues to rise. I come back to a warm, fully stocked room, and a few reports of noises coming from the storage area. The builder has stoked the fire. The gatherers have collected wood. The game has played

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itself, undisturbed by my absence. Occasionally, it reminds me of its existence as a notification flickers in my browser window. Disconnected from the micro-actions, I may choose to do something else entirely, tea-brewing being the least spectacular of many other possibilities.

The above passage describes a short gameplay session in *A Dark Room* (2013), a peculiar computer game belonging to the genre of so-called idle (incremental) games (figure 2.1). Also described as passive, self-playing, or clicker games, they are characterized by semiautomated gameplay, requiring only intermittent participation from their players. The initial stages of most idle games start with the player performing a simple task of clicking in order to gain more in-game currency (e.g., logs, coins, cookies, etc.), which in turn allows them to acquire items or skills that automate most of the tedious gameplay in the future. As the game unfolds incrementally, more options emerge and more tasks become automated. Idle games seem to have no end. They are the ludic *perpetuum mobilae* of the digital entertainment era. Ian Bogost refers to them as "on-going, never-ending affairs."[2]

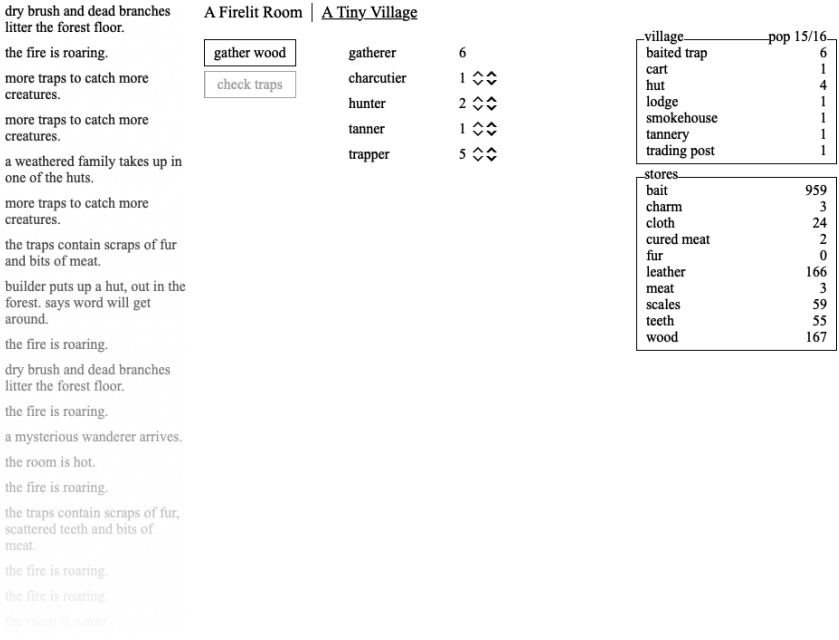

Figure 2.1
A Dark Room. Courtesy of Michael Townsend.

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Idling makes for a fascinating ludic phenomenon based on the capacity of digital media to delegate tasks to the machine, the algorithm, the game. This is not a new phenomenon, but it is with idling that it becomes noticeable as an actual ludic aesthetic, bringing the question of delegated pleasure into the spotlight. Idling, delegation, and automation have all become crucial components of engagement with digital media in times when the abundance of content is constantly calling for our attention. Having started as an ironic commentary on the highly repetitive act of "grinding" in massive multi-player online role-playing games (MMORPGs), idling turned into a separate game genre taken with utmost seriousness by its devotees.[3]

Idling may seem like a ludic paradox. In most digital games, the role of the human player is to actively participate in gameplay, and the role of the machine is to enable, sustain, and facilitate play; record its progress; and communicate the outcome to the player. How, then, are we to understand idling? How do we make sense of games that barely require human agency and effort yet ask for human attention? What are we to do with games that "we (mostly) don't play"?[4] In other words, when a game system grounded in self-referential looped lines of code generates an outcome with no input required, "how can we take pleasure in reported pleasure?"[5]

This chapter will address those questions, mapping out an alternative view of digital play by analyzing idling as a form of delegated play at a distance. Although there have been some preliminary studies into idling, the subject largely remains unexplored by the game studies community.[6] In the following paragraphs, I will engage with an idle aspect of play through the lens of *interpassivity*, a "little theory" revealing the nature of delegated pleasure.[7] I believe the aesthetic of interpassivity, developed first by Robert Pfaller (1996) and later expanded on by Slavoj Žižek (1997), sheds a completely new light on digital play.

Disclaimer: This chapter will not read itself; neither will it flip its pages automatically. In contrast to the subject and object of its reflection, it needs the reader's undivided attention and a trivial amount of hands-on participation to progress. Hopefully, you'll only put this book aside long enough to brew yourself another cup of tea, but if not, make sure to leave it in a crowded coffeehouse or share online so that it does not stay idle for very long.

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Idle Games

This niche game genre was brought to a wider audience in early 2015 in a *Gamasutra* article titled "The Rise of Games You (Mostly) Don't Play."[8] Idle games also gained worldwide recognition among game developers and players alike after Anthony Pecorella's talk at the Game Developers Conference, titled "Idle Games: The Mechanics and Monetization of Self-Playing Games."[9] They emerged as a satire of social games and an ironic response to the mechanics of progression in role-playing games based on leveling up, grinding, and gold farming, all repetitive and oftentimes laborious behaviors that allow players to reach new levels and thus advance in the game.[10] In idle games, grinding has become a core mechanic, around which the entire gameplay revolves.

The history of idle games purportedly begins in 2002 with *Progress Quest* (figure 2.2), an automated game that players have no effect on beyond initially "rolling" (or generating) the character and setting two

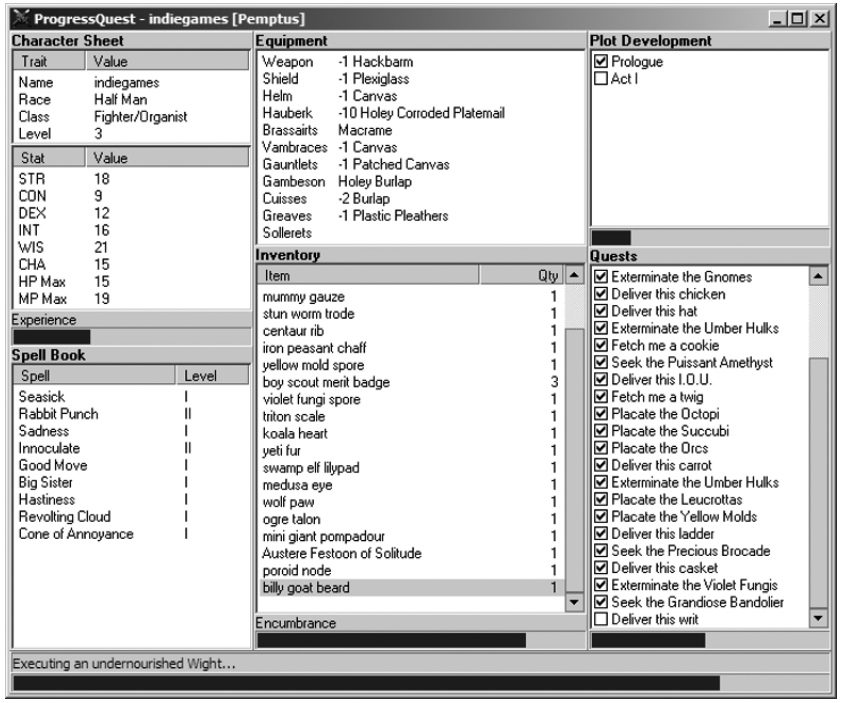

Figure 2.2
The *Progress Quest* (2002) interface.

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parameters—race and class. From then on, the game plays itself. After delegating the action of play, the player is welcome to enjoy the experience by watching, deriving pleasure from the systemic changes, or knowing that the game keeps unfolding in the background. *Progress Quest* is an ironic ludic commentary that juxtaposes highly interactive and choice-driven aspects of role-playing with fully automated operations performed by the computer. The progress bars, which often represent gaming achievements or indicate the state of the program (loading, etc.), instead become the indicators of the machinic act of play.[11] The game questions the active position of the player, putting them in the shoes of the observer instead. Is it still a game if it is played by the machine?

One of the most iconic parodies of grinding is Ian Bogost's *Cow Clicker* (2010), designed to satirize games like *FarmVille* (2009), which offer minimal—if any—meaningful challenges for players to engage in. *Cow Clicker* "distilled the social game genre down to its essence."[12] Although Bogost designed the game predominantly as a critique of "mindless" social games played on Facebook, its popularity rose despite the designer's early intentions.

Other titles followed, including *Progress Wars* (2010), *Godville* (2010), and *A Dark Room* (2013), among many others. One of the most prominent idle games was Julien Thiennot's *Cookie Clicker* (2013), which led to the popularization and commercialization of the genre. Idle games have even been used as outreach materials; for example, CERN, the European Organization for Nuclear Research, developed its own educational version, *Particle Clicker* (figure 2.3), in 2014.

The growing appeal of idle games and their wide accessibility was attractive to the gaming industry, which soon started to monetize the newly emerging genre. Self-playing idle titles are among the most popular games on Kongregate, one of the biggest online game portals, which claims to attract tens of millions of players each month. Idle games are also readily found on mobile platforms, such as iOS and Android. Many, such as *AdVenture Capitalist* (2014) and *Clicker Heroes* (2014), are later ported to Steam or gaming consoles. *AdVenture Capitalist*, for example, was released on PlayStation 4 in 2016—a surprising turn of events, considering that consoles and Steam are traditionally associated with "real games" rather than free-to-play clicker or social games.[13]

Producers of major console titles also began shifting their attention toward the idle genre. One of those companies was Bandai Namco, a

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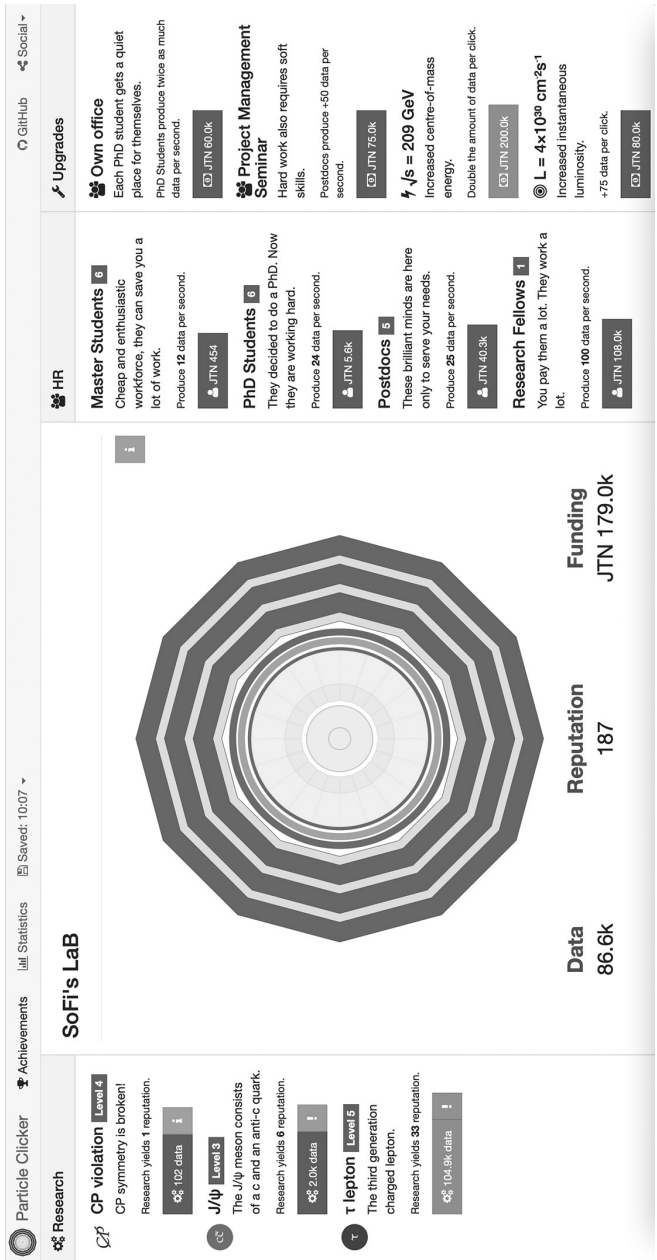

Figure 2.3
Particle Clicker (2014), developed by CERN.

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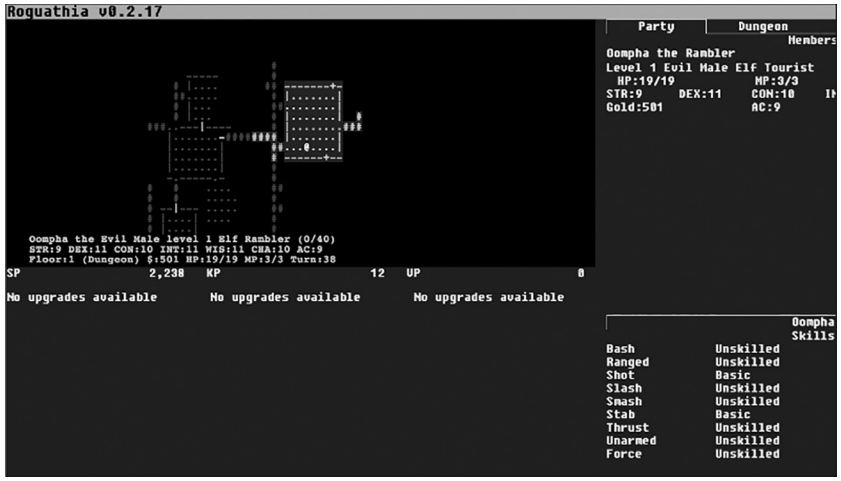

Figure 2.4
Roguathia (2017), an automated roguelike idle game.

Japanese game developer known for its PlayStation 2 title *Katamari Damacy* (2004). Encouraged by the growing market and appeal of "idlers," it released *Tap My Katamari* (2016), a spin-off for mobile platforms. *Tap My Katamari* is an endless side-scrolling game with a predominant clicker component typical of idle games. The game keeps playing while the player is away, amassing coins that the player can collect upon their return to the game world. These coins can be used to purchase upgrades and thus advance in the game.

Roguathia (2017) is an interesting example of a fully automated roguelike idle game (figure 2.4). Its aesthetic is reminiscent of early cellular automata, or the so-called zero-player games, the most prominent example being John Horton Conway's *The Game of Life* (1970). Conway's game was conceived to solve a mathematical problem posed by John von Neumann about machines that could reproduce themselves infinitely. The game is initially set up by a human, but beyond that, it requires no further input and plays on its own. Fully automated idle games, such as the aforementioned *Progress Quest* and *Roguathia*, emulate this genre in a social play context, displaying the pure mechanics of unfolding the system into a complex web of interrelations.

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Toward the Heart of Idling

Idle gaming is not only an effect of new monetization strategies but also, above all, a cultural and media phenomenon that forces us to renegotiate the archetypical category of "real games."[14] Idling began in the satirical peripheries and grew to become a significant part of the popular gaming landscape. But what lies at the heart of idling, and how do we theorize the phenomenon of partial externalization of gameplay onto self-playing systems? I see numerous paths to scrutinize the nature and appeal of self-playing idle games. Some of them include:

a) *The economy of attention* through a gameplay model that does not require constant presence from the players and hence treats their attention as a scarce resource.
b) *Recurring gratification* by means of rewarding the player even for moments of absence from the game.
c) *Compulsive gameplay* based on the behavioral model, seen on social platforms that encourage users to regularly check the status of their accounts.
d) *Elimination of drudgery* by automating and/or delegating all laborious and repetitive in-game activities.

The last point is particularly interesting within the context of the discussion to follow. It builds on early examples of idle gaming, which provided a critical commentary on grinding as drudgery in MMORPGs, where players have long relied on bots and macros to automate the most laborious parts of gameplay.[15] In idle games, too, routine activities may be "skipped through delegation."[16] And since the entire gameplay is stripped to those routine play acts, it may therefore be assumed that the enjoyment of the game is, to a great extent, delegated to "a technical device"—in this case, to the game's self-running algorithm.[17]

It may be, then, that the pleasant act of delegation of play is what lies at the heart of idle games. Idling may be perceived as a "falsely interactive" manifestation of an otherwise highly interactive practice—the player falls under the illusion of being active, while their true position, as embodied in the fetish of the self-playing idle game, remains passive.[18] If we expand on the elimination of drudgery argument with Žižek's distinction between "the Other taking over from the 'dull' mechanical aspect of routine duties, and the Other taking over from me, and thus depriving me of enjoyment,"

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we end up with idle games, depriving the player of large portions of gameplay.[19] This peculiar relation leads me to the core concept of this chapter: interpassivity.

The Aesthetic of Delegated Enjoyment

I would like to begin this section with a playful lyrical commentary, quoting the entire verse "Aber wir lassen es andere machen" ("But we have others do it instead"), written by the German poet Theodor Fontane and recalled within the context of interpassivity by Robert Pfaller. These witty punchlines clarify the muddy conceptual waters of delegated pleasure and provide for a great introduction into the paradoxical concept of interpassivity:

> A Chinese (200 years ago or more)
> Visited France and went to the ball.
> And some asked whether he knew it?
> Others, whether he himself would do it?
> "We call it dancing," replied he, nodding his head,
> "But we have others perform it instead."
>
> And the word still rings a bell,
> Remaining for all to retell.
> I stare at runs, I glare when others hunt,
> But when people turn to me and ask blunt:
> "Why don't you join? Why stand by side?"
> My reply is: "Everything goes with its own tide.
> Chasing luck. All this only but troubles my head,
> I'd rather others did it instead."[20]

The theory of interpassivity was first developed in the 1990s by Robert Pfaller and Slavoj Žižek in opposition to and as an inverse structure of the concept of interactivity, prevalent in the contemporary art discourse of the time. While interactivity assumed that the observers must act in order to complete the work of art, interpassivity relieved them not only from active creating but also from passive observing—"the artwork would be an artwork that observes itself."[21] In other words, whereas interactive media invite the observer to participate productively in their reception and take over parts of the artistic effort, interpassive media take the effort of participation away. Thus, media, supplying the very process of their reception, are referred to as interpassive.[22]

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According to the logics of interpassivity, pleasure is something experienced passively, and it may be passed over to other people or technical devices. As Pfaller explains:

> Interpassivity is delegated "passivity"—in the sense of delegated pleasure, or delegated consumption. Interpassive people are those who want to delegate their pleasures or their consumption. Interpassive media are all the agents—machines, people, animals, etc.—to whom interpassive people can delegate their pleasures.[23]

The prefix *inter-* is particularly crucial here, signifying a sort of transfer. In the case of interactivity, it is activity that is transferred from the product to the consumer (or from the work of art toward the audience). In the case of interpassivity, it is passivity that is transferred from the consumer to the product (e.g., a work of art that observes itself relieving the audience of this task).[24] As a typical example of an interpassive medium, Pfaller and Žižek refer to a video recorder, which watches a film for or instead of the observer while they devote their time to something else. Other examples referred to by Pfaller to illustrate interpassivity include the Tibetan prayer wheel, the Greek chorus in ancient theatre, and canned laughter in US sitcoms.[25] In all of those cases, the act of praying, the emotional catharsis, and the laughter are delegated onto someone or something else. Canned laughter is an interesting contemporary media phenomenon that leaves the TV viewer under the illusion that the laughter has been outsourced to a fictional audience. Another intriguing instance of interpassivity is the behavior of some intellectuals in libraries when they copy text from a book and go home with a sense of relief and satisfaction, as if the photocopier had done all the reading for them; "they literally play reading by means of the machine," which looks at every page in a linear process.[26]

The examples are numerous, some divided not only in terms of historical periods but also by the type of activity involved. The common denominator lies in the observer, who enjoys through the medium and may indulge in other activities at the same time. Interpassivity allows one to stay passive through the other:

> . . . to accede to the other the passive aspect (of enjoying), while I can remain actively engaged (I can continue to work in the evening, while the VCR passively enjoys for me . . .).[27]

The above interpassive situation leads to a crucial question—why does the observer, who chooses to observe (e.g., watch a comedy), find it relieving

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not to actively watch the film or laugh at it (in the case of canned laughter) but rather enjoy it through a medium of some sort? Furthermore, "why does the observer experience the relief from their own indulgence as pleasant?"[28] Or, in other words, "is enjoyment not something which, precisely, cannot be done through the Other?"[29]

In the case of an interpassive medium, the transference of pleasure may be (mis)perceived as one's own—we think we enjoyed the show or the game, but the Other (e.g., the video recorder, the bot, the automated game system) did it for us, or rather instead of us. In an interpassive situation, the subject degrades the Other to a pure instrument of their (non)pleasure. Such outsourcing or reversed "extension" no longer signifies extending the pleasure itself but rather leads to a paradoxical situation in which pleasure does not need to be experienced at all.[30] It is lived out by the interpassive medium.

Interpassive and Delegated Play

The concept of interpassivity, originally introduced within the context of art, has traveled into many other domains, such as media studies, film studies, and political science.[31] It has even arrived in areas as seemingly remote as marketing and business, as an analytical tool used to explain consumption patterns of ethical brands.[32] In video games research, interpassivity has remained virtually unnoticed. It has been merely sketched as an analytical possibility to understand the avatar–player surrogate relationship through the Žižekian interpretation of Jacques Lacan.[33] Pfaller's foundational work has been overlooked.

The peculiar playful practice of idling opens up possibilities for new conceptual frameworks to understand digital play. Idle games, as discussed here, epitomize the delegation of pleasure and embody the interpassive relationship between the player and the game. Games such as the aforementioned *Cookie Clicker* (2013), *Clicker Heroes* (2014), and *Godville* (2010) do something other than invite the player to an interactive spectacle where their participation is the necessary condition for the game to go on. Play emerges as a substitutive act—the player, represented by the automatic clicker algorithms, may take absence from the game. In the early stages of *Cookie Clicker* (figure 2.5), I willfully delegated the cumbersome task of cookie production to "Cursors" and "Grandmas." Having earned enough

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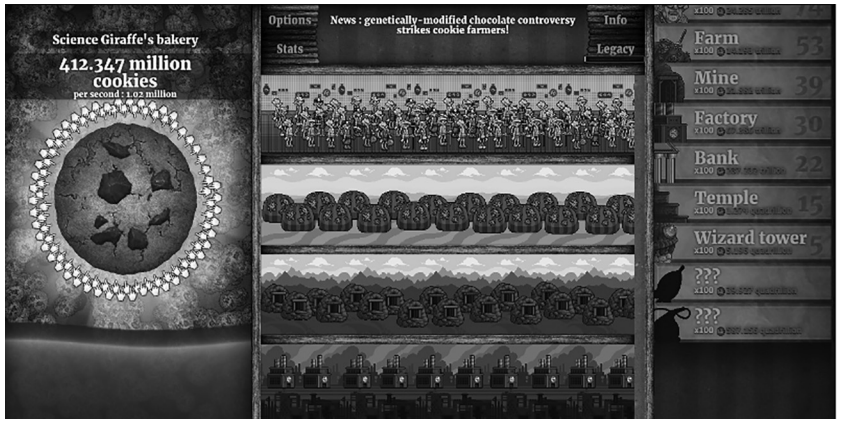

Figure 2.5
Cookie Clicker (2013).

cookie currency, I proceeded to set up "Farms," "Mines," "Temples," and "Wizard Towers" to further multiply my cookie realm. Every now and then, I come back to the game to unlock further upgrades, check statistics, and browse through my expanding collection of achievements. The random "golden cookie" boost encourages me to return to the game to increase the cookie meter and manually click alongside the automatically proceeding gameplay. The game may slow down without my presence, but it will not come to a halt. I flip between the tabs of my internet browser, constantly going in and out of the game. This intermittent interaction pattern, emerging as a result of delegated play, defines the active moments between automated gameplay sessions. The gameplay is reversed, as if the "load" screen were the actual game and the gameplay a moment to "wind up" or "load" the game.

In an idle game, the player's agency collapses in a subversive act of play delegation. The player makes an attempt to click themselves away from the responsibility of being the sole agent. Paradoxically, with every delegated click comes an enacted click of the player, and so the agency and nonagency dance in an endlessly unfolding embrace. In an idle game, the click—the most basic action that has defined computer use since the invention of the mouse in the 1960s—may no longer be associated solely with agency, activity and freedom. Instead, it becomes a sign of "human tragedy," of entering the game as a service prison from which one may never escape.[34]

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The click seems to have lost its empowering dimension, if it ever had one at all. Idling and self-play subvert digital games as entertainment forms that rely on active participants and engaged players. Interpassivity deconstructs interactivity-centered discourse and lays bare the illusory nature of interactivity.

Idle Machines, Idle Processes

Umberto Eco referred to text as "a lazy machine that demands the bold cooperation of the reader to fill in a whole series of gaps."[35] It is the reader who is supposed to take over the laborious task of interpreting the unsaid. A game, let alone an idle one, is all but a lazy machine. Idling in fact denotes a state of constant motion, happening in the background; a barely noticed chore executed in code.

Although idle games as such are a relatively recent playful form, they seem to revive a much older phenomenon of idling known already in the late 1980s. Within the context of Internet Relay Chat (IRC, an early instant messaging system), idling referred to leaving the client connected to a server while being away from the computer. This created an illusion of being present in the chat channel, and allowed people to stay connected while not actively conversing all the time. The way we interact within modern social media and communication platforms is very much based on such distant idle moments. The resemblance between idle chats and idle games is far more than a structural correlation or a rhetorical trick. Both fulfill the requirements of the current "attention economy," which sees attention as a resource to be managed and capitalized on. Such perspective encourages delegation of tasks, relinquishment of agency, and intermittent rather than continuous immersion.

We could trace the lineage of idling as far back as the barrel organ, which was played simply by rotating a handle in a cyclical motion, thus delegating the actual task of playing the organs to the "programmed" cylinder. To a great extent, the tasks of idle gamers resemble those performed by organ grinders. Both consist in delegating the otherwise highly absorbing and oftentimes complex activity of play to a machine, which needs to be "ground" in order to keep playing. Barrel organs are not a coincidental media archaeological association. They illustrate a continuation of a certain operational logic, extending from wooden or metallic cylinders, or,

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later, paper rolls encoded with musical notes to electronic circuits set in motion by lines of code. Circularity rests at the core of an electronic computer machine. It is also to be found in the programming architecture of all video games; for instance, in "game loops," which process inputs, compute new world states based on those inputs, and render the state before returning to the input phase. Regardless of the player's actions, the game executes the same instructions over and over again, preventing the program from ending after the first run. In other words, the game continues to operate in cycles without the player having to act. This phenomenon is well known to every gamer and has been described by the media theorist Alexander Galloway as an ambient act of the machine: "The ambience act is the machine's act. The user is on hold, but the machine keeps on working."[36] Idling, then, pushes the ambient act to the center, making it the primary component of gameplay rather than an easily ignored background operation. The game not only continuously renders the state of the game world until the player provides an input to bring this state forward but also runs through a series of states automatically until the player reappears in the game to perform an action.

From Interactive to Interpassive Play

In a recent take on cinema in *Die Künste des Kinos*, the philosopher Martin Seel has restored the significance of passivity, embracing "the passivity of the spectator as an important dimension of human existence and the cinema as the art form that activates passive side of human experience in an exemplary and comprehensive fashion."[37] Video games have found themselves in an equally ironic situation. Just as film theory embraces the passivity of its spectator, so too does game studies turn toward the sorts of pleasures that don't necessarily stem from the interactive character of the medium. We look at the roles that our bodily configurations play, how technology makes us feel, or why we find pleasure not in playing but in delegating play or watching others play instead.[38] The prevailing metaphors of players as controllers and operators, as discussed in chapter 1, are accompanied by other modes of play. Today, we are play chimeras, spectators, delegators, desire-driven subjects in interpassive game constellations.

Interpassivity provides a compelling perspective to look at computer games and digital play. It allows us to grasp the nonactive aspect of play and

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provides an interpretational path for genres and play practices such as zero-player games and idling, which otherwise leave us puzzled. This is largely because the heart of gameness is no longer defined through the kind of human–computer communication dynamics that situate the human player as an active agent in dialogue with technology: "Unless players have some agency to affect the outcome of a game and can intentionally exercise it, they are not really . . . playing a game."[39]

The concept also opens up thematic fields apart from idling—the usage of bots and macros in MMORPGs, for example, or the role of the player in movie games (or interactive movies), which rely primarily on cinematic sequences rather than pure gameplay; an iconic example of this genre is *Heavy Rain* (2010). An interactive movie may as well be seen as an interpassive game, which consists more of spectating, witnessing, and delegating than of enacting. From an interpassive perspective, the well-established and discussed "cutscene" may be interpreted as a delegated gameplay component in its own right rather than a disruption of an otherwise interactive experience or an embodiment of a visual narrative technique belonging to the previous medium; as Pfaller describes it, "an interpassive act . . . not only brings back a part of bygone pleasure, but constitutes a new, original one."[40] Finally, the recent worldwide practice of watching others stream their gameplay on Twitch.tv becomes much clearer when perceived through the lenses of delegation and interpassivity. Twitch broadcasting defines a ludic pleasure derived from looking over another player's shoulder. In all the interpassive examples of games, hands-on actors do not need to be the key figures of agency.[41]

Looking at games through the interpassive lens of play delegation may contribute to a deeper understanding of activity, passivity, the pleasure of gaming, and the role of the player. I would even go as far as concluding that, without interpassivity, we cannot fully understand all the facets of playful communication between the human and the machine.

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3 Ambient Play

> "Then she [the Machine] broke down, for with the cessation of activity came an unexpected terror—silence."
>
> E. M. Forster[1]

In 1909, some eighty years before the World Wide Web pervaded our daily rhythms 24/7 and server farms transformed the Earth's landscape, E. M. Forster envisioned a world in which humanity lived below the earth's surface, relying on a giant machine and being surrounded by its ubiquitous presence. In his short story "The Machine Stops," the titular protagonist constantly operates in the background, its humming guiding the citizens day and night and mediating in all their conversation exchanges. The machine is no longer regarded as a mere medium but as a techno-god praised and feared by the increasingly obedient humans. Life outside of the machinic embrace seems an impossibility, physical travel an extravagance, and original thinking an anomaly. Most ideas are collages echoing data previously filtered by the system. True enlightened knowledge is attributed to the machine: "Humanity, in its desire for comfort, had overreached itself. It had exploited the reaches of nature too far. Quietly and complacently, it was sinking into decadence, and progress had come to mean the progress of the Machine."[2]

Forster's machinic agent is a very accurate allegory of today's ambient networked media.[3] To provide for ambient experiences in a culture ever hungrier for nonstop connectivity and affluent data generation, a new form of ubiquitous computing is underway, one that illustrates the transformation "from computers we actively use to computing resources increasingly acting in the background for us."[4] We could say that ambience is inscribed in the very materiality of the data-driven computational medium.

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As contemporary digital users we are particularly exposed to the ubiquitous "surrounding influence" of media, although the phenomenon has been observed in earlier media formats as well. Radio and television provide good anecdotal examples here. Both used to be listened to and watched in a focused manner, serving as mediatized fireplaces, often bringing families and smaller communities together for a limited and time-bound broadcast; recall the so-called television parlors of the 1930s, which united dozens of viewers to experience a public spectacle. With time, the consumption patterns have evolved, and both media have receded into the background, seamlessly accompanying listeners and viewers in their other daily activities as ambient spaces of surrounding ubiquity. In reaching a state of maturity, it seems, media tend to migrate from the foreground to the background of our cultural consciousness. Wendy Chun explains this transformation in terms of *habituation*: "Media matter most when they seem not to matter at all; when they have moved from new to habitual."[5]

In many complex ways, digital playing has evolved into just such a habitual act. Practicing gaming through hours of feverish repetitions transforms some of us from conscious into semiautomatic players whose bodies become attuned to the rhythms of the games.[6] Technology's habituation operations extend into human habits of clicking, updating, sharing, liking, and browsing, many of which happen seamlessly, barely noticed.[7] In some cases, habitual acts are delegated to the game's algorithms, as shown in the previous chapter on interpassive play and idle games. Larissa Hjorth and Ingrid Richardson, the authors of the monograph *Ambient Play*, notice how digital play (particularly when combined with the use of mobile technology) affords "diverse modes of engagement from distraction to the habitual."[8]

Despite its habitual character and reliance on ambient computational media, video gaming is usually regarded as a foreground activity, requiring undivided attention and almost uninterrupted action from its audience. And yet, alongside highly focused gaming practices, other digital play formats and habits have been emerging. Surprisingly, many gameplay sessions are enjoyed at a slow pace, from a distance, indirectly, or intermittently; that is, on an on-and-off basis, while other activities are taking place. Think of such ludic practices as aimless wandering (theorized by Melissa Kagen in her latest monograph *Wandering Games*[9]), observing, or letting the game run in the background like a Tamagotchi might. It is those diverse ambient

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play rhythms that I want to take a closer look at in this chapter. I would also like to note here that I consciously decided to write about ambient play as opposed to ambient video games. As I understand it, ambience is not a characteristic of a specific video game genre but rather a possible mode of experience. That is why ambient play may be found within walking simulators, idle games, independent titles, and major franchise releases such as *The Legend of Zelda: Breath of the Wild*.

In an attempt to carve out an ambient aesthetic of digital play, I will introduce two interconnected types of ambience: *operational* and *affective* one. Operational ambience can be understood as a media function, whereas its affective counterpart is framed within the concepts of atmosphere and mood. But before delving deeper into video games, let us take a short stroll through ambience as perceived in a variety of other media.

Ambient Media and Background Aesthetic

The conceptual origin of ambience is difficult to pinpoint. Erik Satie's looped piano music of the 1890s and "Furniture Music," written for the Muzak Corporation in the 1920s, tend to be mentioned as the precursors of ambience in the domain of sounds. It was Brian Eno's album *Ambient 1: Music for Airports* (1978), however, that brought the concept into popular discourse. Ambient music was supposed to be "as ignorable as it is interesting," accommodating many levels of listening attention without enforcing one in particular, as well as inducing calm and allowing space to think, to put it in Eno's words.[10]

The genre was also practiced outside of Europe. For instance, in Japan in the 1980s Hiroshi Yoshimura's released his first ambient album *Green*. His other records were

> interwoven with the burgeoning wealth of corporations in '80s Japan. *AIR*, released in 1984, was produced for the cosmetic company Shiseido, imagined as a sonic equivalent to one of their fragrances (it surely smelt of pine and rain), while *Surround*, released two years later, was designed to be played in the model homes of the Misawa Home corporations.[11]

In recent years, sound ambience has been influenced more and more by the use of algorithms. The popular music platform Spotify, for instance, quantifies the listener's taste by collecting data regarding their music choices and using that data to suggest new songs and artists that the listener may

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enjoy. This pattern-driven content optimization has transformed the way that we listen to music, from seeking out specific albums, artists, or songs to streaming content algorithmically based on user preferences.[12] The application Endel takes the algorithmic turn even one step further. At its core lies "Endel Pacific," a nebulous AI- and data-driven technology responsible for generating personalized mood environments, which are supposed to reduce stress, improve sleep, and boost productivity.[13] As opposed to Spotify, which collects user data reflecting music choices, Endel attempts to provide a holistic user profile by tracking raw data from other active devices. The ambient sound experience is supposed to fit into a wider mood context, adapting to the time of day, the weather, the user's heart rate, and the user's location while the app is in use. Endel sees itself as more than a product—in their online manifesto, the software is presented as a "tech-aided bodily function" that will reshape our collective future. This cultural and technological move from the old into the new is stamped with a quotation from the Canadian media theorist Marshall McLuhan: "We approach the new with the psychological conditioning and sensory responses to the old."[14] The creators of Endel want to go beyond the old way of listening to musical content and instead offer soundscapes, which would have the power to provide an optimal personal environment depending on the situational, locational, and emotional context.

Endel's techno-bodily vision of sound seems to rely on a certain interpretation of ambience—what the Brisbane-based sound artist Luke Jaaniste refers to as a mode of "being-in-our-surroundings," attuning to the "all-around-everywhere materiality."[15] Since the sense of hearing is multidirectional, its predisposition toward an enveloping kind of aesthetic seems a natural fit. We are not Argus-eyed, like the many-eyed giant from Greek mythology, but Argus-eared: "We hear instantly anything from any direction and at any distance within the very wide limits. . . . Whereas the eyes are bounded, directed and limited to considerably less than half the visible world at any given moment, the ears are all-encompassing."[16]

Despite the strong ambient predisposition of sound, vision-driven ambient forms also pervade the media landscape. Visual arts, film, television, and even literature often "act" as surrounding media, fading in and out while we're busy doing something else. In *Ambient Television* (2001), Anna McCarthy explores the pervasive dimension of television, going beyond the common understanding of it as a household fixture. TV monitors are to

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be found all around us: in bars, shops, and waiting rooms; at airports and sporting events; and in a variety of work spaces.[17]

The Ambient Literature project poses a similar question regarding how pervasive and ubiquitous computing has altered the aesthetic of reading.[18] The project's website curates literary works that manifest alongside our daily routines between the ethereal and the magical, oscillating between foreground and background of postphenomenological experience. Ambient literature "welcomes the world into itself and extends itself out into the world."[19] To paraphrase the authors of the project, it engages within a wider paratextual world, extending beyond the materiality of the written word.

The resurgence of interest in ambience covers many fields, theoretical and applied alike. Even hardware manufacturers have responded to the ambient "hype." Ambient mode is a feature meant to merge Samsung television sets organically with living spaces, allowing the TV screen to blend into its environment. Amazon's voice-controlled "smart" speaker Alexa is perhaps the most tangible commercial manifestation of the enveloping aesthetic. Placed in our living rooms, bathrooms, and bedrooms, it constantly operates in the background, listening for potential commands to play favorite tunes, browse the Internet, or read emails. It is seamless and seeming; harmoniously blending within its surrounding and creating an illusion of absence—or rather presence—on demand.

Ambience is quite an ephemeral concept. It can denote varying phenomena depending on the specificity of the medium. In optical media (television, graphic displays), it is often concomitant with being physically surrounded by screens and imagery that have the capacity to create a certain atmosphere; for example, the relaxing influence of smoothly changing lighting in a sauna or an airplane cabin. In literary texts, ambience may manifest itself in terms of intertextuality; that is, the huge network of associations and references a given text is capable of generating outside of or within itself. Computational media are different. They are not only capable of producing representational ambience (through imagery, association, or physical presence) but also, and more importantly, they trigger what I propose to call *operational ambience* (through algorithmic background operations).

As this chapter will argue, digital media cannot be fully understood without taking into account their ambient—pervasive and all-surrounding—character. We could go even further by assuming that ambient media produce a very different type of aesthetic: the "background aesthetic,"

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which remains in contrast with the traditional aesthetic experience.[20] While the latter requires the audience's undivided attention toward the aesthetic object, background aesthetic relies on experiences of dispersion, distribution, and distraction.

Video Games as Surrounding Media

Despite the fact that games are a native ambient medium, relying on background operations and constantly processing and computing data, they have remained a relatively underexplored and underrepresented topic within ambience-related discourse. The very few attempts to pin down ambient play have predominantly focused on pervasive gaming practices (transmedia and augmented reality), which combine the virtual with the real, creating a dispersed experience and pervading into the otherwise non–play-related spaces.[21] In many ways, the concepts of gamification, ludification of culture, and the interference of work and play—extensively discussed in media and game studies—are all connected to the ambient character of digital play.[22] Paolo Ruffino's attempt to see self-optimization applications as "games to live with" exemplifies their ever present and surrounding dimension.[23] More recently, Larissa Hjorth and Ingrid Richardson have studied ambient play within the context of mobile gaming, grounding their work in an ethnographic analysis of actual play practices of selected media users.[24] For Hjorth and Richardson, ambient play expresses the all-pervasive character of games and playful media, which become inherent parts of our everyday media routines. Ambience captures the constant movement between the digital, material, and social worlds.

What interests me within the context of ambience is how it allows us to open up entirely new avenues to study digital play and gaming. In the following two sections, I will discuss a variety of video games and play practices, offering two interpretations of ambience—operational and affective—already described in the introduction to this chapter. The first interpretation relies on background operations, which are, to a large degree, executed automatically by the gaming algorithms rather than the human player. Here, we are dealing with ambience as the operational quality of computational media. I want to find out how the current ambient computational infrastructure determines play and to what extent it transforms the aesthetic experience thereof. Affective ambience, by contrast, denotes

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a relaxing practice of slow play manifested by, for instance, wandering aimlessly in the game world, contemplating its surroundings rather than engaging in structured or competitive gameplay practices such as hardcore gaming, speed running, or highly rhythmized professional gaming. It can also characterize sensory engagement with soothing software (self-care, meditation, and ambient music game applications). Slow play may be regarded as a reaction to the ever-present bombardment of digital stimuli and a way to carve out spaces to think and contemplate within the oversaturated digital sphere.

Operational Ambience: Background Operations

Imagine yourself sitting firmly at an office desk, drowning in a sea of incoming and outgoing emails and flipping between a dozen active browser tabs and program windows, all the while half-consciously engaging in a few WhatsApp chats with friends, skimming your Facebook newsfeed, and navigating the endless array of news alerts and push notifications filling up your mobile phone's already overcrowded screen. Occasionally, you find yourself staring at a colorful screen that displays a pixelated character traversing a fantasy world, with notifications obediently reporting when a monster has been killed. At this point, you may be asking yourself, "How is it even possible to squeeze gaming into an already overwhelming amount of screen time?"

This is an average hypothetical scenario that might apply to players of *Dreeps* (2016), an RPG-inspired semiautomated mobile "alarm playing game" (figure 3.1) that requires the player to do little more than set an in-game alarm clock to wake up the player character and have them embark on a journey. While the player is busy at work, the game's character traverses fictional worlds, slays monsters, and "lives" a life of their own. The player may lurk into the game at any time to observe the in-game world and watch the character progress independently. In the evening, the game is metaphorically and literally put to sleep, and the player sets the alarm clock again so the "robot boy" character can continue his adventure in the morning. As the designers themselves state, *Dreeps* is an RPG for those who don't actually have time to play:

> You can have a look at the adventure on the phone put on your desk while working, during snack time, just enjoy the game at your pace. If you woke up with

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Figure 3.1
A screenshot from *Dreeps*. Courtesy of Daisuke Watanabe, Hisanori Hiraoka, and Kyohei Fujita.

dreeps, the adventure will automatically continue as long as the robot boy has enough HP, even if you don't open the app.[25]

Playing *Dreeps*, one cannot escape the impression that it is the latest ludic incarnation of the Tamagotchi, a digital toy created in Japan in the 1990s, the main difference being that the robot boy does not require constant care and will not die if left unattended. The constant attention and care has evolved into an intermittent attention model devoid of the responsibility to keep the game "alive." To care is to focus, even if only on a periodic basis. Playing *Dreeps*, we can de-focus, de-charge, and relax without feeling under constant pressure to perform.

Another short example that illustrates operational ambience involves David OReilly's open-ended simulation games *Everything* (2017) and *Mountain* (2014). In *Everything* (figure 3.2), the player can do everything and, at the same time, does not have to do anything at all. The game invites the player to a sandbox-like exploration of its universe, giving them the possibility to step into the shoes of every creature possible: "I am Rock Planet, small and grey. Soon I am Sun, and then I am Lenticular Galaxy. Things seem a little too ordinary, so I pull up a menu and transform my galaxy into a Woolly Mammoth. With another button I multiply them. I am mammoths, in the vacuum of space."[26] If left unattended, however, the game starts playing automatically: "One might let *Everything* play in the

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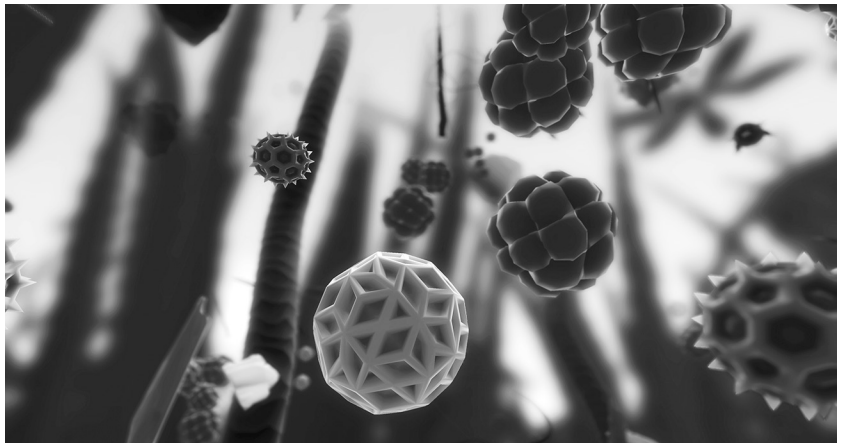

Figure 3.2
A screenshot from *Everything* (2017). Courtesy of David OReilly.

background while doing other things, letting it be an ambient aquarium of universes."[27]

Everything appears to be an elaboration of ideas first presented in OReilly's previous simulation game, *Mountain*, which the author himself describes as a "Mountain Simulator, Relax em' up, Art Horror" (figure 3.3). Although it may serve as a spectacle to be attentively observed by the player, it is designed as a semiautonomous system to be run as a background game alongside other applications the user may be operating in parallel in the foreground.

Upon starting the game, the player is asked to draw responses to a series of word associations, such as child, birth, or logic. The game then generates a version of a mountain modeled on the player's drawings. The mountain hangs suspended in midair and every now and then attracts new objects. The game's interactivity boils down to rotating the view, zooming in and out, or pressing random keys on the keyboard, which turns into an instrument. None of these actions, however, affect the mountain in any way. Occasionally, a few words of wisdom appear in the left upper corner of the screen: "I've had dreams about this day of days" or "I'm digging this night of nights." Although the independent game scene has seen many other low-interaction games (or "notgames") in the past years (such as *Proteus* or *The Graveyard*), none of them have removed the active role of the player to the extent that *Mountain* has.

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Figure 3.3
A screenshot from *Mountain 2.0* (2018). Courtesy of David OReilly.

Dreeps, *Everything*, and *Mountain* are not the only games that facilitate ambient play. Due to their self-playing and semiautonomous modes, however, they illustrate operational ambience particularly well. By offering the possibility to remove the human player from the gameplay loop, they sink into the background, still performing the necessary background operations should the player wish to return to the game as its agent or spectator. Each games employs different game mechanics and gameplay dynamics to achieve the ambient effect. *Dreeps* and *Mountain* require an initial setup before taking over as self-playing role-playing games, but *Everything* surprised its players by continuing its ludic operations even after the game controller has been inactive for a few seconds. All the three titles playfully subvert the "conventions of challenge, action, and interactivity."[28]

From a media theoretical perspective, every video game, regardless of its autonomous or semiautonomous mode, relies on a number of ambient processes. As instances of digital software or playful simulations, video games are defined by background processes, which most of the time run unnoticed behind the scenes. For me to control the player character and, say, jump from one platform to another, as in *Super Mario Bros.*, the program needs to execute a series of commands that are initiated by my action. Another example may refer to the noninteractive elements of the game, such as the graphics themselves, which are displayed on the screen for me to see but are in fact being continuously rendered by lines of code that

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determine the conditions and properties of the objects shown. The game itself can also run as a background process on the computer. This meta-ambient state is usually described as an undesired technical problem by the users who cannot force their application to launch, while still seeing it running in the background in their operating system's task manager. The game is recognized by the operating system as a process, but the player is unable to interact with the application.

Affective Ambience as Slow Play

As noted by Paul Virilio, we are living in an era of "dromocracy," in an age of acceleration.[29] The world around us is speeding up; faster cars, faster broadband, faster lifestyles. Companies are overtaking one another in delivering new versions of the same old smartphone or laptop. Gaming consoles are marketed based on their increasingly more efficient computational capacities. As technology accelerates, however, many players seem to feel the need to decelerate. This trend is reflected in a slow approach to design, one that would limit the player's or user's agency in ways that promote a more contemplative mode of engagement.[30] In their work on *Slow Technology*, for instance, Hallnäs and Redström argue that the increasing availability of technology in environments outside of the workplace requires interaction design practice to be expanded from creating tools to make people's lives more efficient to "creating technology that surrounds us and therefore is part of our activities for long periods of time."[31] Slow technology incorporates a design agenda aimed at inverting values of efficient performance and emphasizing creating technologies that support moments of reflection, mental rest, slowness, and solitude. As computers are becoming more ubiquitous, they turn from being tools used in specific situations to continuously present assistants enveloping their users in their everyday rhythms, such as speech recognition algorithms built into our smartphones or meditation apps like Headspace. At the beginning of this chapter, I mentioned *envelopment* as a characteristic of sound; this time, it reappears as a design term, contrasted with that of *development*. Envelopment allows for a deeper understanding of technology design, going beyond its immediate use to solve a concrete problem or meet an objective. Enveloping design is more holistic, allowing mapping an expressional landscape.[32]

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One example of this idea is illustrated by the science-fiction romantic drama *Her* (2013). Its main character, Theodore Twombly, is accompanied in his daily life by a personal virtual assistant, Samantha, who no longer performs the tasks of a mere operational system but rather envelops Theodore's life in ways that make the border between a "smart" program and an organic life companion almost indistinguishable. Like the smart algorithm behind Amazon's Alexa, Samantha is always there, present in the background, ready to offer information or advice at a moment's notice. Gradually, in Theodore's eyes, she transforms from an assisting technology to an object of deep affection.

Another way to grasp slowness in technology is to focus on its ubiquitous calmness, or what Paul Roquet names "the aesthetics of calm."[33] Roquet's work is embedded within the context of Japanese culture and its use of mood-regulation technologies as modes of self-care and healing. He looks at ambient music, film, video installations, and—as paradoxical as it may seem—literature. "Like ambient music," he writes, "ambient literature is an artistic response to the demand for transposable calm. Ambient literature rethinks the novel as a mood-regulating device."[34] An ambient novel is supposed to exert a calming effect on its readers by building an enveloping space around them and providing a nurturing, safe, and predictable space to think, while at the same time guarding its "drifting readers" from the intense seriousness of their everyday lives.[35] Ambient media in general provide deep affective experiences that have the ability to induce calmness amid the instability and uncertainty of contemporary life.

The ambient aesthetic of calm extends beyond the borders of any single national culture or region, Roquet writes, and I would argue that they extend beyond the borders of any single medium as well.[36] Soothing and tranquility-inducing qualities can be found in video games, despite the fact that they are more often associated with the military–entertainment complex or optimization strategies than with calming environments.[37] Such associations, however, fail to acknowledge video games as deeply affective spaces, or what Aubrey Anable calls "affective systems."[38] Their architecture may exert as calming and enveloping an effect on players as ambient literature does on its readers. Although ambient and calming literature is often characterized by an easy reading style and safe, everyday settings known to its readers, comfort and safety may also be achieved within ludic spaces, whether by limiting the player's agency, using calming and ambient

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soundscapes, or making use of the enveloping character of computation—letting the game play in the background, seamlessly assisting the player in their everyday rhythms.[39]

Many video games and play styles speak to this vision of slow and calm digital technology. The game worlds of *Abzû* (2016), *Dear Esther* (2012), *The Legend of Zelda: Breath of the Wild* (2017), and *Tiny Bookshop* (2021) all address the slow turn in different ways. The first two examples are especially interesting because they remove the element of direct challenge, metaphorical death, and the well-known "game over." By doing this, they present the players with game worlds devoid of simulated uncertainty—typically a defining quality of video games.[40] The easy playing style of walking simulators, affective games, and other so-called notgames is a fitting ludic illustration of Paul Roquet's argument regarding the ambient, easy-to-read style of Haruki Murakami's novels.

Abzû is a video game that follows in the footsteps of *Flow* (2006), *Flower* (2009), and *Journey* (2012), all deeply meditative titles with a rewarding gameplay experience that stems from moments of contemplation combined with calming gameplay rhythms and a relaxing sound layer (or, in case of *Journey*, an extremely minimalistic one). *Abzû* begins by inviting the player to dive underneath the surface of a boundless, blue ocean glittering in the sunshine. A few gentle notes from the bassoon merge with the ambient sounds of marine life as the player plunges deeper into the sea. The game's musical score, an ethereal suite of choral and orchestral music, conveys a mystical (and occasionally unsettling) emotional tone and sets a calming rhythm of play. Although *Abzû* does involve faster-paced moments where acceleration and swift turns are necessary to avoid enemy objects, most of its gameplay resembles a meditation session or a cathartic dance. In this case, meditation is not only a metaphor for gameplay; *Abzû* actually allows the player to choose from twelve meditation modes. As players discover meditation statues in the game, the corresponding meditation zones are unlocked in the main menu and may be accessed independently of the main game. In those moments, *Abzû* morphs into affective meditation technology. While in meditation mode, players can observe schools of fish and move the camera around to explore their surroundings, but they cannot actively exert influence on the surrounding world. Immersed in the audiovisual spectacle of the environment, players can simply let go and follow the ambient rhythm of the game. *Abzû* is a game that could just as

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well be referred to as a mood medium, one that doesn't mediate between two states so much as surround the player the way air does.[41]

Dear Esther, the progenitor of an entire genre of games known as walking simulators, literally slows the player down by stripping the interactive experience to its minimum: walking. You cannot run, jump, or increase your walking speed at all; even picking up objects, one of the most common interactions in first-person adventures, is not an option. All players can do is choose a direction to walk in as they drift through the atmospheric game world, contemplating the melancholy surroundings while listening to the narrator. Most of the game happens in the player's head as they contemplate the game world or their own thoughts while wandering around the island. Slow walking as a central mode of experience evokes the Romantic figure of a *flaneur*, the archetypical nineteenth-century urbanite who could be found strolling along the boulevards of bustling modern cities such as Paris and Berlin, observing the pace of life from a distance as though refusing to succumb to its rhythms. Digital wanderers, just like nineteenth-century flaneurs, pass through the game world at their own pace, leaving no trace of their existence.

The Legend of Zelda: Breath of the Wild offers the player a vast open world to explore and interact with in seemingly endless ways. Cooking illustrates the complexity of the emergent gameplay awaiting the player. In the game, Link can use cooking pots found across the landscape to cook meals that restore his health and stamina and concoct elixirs that give him buffs such as heat and cold resistance or improved stealth. Almost anything that can be picked up, hunted, fished, or foraged may end up in the cooking pot, and there is hardly a prescriptive way of mixing the ingredients. Despite the highly complex and interactive world, *Breath of the Wild* provides enough space for calm solitary moments, strolling through the high grass, listening to the wind or getting lost in the vastness of the world. In the "Rise of an Ambient Video Game," Lewis Gordon describes *Breath of the Wild* as sensory soothing software: "In the evening I sit on the couch, letting the colours and sounds of the digital world wash over me, allowing my brain to slowly decompress. It's a relaxation activity that slips nebulously into self-care, the video game equivalent of putting an ambient record on."[42]

Many other games not mentioned in this chapter tap into the ambient slow experience, especially the genre of "cozy" games, or self-care and meditation games such as *Zen Koi* (2016), which rewards the player's

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engagement with calm gameplay, a soothing aesthetic, and a minimalistic, relaxing soundscape.[43]

The final example I would like to mention within the context of slowness is *Tiny Bookshop* (figures 3.4 and 3.5). This wonderful playful experience was developed by two students of the Cologne Game Lab, David Wildemann and Raven Rusch. The game was originally conceptualized as

Figure 3.4

Figure 3.5
Screenshots from *Tiny Bookshop*, a game project developed by David Wildemann and Raven Rusch, two students at the Cologne Game Lab.

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a playful interpretation of anticapitalist or postcapitalist bookshop management. Instead of multiplying the profits from book sales in the town of Bookstonbury, the player is encouraged to enjoy the ritual of stocking up books and watching the NPCs visit the bookshop caravan. Occasionally, the player can engage in dialogue and diversify the slowly progressing gameplay by reading the local *Bookstonbury Review* newspaper or customizing the caravan. The slow-paced gameplay is accompanied by gentle background music, which sets the tone for the relaxing experience.

Slow play is a manifestation or a strategy of living and playing in an age of speed. It creates pockets of stillness in the endlessly accelerating digital everyday. The desire for slow ambience may be interpreted as a defense mechanism against overstimulation; in other words, a "coping mechanism for life under neoliberal capitalism."[44] Slow technology in general, and slow play in particular, promotes moments of reflection, calm, and rest in rapidly changing environments.

Homo ludens as *Homo distractus*

Similarly to other ambient media, some video games neither sit in the foreground asking for our full attention nor do they completely melt into the background. They float "between irrelevance and relevance," allowing perception to be dispersed, distributed, or undirected.[45] This dispersion questions traditional views on video game aesthetic, which assume that the player is supposed to pay close attention to an aesthetic object and its surroundings. Ambient play seems to have little to do with a fully immersive gaming experience. It does not require an intense and deep focus from its players, who plunge into the game world only to come out of it the next minute should the need arise.

This immersive/emersive rhythm feeds off of our intermittent, distributed, or what Wolfgang Ernst calls "selective" attention, which has been well trained and conditioned by digital networked media.[46] Think of your behavioral patterns each time you use your mobile phone, connected 24/7 to the Internet and social media such as Facebook, Twitter, and Instagram. They all "live" and compute while you're away, and each time you come back, they rewards you with likes, newsfeed updates, and all sorts of other content.

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In the so-called attention economy—based on the capital-centric assumption that time is money—attention (and the time spent on "paying" it) is a key resource. Clickbait, memes, and social media content flood users with new information snippets at an unprecedented scale, "too massive for human cognition to fathom."[47] Play is not free of this compulsive logic. Mobile social gaming is a good illustration of the attention economy infrastructure. Games such as *Farmville* and the like concentrate on one simple act: the click. It needs to happen in regular intervals so the player is lured into sustaining the rhythm of the game. This habitual behavior is ensured by appointment mechanics—short-term, time-sensitive goals (water your crops, feed your animals, collect your daily reward, etc.) that condition compulsive behavior in a player. And compulsion is said to be one of the main characteristics of a modern human, also referred to as *Homo distractus*.[48]

Following into the footsteps of the research on reading patterns done in digital humanities and comparative media studies, we could also argue that ambient play relies more on what is known as hyper attention than close attention.[49] Where the first cognitive mode is characterized by "switching focus rapidly among different tasks" and "seeking a high level of stimulation," the latter is associated with the ability to concentrate on "a single object for long periods (say, a novel by Dickens), ignoring outside stimuli while so engaged)."[50] Close reading, the traditional mode of interacting with a written text, requires focus and deep attention and thus has been challenged by the hyper reading techniques triggered by the introduction of the hyperlink. Similarly, the close playing typical of traditional video games requires a strict level of attention, whereas mobile and ambient playing utilizes our hyper attention instead.

The attention problematic appeared long before the arrival of digital media. In his acclaimed essay on the work of art in the age of technical reproducibility, Walter Benjamin analyzes film and architecture as media of distraction. He places them in opposition to visual art, which, before the Dada movement, used to require and support a concentrated mode of experience. Benjamin juxtaposes distraction (*Zerstreuung*) to concentration:

> Distraction and concentration form an antithesis, which may be formulated as follows. A person who concentrates before a work of art is absorbed by it; he enters into the work, just as, according to legend, a Chinese painter entered his

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> completed painting while beholding it. By contrast, the distracted masses absorb the work of art into themselves. Their waves lap around it; they encompass it with their tide. This is most obvious with regard to buildings. Architecture has always offered the prototype of an artwork that is received in a state of distraction and through the collective.[51]

For Benjamin, the contemplation–distraction dialectic not only emerges out of specific media but also is tied to social class. Whereas the bourgeoisie contemplates art in a focused manner, the proletarian masses distract themselves by attuning to visual shock effects (i.e., constant changes of scene and focus) characteristic of film. Digital ambience, however, also opens up the possibility of experiencing media content in a state of distraction. As media users, regardless of social class, we are exposed to works of digital art, which no longer happen before our eyes but rather progress silently in the background, conditioning a fragmented mode of experiencing the world. The shift in camera focus transforms into changes of human focus.

Architecture, which has been an element of human civilization since primeval times, further problematizes the socially conditioned interpretation of distraction. Benjamin notices how architecture is primarily experienced by use: "Tactile reception comes about not so much by way of attention as by way of habit."[52] He goes further by claiming that attentive observation in the context of architecture gives way to casual noticing. This form of "apperception" or "reception in distraction" finds its ultimate test ground in film, which, in Benjamin's time, was a new mass entertainment media format. According to Benjamin, film is predisposed to a distracted mode of reception, challenging the main assumption of the theory of perception (aesthetic).

Contemporary cinema and film studies explain the fragmented and distracted acts of consumption through a transformation from cinema to television. This transformation has brought with it a different sort of viewing experience—glancing. The aesthetic of the gaze had been replaced by the aesthetic of the glance.[53] In her media historical work on distributed attention (*Zerstreung*), the German media theorist Petra Löffler sees panoramas and big cities of the eighteenth century as the roots of the glance, or what she refers to as a "drifting mode of seeing" (*gleitendes Sehen*).[54] A very similar logic has shaped video games. The highly romanticized focused and fully immersive manner of aesthetic reception is being accompanied by the distracted, distributed, and ambient one. Perhaps, what we are observing is

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a parallel transformation from the video game as a dedicated spectacle to the video game as an accompanying experience blended into the everyday.

Ambience as a New Aesthetic Category

As we have seen in this chapter, ambience is an exceptionally fertile media theoretical concept. It provokes many interpretation pathways and allows us to view gaming culture as a vital part of a larger ambient media landscape. It opens a discussion about the emerging practice of playful engagement with systems that operate in the background and the sort of play that is characterized by distance rather than close and focused engagement; moments of ludic ambience rather than almost undisturbed hands-on participation; and perhaps safe, enveloping calmness rather than simulated uncertainty.

As I have demonstrated, ambience in video games may be analyzed twofold, being both an operational and an affective category. In the first case, it is the computational quality of digital media and, by extension, video games that comes to the forefront. Here, ambience denotes the game itself and its underlying code. The second category, by contrast, allows for the interpretation of ambience as both atmosphere and mood. Here, the primary importance is the game world itself. Operational ambience, then, happens on the level of computation, and affective ambience is realized on the level of representation. Video games as a total art form encompass all other possible art forms: illustration, motion picture, architecture, theatre, analog games, and text. Ambience therefore manifests itself in numerous complex ways.

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4 Automated Play

> "The achievements of the first technology might be said to culminate in the human sacrifice; those of the second, in the remote-controlled aircraft which needs no human crew. Whereas the former made the maximum possible use of human beings, the latter reduces their use to the minimum."
>
> Walter Benjamin[1]

Emissaries (2015–2017) is a trilogy of obscure art simulations about cognitive evolution.[2] It begins with *Emissary in the Squat of Gods* (figure 4.1), which depicts an ancient community living under the threat of a volcanic eruption that could lead to its extinction. The second part, *Emissary Forks at Perfection*, depicts an AI-driven world thousands of years after the explosion has taken place. And finally, in *Emissary Sunsets the Self*, the AI reaches its peak, attempting to shrug off its godlike agency by mutating in the hope of devising its own generative death. The visual and sonic layer of *Emissaries* is as surreal as the worlds it generates: "The landscape here is post-volcanic, its population shamanic, and the wildlife totemic, in the form of an owl and a snake. The scene teems with movement—as indecipherable and transfixing as if it were the work of a cyborgian Hieronymus Bosch."[3]

Emissaries was exhibited in 2017 in MoMA PS1 in New York and simultaneously streamed online on Twitch.tv. They are real-time simulations created using the popular game engine Unity. Ian Cheng describes his own work as a video game that plays itself. Various types of AI are assigned to the characters and entities of the world, competing with one another. As Cheng points out, the games learn how to play themselves based on the principle

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Figure 4.1
Ian Cheng, *Emissary in the Squat of Gods* (2015). Video still © Ian Cheng. Courtesy of the artist, Pilar Corrias (London), Standard (Oslo), and Gladstone Gallery (New York).

of emergence, which allows for unexpected complexity to develop from a basic set of principles and behavioral laws:

> I write little individualized fragments in C# that describe a behavior or tendency of an object. I also write a set of laws that modify the overall physics of the virtual environment. The key production principle is that all these behavior writings are micro, never a whole, deterministic architecture or bird's eye view design. The simulation in the end is a virtual space with a huge accumulation of mini-behaviors and laws that act and react to each other with no master design, just tendencies, all playing out in parallel with each other.[4]

The virtual worlds devised by Cheng are somewhat bizarre manifestations of play. They redefine the role of the designer by decentralizing their authority over an artistic object. Instead of programming a coherent world for people to interact with, Cheng opens up spaces of possibility out of which an artificial world keeps emerging in a self-playing mode. By doing this, he introduces mediated distance between himself and his work of art as well as between his work and the audience. Physical interaction with *Emissaries* is nonexistent. The human player resides outside of the interaction loop. The only role they can fill is that of an observer and interpreter of an automated systemic spectacle.

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In the past few decades, automation and AI have become flagship concerns of science, world politics, and the greater public. To a great extent, popular discourse around automation throughout the cybernetic era has been fueled by fear of machines, computers, or AI taking over activities performed by human hands and minds and thus depriving them of their most purposeful activity—work. The technical, economic, and sociocultural implications of work automation have been discussed with an unfading fervor.[5] Countless magazine headlines paint pictures of a fully automated future and ask questions about the social significance of automation driven by AI.

Experiments with automation and AI have also been affecting creative domains, although the tendency is not necessarily a characteristic of the last few years alone.[6] The first computer-generated art appeared in the 1960s, soon after the invention of computers.[7] Within the context of games, automation resides primarily in the mathematics, cybernetics, and, subsequently, computer science and game development circles.[8] Every few decades, public interest in automated play surges, usually when a machine is being pitted against a human opponent. In 1997, IBM's chess-playing AI Deep Blue defeated the Russian grandmaster Garry Kasparov in a highly publicized match, and DeepMind's AlphaGo took the spotlight in 2016 as the first AI to win a Go match against a professional human player, the European Go champion Fan Hui.

At the same time, surprisingly little is known or asked about the cultural or media aesthetic dimensions of play automation. The early days of game studies saw a few attempts critically addressing the question of human and nonhuman agency in video games, but it seems that the subject ended somewhat prematurely as other, more human player–focused points of scholarly interest took over.[9] My aim in this chapter is to bring one of the most crucial aspects of digitality back into the conversation and map out possible directions of critical inquiry about automation in play.[10] I want to investigate how automation has changed the meaning of play in the digital age and explore the missing links between automation and the aesthetic experience of playing video games.[11]

Many examples I will draw on in the later parts of this chapter tend to partially or entirely automate the parts of play that have, until now, been performed only by human players. Think about automatic players (for instance, the grinding bots in role-playing games), self-acting AI agents

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exhibiting some form of perceived liveliness, or entire game genres based on a model of progression that eliminates the need for direct input from human players (such as the idle games discussed in chapter 2). All of those instances may seem like oddities and novelties; however, it is crucial to realize that automation is a phenomenon with a ludic past much older than the electronic digital computer. To emphasize the potential historical continuity between contemporary automated gaming and media technologies of the past, I will bring the eighteenth-century chess-playing automaton and the player piano of the late nineteenth century into the proverbial game.[12]

Automation, Algorithms, and Computer Gaming

The modern understanding of the term automation (from the Greek word *autómatos*, or self-moving) has a relatively modern sixteenth-century origin, denoting a machine with a self-contained principle of motion.[13] A digital electronic computer is, in many ways, just such a machine. Historically, it was developed as an automatic computing engine meant to replace "human computers," a term first used in the early seventeenth century to denote persons performing mathematical calculations and compiling mathematical tables. Since contemporary digital computers have become an integral part of our everyday lives, automation has become one of the defining principles of a computerized culture, and it has digital media to thank for that.[14] Automation is only possible due to the numerical and fragmentary or modular structure of digital media—that is, their ability to be divided into discrete parts that may be then recombined in diverse ways to generate new objects and behaviors.

Within the context of the contemporary digital electronic computers, automation relies on the use of algorithms and a broadly defined AI. This diverse set of techniques and practices united under one capacious term may refer to "pathfinding, neural-networks, models of emotion and social situations, finite-state machines, rule systems, [and] decision-tree learning," among many others.[15] Such a vague and all-encompassing definition of AI, "cobbled together from a grab bag of disparate tools and techniques," may be confusing.[16] For the purpose of this chapter, let us assume a general working understanding of AI within the context of gameplay automation as referring to autonomous agents and autonomous behaviors of the game itself.[17] A game's AI may create the impression of a "living" self-governing

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game world, "the sense that there is an entity living within the computer that has its own life independently of the player and cares about how the player's actions impact this life."[18] As players suspending our own disbelief, we often convince ourselves that the game or in-game characters "think," "feel," or "play."[19] Sim Settlements (2017), a mod based on *Fallout 4* (2015), illustrates this perfectly. The mod enables NPCs to build their own housing, plant their own crops, and even work in shops they themselves construct. The human player is welcome to the city-building algorithmic spectacle as a bystander or a delegating agent rather than the primary active performer. The NPCs do not wait for the player to micromanage them; instead, they metaphorically and literally take matters into their own hands, similar to the delegated gameplay model seen in such simulation games as the franchise explicitly referenced in the mod's title—*The Sims*. The mod automatically assigns citizen NPCs to plots preselected by the player (e.g., farming, residential, or industrial plots). The game world seems to acquire a lifelike dimension. As one of the mod's users emphasizes:

> The buildings your settlers construct aren't cookie-cutter affairs: they're all a bit different, right down to the clutter that eventually appears inside them. This means just about every house and store your NPCs build will look unique. I was oddly pleased to see my companion Curie build herself a home out of a trailer rather than a wood or tin shack like everyone else had done.[20]

Players often seem to find automated gameplay quite an astounding experience, especially if it involves representations of humanlike figures who virtually embody the performing algorithms, producing the illusion of a living agent in a dynamically responding world. The fascination with lifelike capacities of virtual spaces also resounds in the following commentary: "I can't remember when I first saw AI picking fights with each other . . . [but] the first time it happened; it was a minor moment of joy. Not because the enemy of my enemy is my friend . . . but because it meant the game world wasn't all about me."[21] The last few words open a larger discussion on the role of automation on nonanthropocentric models of play. Despite the growing agential dimension or the simulated "liveliness" of ludic systems, the majority of media theoretical work on video gaming revolves around anthropocentric narratives, placing the human player at the center of the experience. The proverbial state of play in how digital games are perceived and defined reveals a binary worldview: an active human player versus an acted-on, nonhuman game. As this chapter argues, however, human

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players in the digital age often step into indirect roles, witnessing the system's supposed agency and delegating repetitive tasks to the algorithms. In digital play, at the core of which lies the automated and ambient actions of the machine, this alleged subject–object boundary is transgressed.[22] Automation in play calls for a decentralized understanding of the human player, who is no longer the only or primary active agent.[23]

Automated Play and Mechanization of Mind

March 9, 2016, marked a pivotal moment in the history of automated play: Google held its DeepMind Challenge, the first human versus machine competition since the famed 1997 chess match between Deep Blue and Garry Kasparov. Lee Sedol, one of the world's best Go players, embarked on the emotionally draining quest of playing against the algorithm devised by a group of machine-learning scientists at Google's Deep Blue subsidiary. After seven days of play, the 9 dan–ranked South Korean Go champion was defeated 4–1 by AlphaGo.

The dreams of devising self-acting or self-playing machines are much older than AlphaGo and the digital electronic computer. Historians of science have noticed a certain continuity of thought connecting the robots of cybernetic modernity and the algorithms of postmodernity with the automata of the Enlightenment, the Middle Ages, or even antiquity.[24] Automata and autonomous or semiautonomous machines mimicking various actions—such as moving, singing, writing, or playing—have been the subject of human curiosity and artistry for thousands of years. Whether hydraulic, pneumatic, mechanical, electrical, or digital, they have lured viewers with the promise of emulating, challenging, and ultimately exceeding human physical and cognitive ability.

One of the most recognized experiments of this kind in Western tradition points toward one late eighteenth-century invention that was supposed to demonstrate the capacity to mechanize human reasoning. The Mechanical Turk, also known as the Automaton Chess Player, was an anthropomorphic life-sized figure of a player whose mechanical arms could move by means of a clockwork mechanism. To impress Maria Theresa, the empress of Austria-Hungary (among sundry other titles), the civil servant and imperial councilor Wolfgang von Kempelen took it upon himself to design the Turk in 1769. Other "magicians" also visited the court to present

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their latest experiments on such phenomena as magnetism and mechanical writing.[25] He completed the Chess Player within six months, and the Turk played its inaugural game against a human opponent in 1770. The inventor allegedly refused to put on a public exhibition of his creation, an act that has since been ascribed to his indifference to public opinion (and thus his true genius). He even considered dismantling the Automaton altogether, not unlike the ingenious forger Trurl, a reoccurring figure in many of Stanisław Lem's short stories. In "The Great Spanking," Trurl devises an intelligent wish-fulfilling machine that is capable of producing an indistinguishable copy of himself. When the clone is nearly exposed as an imposter by Trurl's rival, Trurl disassembles his own creation, leaving no trace of it but the stories and extolments of its existence. Von Kempelen decided to keep the Chess Player, however, and continued to kindle the tales of its artificial genius. The Automaton Chess Player traveled around the globe for eighty-four years, outliving its inventor by a few decades and reportedly defeating such luminaries as Napoleon Bonaparte, Benjamin Franklin, and Charles Babbage.

By contrast, AlphaGo's "genius" was no secret at all, but the complexity of contemporary AI-driven emergent systems turns them into metaphorical "black boxes," the inner workings of which remain hidden from view. The algorithm had been learning from the behavioral patterns of 100,000 amateur human Go players, playing 30 million matches against itself and improving more and more with each one.[26] The algorithm was a big step in emergent AI, having won a game with a complexity far exceeding that of chess and with more potential game board configurations than there are known atoms in the universe. The version that outplayed Lee Sedol in 2016 was later challenged by an even stronger opponent: its successor algorithm, AlphaGo Zero, which was built without any initial human input and learned the game through random self-play alone. AlphaGo Zero beat its predecessor 100 to 0, causing Google to proclaim that its algorithm had achieved "superhuman performance." Taking into account the long history of automata, robots, and artificial life, such a bold statement—even when taken with a grain of salt—is particularly interesting. Google's latest Go experiments bring to mind John von Neumann's visions of self-replicating machines programmed to build themselves without the need of a human intervention.[27] AlphaGo and AlphaGo Zero also epitomize other cybernetic-era speculations that machines may one day eclipse the human brain.[28]

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Once decoupled from learning based on human performance, AlphaGo Zero developed its own creative strategies, which differed from all the known moves played by humans in the last 2,500 years. This encouraged human players to see the Go board with new eyes and learn from the unusual repertoire of the AI's moves. "It actually may be kind of fun to explore the game with neural-network software," remarked President of the American Go Association Andy Okun, "since it's not winning by out-reading us but by seeing patterns and shapes more deeply."[29] AlphaGo Zero is no longer a "slavish type of machine,"[30] like IBM's chess AI Deep Blue (1997) or Arthur Lee Samuel's Checkers-Playing Program (1959), both of which outplayed their human opponents through sheer magnitude of calculations, relying on the Monte Carlo tree search algorithm; however, they still required the programmer to first provide a general strategy framework to the AI.[31] By contrast, AlphaGo and AlphaGo Zero did not need to calculate the moves; they learned how to play the game of Go based on the technique of reinforcement learning.[32] The experiments have marked a cybernetic rite of passage from modernist computation to what Sherry Turkle calls "postmodern simulation," the foundation of which lies not in calculation but in adaptive emergent behaviors of the system—similar to the ones used in the self-playing *Emissaries* games referred to at the beginning of this chapter.[33]

Von Kempelen's Mechanical Turk may be regarded as a simulation in the premodern sense that it was based on an illusion, which implies some sort of trickery or fakery.[34] In a thirty-two-page-long account of the encounter, an anonymous Oxford graduate observer who attended the 1819 exhibition of the Mechanical Turk in London's Spring Gardens described the figure's appearance and mechanism and questioned the possibility of it displaying the intelligence of a reasoning agent. Not being able to detect the true source of the simulation, he came to the conclusion that the seeming impossibility had indeed been achieved by the Automaton Chess Player:

> To construct an arm and hand capable of performing the ordinary functions of those parts, would be of itself sufficient to secure the reputation of an artist; but to make the same arm and hand almost counterparts of living members in a reasoning agent, displays a power of invention as bold and original, as any that has yet been exhibited to the world.[35]

In addition, the depiction of the Mechanical Turk as an Orientalist figure of a sorcerer placed at a robust wooden desk with a chessboard only

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strengthened the audience's perception of it as an exoticized mystery utterly foreign to their own culture. From the medieval period on, "Latin Christians associated automata with Arab, Greek, and Mongol courts and saw them . . . as the products of foreign knowledge and exotic materials."[36] In the end, however, the Turk turned out to be no more than an elaborate hoax, an illusion that tricked generations of audiences and defeated chess players not by machinic means but by hiding a human inside the wooden desk to operate the mechanical arms. Despite being a disappointment to its viewers, the Turk nevertheless came to symbolize the dream of one day devising intelligent machines that were capable of automating human cognitive processes. The Mechanical Turk even became a source of literary inspiration, appearing, for instance, in the satirical-philosophical text "Humans Are Machines of the Angels" ("Menschen sind Maschinen der Engel," 1785) by the German writer Jean Paul (born as Johann Paul Friedrich Richter).[37] It reflected the desire to "imitate and expand the human mind, which has been the main project throughout the history of mechanization of the mind pursued by many notable figures including Pascal, Leibniz, Babbage, Wiener, and Turing."[38]

Automated Play and Mechanization of Physical Performance

A certain rhythm of acting lends itself particularly well to automation—the routine. Repetitive actions are quantifiable and procedural and thus easily expressed algorithmically. At first glimpse, repetition seems to be characteristic of primarily work-related processes. It is, however, equally present within the context of play, especially when the latter involves physical skill mastery. Repetitive play is to be found in diverse video game contexts. Perhaps the most characteristic example is grinding, the laborious and tedious set of actions performed to accumulate resources needed to advance in some games (see chapter 2). Many of us have experienced it firsthand, usually within the context of MMORPGs: slaying an endless mob of opponents to collect loot that can be exchanged for gear, in-game currency, or experience points. Sometimes players use mods or bots to partially automate gameplay and alleviate the repetitiveness of the tedious tasks required to level up in the game. For instance, the Progressive Automation mod written for *Minecraft* allows players to excavate the game's environment with the help of automatic miners, set up farms that automatically plant and

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harvest crops, or use crafting machines that can automatically craft inventory components.[39]

Many developers regard the use of bots and mods as "cheating" and dismiss it as a practice that undermines fair play. Blizzard Entertainment, for instance, banned the unfair use of bots to automate gameplay within *World of Warcraft*:

> We've recently taken action against a large number of *World of Warcraft* accounts that were found to be using third-party programs that automate gameplay, known as "bots." We're committed to providing an equal and fair playing field for everyone in *World of Warcraft*, and will continue to take action against those found in violation of our Terms of Use. Cheating of any form will not be tolerated.[40]

A similar reaction affected gameplay automation enthusiasts in *Pokémon Go*, a multiplayer augmented reality game in which players move around the real world to locate and capture virtual Pokémon that the game populates on the screens of their mobile devices. Some players find this tedious and use bots and other third-party software to automate the collection process. In addition, several Pokémon species can only be found in certain parts of the world (Tauros in North America, for example), so instead of trading for those Pokémon, some players use virtual private network software to mask their location and trick their device's GPS into thinking that the player is in a different region when, in reality, the player hasn't moved an inch in the physical world. Niantic, the game's developer, has been actively trying to eliminate what they regard as subversive gameplay or cheating.[41]

By contrast, there are entire game genres that revolve around automating the repetitive and time-consuming core gameplay, allowing the players to devote their time and attention to the game's periphery instead. Idle games and auto battlers are relatively recent trends that exemplify the automatic turn in gaming. Although they differ in terms of game mechanics, both genres seem to share one important characteristic: they automate the manual actions of repetitive clicking, instead offering their players the aesthetic experience of macromanagement.

In the 2017 idle game *Universal Paperclips* (figure 4.2), after the first fifty-nine manual clicks, I gained access to AutoClippers, which continued to make paper clips automatically in set time intervals. Since the length of the wire out of which the paper clips are produced is not endless—you start with 1,000 inches—the game is rather fast-paced in its initial stages. Despite having the possibility to delegate the manufacturing to the automatic

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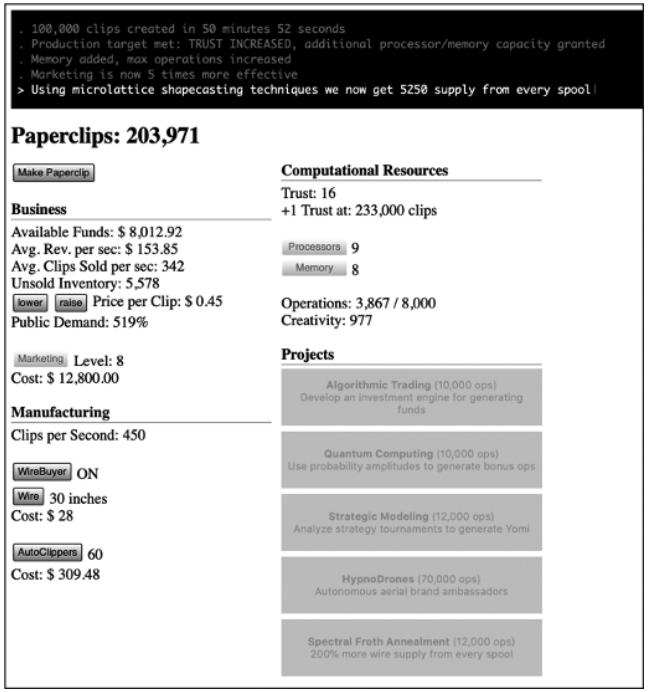

Figure 4.2
Universal Paperclips (2017). Courtesy of Frank Lantz, Hilary Lantz, and Bennett Foddy.

system and leave the game to its own devices, I decided to play along in order to accelerate the production of paper clips and to make sure there would always be plenty of wire available. In the following hours and days, I left the game playing itself in one of my browser tabs, coming back to it every now and then to further "grind" the gameplay mechanism and make a few rudimentary decisions (e.g., buying additional AutoClippers, unlocking computational resources, engaging in high-risk investments). After producing over 62,000 paperclips, I gained the ability to delegate wire purchasing to an algorithm. From that moment on, the game was able to run fully autonomously, leaving the higher-level decision making to me.

In auto battlers (sometimes called auto chess), after having set the parameters for the battle, the player simply sits back and watches the two parties automatically battle until the next round is set up. During the preparation phase, the players choose their initial battle units and place them on a grid-shaped battlefield (hence the association with chess). The players

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are then randomly divided into two teams. During the battle itself, the units fight against each other without further player input. This moment of gameplay resembles watching a live-stream rather than focused hands-on gaming. The genre emerged in the wake of Dota Auto Chess (2019), a mod developed by the player community for *Dota 2* (2013), a multiplayer online battle arena (MOBA). The mod became so popular, with reportedly more than 8 million players preferring to delegate battles over performing them manually, that *Dota*'s official developer decided to release their own "auto battler" under the title *Dota Underlords* (2020).

Those two game genres not only exemplify a specific trend in casual gaming but also (and more importantly) show how ingrained in our everyday digital culture the subject of autonomous technology has become and how it has changed the way we play, raising automation from the backstage of a game's operations to the surface of gameplay. Automation transforms play from an act of "utter absorption"[42] to one of "distracted habituation,"[43] and the human player from a focused agent or attentive watcher to a casually observant spectator, to expand on Walter Benjamin.[44] And barely challenging distractions have the capacity to fit into daily routines without requiring too much of the player's attention or physical skill.

Within the context of video games, skill has long been central to the identity of the hard-core gamer just as the ability to skillfully perform within the game has been at the heart of the definition of "gameness." In an early attempt to approach the essence of games, Jesper Juul identified player effort as a necessary component of gaming. With the rise of casual gaming, however, an increasing number of titles have become accessible and easy to play, and thus require less effort from their players. In other words, the massification of the medium has lowered the entry skill threshold. In social network, free-to-play, and mobile games, anybody and everybody can become a player. In fact, the boundaries of games have never been set in stone. The ontological status of games—or their "realness," as Mia Consalvo and Christopher Paul put it—is constantly being renegotiated as new genres, mechanics, and play practices emerge. Automation of gameplay opens up even more avenues for inclusion while simultaneously continuing to challenging the "core" identity of gaming as a practice reserved for a highly skilled human audience.[45] This problematic dynamic has been also approached from the perspective of "deskilling," a term originally denoting the process of transferring skills from humans to machines.

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Stefano de Paoli identifies a similar relation between skill loss and skill gain in a field study of MMORPG players.[46] Automatic play achieved by means of mods, bots, and macros, he argues, deskills the players and "enskills" the gaming algorithms and, in doing so, universalizes the playing experience so that it no longer requires precise hand-eye coordination or a huge time investment.

Video games are not the first entertainment technology to use automation to lower the human skill requirement. For instance, street organs and automatic player pianos (also known as pianolas) turned the high-skill act of playing a musical instrument into the relatively uncomplicated, semiautomatic activity of organ grinding (i.e., continuously pushing the instrument's pedals). The player piano gained particular popularity at the end of the nineteenth century and thrived before it was superseded by more the efficient, portable, and affordable gramophone in the late 1920s. Similarly to other self-playing mechanical instruments such as barrel organs, cylindrichords, clockwork spinets, and harp-playing clocks, player pianos were set into motion by the turning of a pinned barrel. This technology was illustrated in the "Concert Room Anecdotes" referenced by Arthur W. J. G. Ord-Hume in his monograph *Player Piano. The History of the Mechanical Piano and How to Repair It*:

> In small or family parties, where dancing to the music of the pianoforte is practiced, a person totally unacquainted with music, a child or a servant, may perform, in the very best and most correct style, quadrilles, waltzes, minuets, country dances, marches, songs, overtures, sonatas, choruses, or indeed any piece of music, however difficult.[47]

Similar descriptions can be found in numerous advertisements praising the accessibility of player pianos; for instance, the Wilcox & White advertisement for the Angelus player piano from 1899 reads, "Anyone can play it . . . A child that has never before seen a piano can with the aid of Angelus Orchestral Piano Player render the most difficult compositions in a manner possible to only the most accomplished pianist."[48] The player piano, together with other technologies of its time, began the process of popularization of music listening and music making.

In many ways, the "massification" of computer gaming resembles the popularization of the player piano. I would risk a rough hypothesis that what pinned barrels were to the mechanization of playing music, digitally executed algorithms are to the automation of gameplay. In initial stages, an

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automating mechanism seems to be depriving the human player from the actual skill of playing. As the technology matures, however, automation is no longer just a "deskilling" technology but one with which human players interact in new, complex ways. New forms of play keep emerging at the crossroads between automation and play; while repetitive tasks are computed, other parts of gameplay become the core of human players' engagement. It makes little sense, then, to try to define the essence of games and play based on fixed categories such as agency, interactivity, effort, or attachment to the outcome.[49] After all, the meaning behind those concepts is not ahistorical or media-agnostic.

Automation at the Heart of Gameness

Ian Cheng's self-playing worlds as well as all the other examples discussed in this chapter may seem surreal, exceptional, or removed from the typical interactive video gaming experience. In all their remoteness, however, they point toward the very core of computer-mediated play. Perhaps we have not yet fully grasped our new ludic situation. Otherwise, we would not regard automated play as a paradox or a borderline case of gameness—on the contrary, we would see it as the epitome of play in the digital age. After all, the self-playing game is the most "computer-compatible" of games, acting in accordance with the inner logic of the digital machine, which can take over the execution of simple tasks at an unrivaled speed and frequency.[50] In fact, all games staged within the medium of the computer involve some level of automation, such as calculating gathered props, lost lives, or the player's proximity to an enemy NPC. Unlike in board games, where all such computation needs to be done manually by the human player, those processes that occur in video games are automated and hidden from the player's view. This type of automation is well known to the average gamer and rarely raises any concern or draws any theoretical attention; what we continue to ponder is the sort of automation that problematizes the human "aesthetics of agency and control (or the loss of these)."[51]

In *Gamer Theory* (2007), McKenzie Wark makes an important ontological statement about video games, regarding them as "a key part of the shared culture from which one can begin—as laborious as it is playful—the process of creating a reflective and critical approach to the times."[52] Such a perspective presents games as more than a display of the latest interactive

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technology. They rather become spaces of fiction and speculation, where cultural values and realities are at play. Just as the human–machine social debates and dreams were depicted in the fiction and technology of their times, the current fascinations with algorithms, automation, and nonhuman agency are literally replayed and displayed in video games, the most popular entertainment forms of the digital age. Automation, then, not only refers to design techniques, game mechanics, or new game genres but also, ontologically speaking, it is a phenomenon we play with. To play with automation is to play with a mode of being within the world. Automation opens new ways of understanding the human–machine relationship; not as a techno-colonial master–slave one or that of an operator and its operand but as an "entanglement of agential forces," to conclude somewhat enigmatically on the words of a feminist philosopher who will become the central figure of the next chapter.[53]

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5 Intra-active Play

> "What can be studied is always a relationship or an infinite regress of relationships. Never a 'thing.'"[1]
>
> Gregory Bateson

The screen flickers with warm, fluorescent shades of yellow, orange, and red. My palms cling to the soft plastic curves of the controller, thumbs swaying in a semiautomatic dance. The sound of branches cracking in the heat heralds my travel through the virtual woods. The Shoshone National Forest is being consumed by wildfire while I attempt to safely maneuver Henry to the helicopter. With persistence, I turn the tiny joysticks in pirouettes, but the figure on the screen does not move an inch. My fingers mash the buttons in increasing exasperation to no avail. The game does not seem to care. The game world floats in a trancelike state of ambience, as if waiting patiently for me to act on it, but I can't.[2] Soon, I discover the rather mundane reason for this frustrating moment in the final minutes of *Firewatch* (2006) (figures 5.1 and 5.2): my controller's battery has run out. For a moment, the relationship I had taken for granted between me and the game repolarizes itself.[3] And with that repolarization comes the old, unresolved question: Where does the subject (player) end and the object (game) begin?[4]

In opening this chapter with the above gameplay scenario, I would like to posit a somewhat controversial proposition: that players and games as such do not exist—or, at least, not in the sense we're used to. Neither players nor games can be seen as clear-cut, pre-defined entities, preceding and existing before the moment of play. Only through and within play do

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Figure 5.1

Figure 5.2
Screenshots from *Firewatch* (2006). Courtesy of Campo Santo.

both unfold in a mutual ludic embrace. And although at the first glance the boundaries may seem obvious, they do not remain stationary. Players and games are not individual entities separated by predefined sharp edges; theirs is not a "static relationality but a doing—the enactment of boundaries."[5] To challenge the prevalent patterns of thinking about video gaming and digital play, I argue that we need to take a performative turn. Karen Barad's philosophy of agential realism provides a perfect framework to do that.

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Along with Barad's performative perspective comes a major ontological shift, one that stands in opposition to Cartesian dualism (or Cartesian cut), which was founded on the distinction between the "internal" mind and the "external" matter. The division has become so entrenched within Western imagination that it is seen today as pure common sense. The predominant popular and scholarly understanding of video games has been also very much influenced by Cartesian thinking. Consider the foundational splits between hardware and software or the visual and the computational.[6] A computer game's core[7] is usually understood as that which is algorithmic, procedural, mechanical, and, at the very least, rule-based, whereas the visual and narrative components are seen as ornamental outer layers.[8] This juxtaposition of rule-based systems against fictional worlds appears in early foundational texts devoted to games, one of which sees Jesper Juul looking for the heart of gameness.[9] In his attempt to provide a medium-free (or what he calls "transmedial") definition of computer games, Juul dubs the computational processing of data as immaterial. [10] He envisions the material as something visible to the eye and physically tangible (e.g., material devices such as projectors and controllers). Data computation, on the other hand, is regarded by Juul as the hidden "thinking" process and thus interpreted as an immaterial core of computer gaming.

Many theories have been caught up in the Cartesian trap.[11] Also interactivity is strongly embedded in Cartesianism. It presupposes two separate entities—players and games—interacting with each other. However, as this chapter will show, it is not necessarily the case. Leaning on Barad's ontological framework, I want to move away from interaction towards *intra-action* that is from a symmetrical action flow exerted by the human player on the game or the gaming apparatus to a fluid entanglement of forces. Let me express it more bluntly—video games have never been interactive. Interactivity as a concept has been simply taken at face value, a foundational problem I address in the second chapter. But, as Barad rather succinctly puts it, "it takes a healthy skepticism toward Cartesian doubt" to see an alternative.[12] So, let's get skeptical.

Agential Realism: Boundaries Do Not Sit Still

Agential realism stands at a crossroads between the physico-philosophy of the physicist Niels Bohr[13] and the feminist performative philosophies of Donna

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Haraway and Judith Butler. It could also be placed in a long line of other theoretical approaches and heterogeneous discursive fields contributing to the "material turn," such as actor–network theory,[14] the dispositif,[15] interdisciplinary perspectives developed under the broad banner of "the ecology of mind,"[16] and new materialism and posthumanism.[17] Although grounded in different disciplines, supported by diverse methodologies, and often developed within divergent sociopolitical and cultural contexts, all of the above thought movements, methods, and theoretical approaches have one thing in common: they challenge the Western anthropocentric position of the human in the world. The human is no longer a central agent but part of a complex network of agencies, human and nonhuman alike, and matter is no longer seen as "dead." It is not simply acted on; it becomes an integral part of any act. Matter is a meeting point of material and discursive acts. As Barad says, "it is vitally important that we understand how matter matters."[18]

To navigate through this complex material field, let us start with the already introduced Cartesian cut, responsible for an inherent distinction between subject and object. This division produced a figure well known to positivist science: that of an objective human observer setting up a material apparatus that is regarded as external to the very object that is being observed. In other words, the object is viewed as something existing independently of the action of its observation. It does not influence the observer and, unless desired, is not influenced by the act of observation. This commonsense belief in the scientific processes of observation and measurement was challenged in the 1920s by Niels Bohr, a proponent of the Copenhagen interpretation of quantum mechanics. As opposed to the well-established Newtonian physics, quantum physics makes it impossible to decouple the act of observation from that which is observed. Let me illustrate this highly abstract reasoning with the famous double-slit experiment.

According to classical physics, the world is composed of two types of entities: particles and waves. Particles as localized entities occupy a certain place in space and time and therefore cannot be in two places at once. Waves, by contrast, behave very differently. They overlap with one another, a phenomenon understood by anyone who has ever observed the way water behaves.[19] From an ontological perspective, those two entities could not be more contradictory. The double-slit experiment, first conducted in 1801 by Thomas Young, is meant to determine whether an electron sent

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through two slits emerges as a particle or as a wave. If it is composed of particles, the particles will form a scatter pattern on the other side of the slits. If it is a wave, the slit will produce interfering, overlapping circles known as a diffraction pattern. The experiment demonstrated that electrons sent through the double-slit as particles emerge to display diffraction patterns characteristic of waves.

Niels Bohr interpreted this contradictory state by arguing for the inseparability of the apparatus of measurement and the observed object in his principle of complementarity, which states that objects have mutually exclusive properties that cannot be measured simultaneously. For example, depending on the experimental framework—that is, the conditions under which it is being observed—light, as the double-slit experiment shows, is both a wave and a stream of particles. For Bohr, this perplexing duality of "neither-nor" provided an ontological insight into the ambiguity of nature itself.[20] His was a highly revolutionary assumption at the time, undermining the classical understanding of the properties of light. We could go even further in saying that Bohr's interpretation shook the foundations on which science and natural philosophy rested.

The key ontological takeaway from this experiment in quantum physics is that independent objects with measurable attributes do not exist prior to and outside of measurement: "There are no things before the measurement, and . . . the very act of measurement produces determinate boundaries and properties of things."[21] Objects, therefore, cannot be taken for granted as objective referents. What we are able to observe or catch in the moment are phenomena; in the case of the experiment described here, the *intra-action* of an electron with a concrete apparatus. According to such a perspective, the ontological change of the electron alongside the change of the apparatus should not come as surprise. What is being measured is not an independent electron but a phenomenon in the making.

The world of quantum physics experiments and indeterminate ontologies of electrons seems very remote from what we observe in our daily lives or gaming sessions. The question, then, is: How do we adapt the particle–wave dualism to the human experience? This is where Karen Barad begins their journey with the philosophy of agential realism—with ambiguity and the paradox of mutual exclusivity on the human level. Quantum physics helps Barad contextualize their own ethico-onto-epistemological position towards the world. They ground their performative feminist philosophy in

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matter; to be more precise, in a particular interpretation of what matter is and how it comes to matter. Following into the footsteps of quantum physics, Barad sees matter as a dynamic articulation of the world—matter is *of the world* as opposed to *in the world*. It is "an active participant in the world's becoming, in its ongoing 'intra-activity.'"[22]

Barad's philosophy, then, questions the main assumption of social liberal theories and representationalism, according to which the world is composed of individuals (indivisible units), each of which has a set of attributes that preexist their cultural representation. According to such an ontological order, the entities exist independently of any representation or action in which they might take part. In accordance with representationalism, for instance, scientific knowledge (whether it takes the form of theoretical concepts, graphs, mathematical equations, or photographs) simply mediates access to the material world.[23] This world exists independently from the observer and the apparatus used to observe it. Representationalism, Barad writes, is a Cartesian habit of mind—a belief in the division between that which is internal and that which is external. In effect, what Barad proposes is a philosophical position that denies "that there are representations on the one hand and ontologically separate entities awaiting representation on the other."[24] Barad entreats us to move toward a performative understanding of the world that is not built out of external entities but rather one that is constantly doing and becoming—a world that is *worlding*.[25]

Agential realism is a philosophy based on a relational ontology, one that shies away from the geometries and binary oppositions according to which a human is either a pure effect or a pure cause. It rejects the atomistic worldview in which individual entities with inherent properties preexist actions. It questions the existence of relata before relations. Things are no longer basic ontological entities. Barad's is not a story of fixed Cartesian cuts between preexisting entities or agents but an intervention into the very premise on which agency rests. The distinction between the subject or agent and the object is not fixed. It may change depending on where an *agential cut* is placed.[26] Think about our initial anecdotal example of a game controller that ran out of power. In an agential realist reading, we do not start the game with separate interacting entities (a human player exercising their agency over a game via a nonhuman game controller); instead we look at how subjects and objects emerge through concrete intra-actions—how they come to exist in local situational contexts that may vary depending

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on the experimental (or the ludic) apparatus. In the case of *Firewatch*, the power cut literally denotes the agential cut. In the moment of the power cut, I was deprived of my perceived agential power over the object of play; I was no longer the acting subject within the player–game constellation.

Baradian Philosophy and Posthumanism at Play

Karen Barad is not entirely unknown to games scholarship. In the last few years, a handful of publications and conference papers have featured the philosophy of agential realism within the context of games and playful practices.

Justyna Janik, for instance, works with the concept of intra-action to discuss video game glitches (short-lived faults in the digital system) as manifestations of the agency of the video game.[27] Much like the agential power cut I experienced while playing *Firewatch*, Janik argues that glitches bring the player's attention to the resistant nature of the video game object. Janik also complements Barad's perspective with the concept of the "bio-object," introduced in 1970s by the Polish theater artist Tadeusz Kantor. For Kantor, the bio-object manifests itself as a symbiosis of human and nonhuman elements. This perspective allowed him to break the usual anthropocentric hierarchy by placing the live actor and the inanimate object on the same dramaturgical level.[28] Janik uses Kantor's theory to rethink the player–game relation, suggesting an equal ontological status between human and nonhuman actants at play.

Conor Mckeown, on the other hand, applies Barad's philosophy to the analysis of software as an entangled phenomenon. Rather than seeing it as a materially grounded, solidly coded infrastructure, he emphasizes its performative and "gaseous" dimension. In one of his writings, Mckeown discusses the practice of the "code injection," an artistic ludic intervention of SethBling, who literally "injected" and executed the code of the mobile game *Flappy Bird* (2013) into *Super Mario World* (1990), transforming one game into another through play.[29]

Although Baradian intra-action has remained a niche subject existing at the very borderlands of video game aesthetic, the overarching philosophical movement of posthumanism and the associated concept of nonanthropocentrism appears much more often in the study of games. One of the first analyses of nonhuman agency in video gaming appears in the work

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of Seth Giddings, who as early as in 2005 theorized the so-called technological agency against the backdrop of Bruno Latour's actor–network theory and Donna Haraway's figurative cyborg.[30] In her extensive monograph work on the ecological dimension of gaming and play, Alenda Y. Chang devotes an entire chapter to the nonhuman, problematizing the status of human agency alongside her concept of the "bit-narrative," a playful and new-materialist derivation of the eighteenth-century "it-narrative," a genre in literature also referred to as the "nonhuman autobiography"—one told from the perspective of an object or animal. As Chang argues, "Bit-narrative games like *The Novelist* (2013), *Mountain* (2014), and Paolo Pedercini's satirical *Phone Story* (2011) offer metaphysical speculation about the lives of inanimate objects."[31] Chang sees them as playable experiments in nonhuman alterity and agency. Jan Stasieńko, a media theorist perhaps somewhat lesser known to the Anglophone scholarly community, conducted a posthuman analysis of video games in his 2015 monograph, newly published in English under the title *Media Technologies and Posthuman Intimacy* (2021).[32] Paolo Ruffino, in his more recent writings, also grapples with the ideas of nonhuman games, pleading for a rerouting of gaming and game studies from false myths of agency and interactivity toward narratives of nonhuman companionship and earthly survival in the post-Anthropocene.[33]

Criticism of anthropocentrism and the Cartesian subject–object divide also appears in the recent work of Frans Mäyrä on the hybridization of the player's agency. He reinvestigates what it means to act as a player within a wider cultural context of digital technology. For Mäyrä, a human player is a hybrid, "a particular compound version of subjectivity that emerges from involvement with the contents, cultures and technologies of games."[34] Although his research is embedded in the philosophy of technology and cultural studies, the foundational questions about the relationship between human and information technology (in this context, players and gaming infrastructures) share a lot of common ground with posthuman theories. Mäyrä's inquiry into hybrid cultural agency rests on a large body of interdisciplinary work problematizing the exclusivity of human operations and reaching out into the realm of machines, networks, and complex systems.

The above examples by no means exhaust an entire body of games-related posthuman scholarly work. They are, however, an accurate indication of diverse and changing perspectives on nonhuman agency at play. Since my work in this chapter is embedded within a specific concept from

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Barad's philosophical repertoire, I will now move on to explore a possible reading of what I call *intra-active play*.

Ludic Apparatuses and Ludic Entanglements

Video gaming is a particularly fascinating ground on which to test Barad's theory of agential realism because games—at least in their computerized form—share a lot of similarities with measurement apparatuses. As we play, we leave behind huge amounts of raw data. And because play takes place within a staged, encoded environment, each of our moves can be potentially recorded and extracted for later analysis. In this context, a game becomes part of a larger apparatus calibrated to "pin down" play through the use of numbers, graphs, and patterns. Let us have a look at a specific field, which illustrates the crossover between agential realism and gaming analytics.

Game analytics rely heavily on telemetry, game metrics, and data visualization to assist developers in understanding player movement and behavioral patterns. Telemetry enables remote collection of data, eliminating the need for players to be in the same physical space as the analysts who are observing their engagement. Game analytics, then, may be understood as both a technology and a method that measures play over distance. We could also risk a hypothesis that an analytics-driven measurement tool is actually an optimization tool, used primarily to influence the players' future behavior by adjusting the game to maximize the time and money invested in and spent in the game. It is perhaps for this reason that the source of telemetry most strongly represented in current game development is user telemetry, or data on the behavior of players; for example, on their interaction with games, purchasing behavior, physical movement, or interaction with other users or applications.[35] This type of data is stored in various database formats, which in turn make it possible to transform raw data into interpretable data—game metrics. Examples of interpretable data may include average completion time as a function of individual game levels, average weekly bug fix rate, revenue per day, number of daily active users, or the points in time and levels where players tend to disengage.[36] This type of measurable data is usually interpreted and represented in the form of diverse visualizations, graphs, charts, and heat maps. The latter, for example, use colors to indicate the frequency of a variable occurring

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across the map. The colors usually indicate a temperature scale that ranges from shades of blue (low rates of occurrence) to shades of red (high levels of occurrence). In video games, heat maps are often used to depict the frequency of player character deaths in the first- and third-person-shooter genres.

Let's dive into a case study to see what it means to place an *agential cut* within a concrete game analytics apparatus. Figure 5.3 shows a demo version of the dashboard, which gives an overview of the different performance indicators within a game analytics tool. The players and play patterns are segmented according to set characteristics, such as new incoming players or active players, or they can be sorted by values such as player retention (daily, weekly, etc.). It is also possible to view the number of players who are conducting monetary transactions within the game. We can compare the action of selecting a particular slice of data to performing an agential cut. The cut changes the lens through which we study the selected slice of data. Looking at in-game performance means focusing on user counts (daily, weekly, monthly), session counts, number of return visits to the game, and the number of players who have dropped out (i.e., discontinued playing that game). We can also focus on level-specific questions, including how users play and progress through each level, how many quests are completed, and how many users actually complete each level. The image of gameplay changes depending on what data we choose to examine.

A data-driven gameplay analysis not only reveals play patterns in real-time but, more importantly, it also determines certain behaviors and precludes others. Game analytics can be seen as a metronome that marks desired rhythms of play rather than an exclusively objective scientific apparatus that unobtrusively watches over the player's shoulder. According to such an interpretation, gameplay data is not only a by-product of human action but also an agent at play that contributes to the reinforcement of those game design patterns, which are able to regulate the player's behavior in a desired fashion. This is where game analytics meets agential realism. Think of the apparatus we discussed in the previous sections in relation to quantum physics. An experimental set-up was supposed to measure the behavior of a particle and determine its unquestionable nature; instead, it ended up coproducing the very phenomenon it was supposed to capture. As Niels Bohr argued, it is not possible to perform an a priori interpretation

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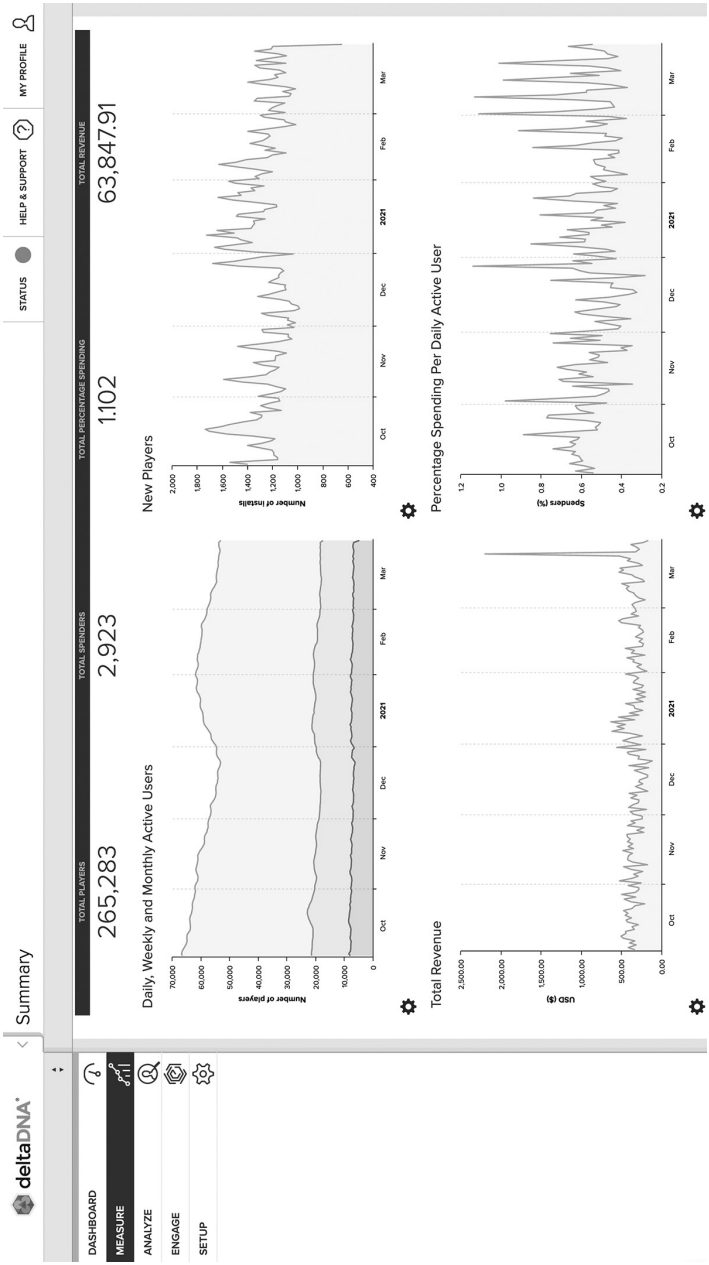

Figure 5.3
An exemplary dashboard in deltaDNA's game analytics platform.

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of the nature of a particle.[37] In other words, there is a complex entanglement between an experiment's design and what it is measuring.

That digital play is entangled with the logic of computing and, what's more, shaped by precise scientific dispositives of its time should come as no surprise. In one of the first media historical studies on digital play, we find out that the computer emerges as a device for measuring its users: "It produces and stores knowledge about its players in the form of data."[38] This measurement tradition in video gaming dates back to late nineteenth-century experiments in behavioral psychology, which adapted a contemporary medium—the telegraph button—to measure human reaction times. Reaction time was understood as the initiation of a particular process at a set point in time in response to a specific visible phenomenon. The telegraph button, however, not only measured reactions but also trained study participants within the parameters of a very specifically mediated set-up. This measurement-centered logic behind the study of human behavior in combination with modern management techniques and, later, the science of regulatory computer systems (cybernetics) laid ground for the contemporary data-driven analysis of gameplay.[39] Games, especially in the mobile freemium sector, are regulative and regulating systems. As much as we play them, they also play us.[40]

Resolving Ontological Ambiguities at Play

Agential cuts are also placed by diverse disciplines that examine the same object from entirely different perspectives. How play and games are perceived depends on the observer and on the apparatus of observation for their discipline. Perhaps this is why, despite hundreds of years of intellectual preoccupation with play, the subject does not seem to have been fully exhausted. In one of his last critical pieces on play, Brian Sutton-Smith summarizes this puzzling situation in the following words:

> Since I first began reflecting on the nature of play and games in 1942, I have authored or coauthored, edited, or coedited, fifty books or so on these subjects. And during those sixty-five (and some) years, I thought time and again I had at last discovered the meaning of play. But, somehow, it always turned out otherwise, somehow there always seemed other questions to ask, other lines of inquiry to follow, all auguring answers more promising than those I thought I had in hand. Something about the nature of play itself frustrates fixed meaning.[41]

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Play, then, is a bit like an unruly electron that keeps escaping its fixed position. Theoretical explanations can barely pin it down. Games take on different ontological shapes, depending on how we measure them and what we are looking for. In the following paragraphs I will explore how Baradian perspective resonates with the existing ontological debates around games.

This conundrum is well known in the interdisciplinary field of game studies, which in its early formative years made multiple attempts to capture and frame video games. Binding definitions were supposed to sharpen the disciplinary boundaries and equip scholars with schemas and models necessary to analyze video games in a rigorous, systematic, and predictable way.[42] Most of those models introduce dimensions, levels, and formal categorizations of all kind.[43] All of the attempts to create clear-cut models for the analysis of games can be viewed as attempts to set up an objective framework to contain the aesthetic value and experience of play. This construct assumes that the player-researcher engages in a more or less nonintrusive way with the object of their analysis.

The continual grappling with the capricious or elusive[44] nature of play has led to a recent attempt to establish a meta-ontology broad enough to address the impossibility of a single viable definition of what a game is. Roughly twenty years after the establishment of game studies, a project called "Making Sense of Games" was established to find a common denominator in this knotty equation. It has taken us two decades in game studies alone to come to the conclusion that a single definition or a model cannot possibly capture what a game is. Espen Aarseth proposes a game ontology that could model differences between and among things we call games.[45] As promising as such a "differential" ontology may seem, it seems to fall into the same problematic Cartesian trap addressed at the beginning of this chapter. The meta-model looks at games as mechanisms: objects, things, and items. It also makes a differentiation between the physical (platform, hardware, behavior) and the mental layer (phenomenal, conceptual, social). The real ontological question, however, is not that of *scope* (looking for the solution in an ontology that is broad enough to integrate all kinds of objects, behaviors, and practices) but that of *relationality*. As Gregory Bateson famously wrote, "What can be studied is always a relationship or an infinite regress of relationships. Never a 'thing.'"[46] Defining a game object as one built out of mechanics and semiotics and founding a

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meta-ontology on the differentiation between the physical and the mental leads us time and again towards the old Cartesian trap.

Baradian relational ontology cuts this Cartesian vicious circle *together/apart*.[47] In a Baradian sense, the game object and the gaming subject result from and at (game)play, and their edges can only be defined in a concrete gaming situation, never beforehand. A game object is not a representationalist one. The game world (semiotics) does not reflect an objective game mechanic (structure). Both are entangled in complex ways and influence one another in a material-discursive agential act. In that sense, semiotics is material (or structural) and matter (or structure) is discursive. By engaging with Barad's philosophy, we have a chance to reposition the understanding of (computerized) play from an atomistic and representationalist system to a performative process of ludic becoming. Games, then, are not mechanisms but rather phenomena in the making.

In Baradian philosophy, subjects and objects remain ambiguous, and ambiguities cannot be solved by formal frameworks and models: "The ambiguity is only temporarily, contextually decided, and therefore descriptive characterizations do not signify properties of abstract objects or observation-independent beings, but rather describe the between of our intra-action as it is marked by particular constructed delineations."[48] Barad's philosophy is helpful in expanding the question of the ambiguity of play, adding an epistemo-ontological foundation to the rhetorical dimension of play.[49] Agential realism can be also understood as an attempt "to provide a consistent reading within the context of particular ways of resolving ambiguities."[50] To see play and video games in a Baradian way is to reject classical epistemologies and ontologies and to accept that "borders are not fixed" (or preset to emphasize a computer-native discourse). A video game is not a complete object but a ludic apparatus shaped by human and nonhuman open-ended practices.

This becoming of a video game happens across different dimensions and, depending on the focus, a very different "game" unfolds before our eyes and under our palms. A video game is composed of a complex network of interdependencies. Once we look into the whole picture, it is less shocking to say that a game as such does not exist; if it does, it is only possible to grasp it in its concrete realization in combination with a local context of play. A video game is usually presented as a neatly packaged digital entertainment system with a certain set of mechanics and usually a distinct

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graphical style. That, however, is only a partial story. The contours of a video game may play out quite differently from new, diverse perspectives. A game, therefore, is a truly transformative and transforming phenomenon, a "mutual constitution of entangled agencies."[51]

The Muddle of Play

My story of play as an entanglement of intra-acting forces begins with a quotation from Gregory Bateson and perhaps somewhat ironically ends with/in a Batesonian muddle. "Daddy, why do things get in a muddle?," asks a curious daughter in an imaginary dialogue, to which a father figure replies: "What do you mean? Things? Muddle?" This exchange poses a fundamental question about the existence of preconstituted things that can get muddled in the first place. "Perhaps, in some sense, the muddle precedes the things," Darshana Jayemanne writes in the opening chapter of *Performativity in Art, Literature, and Videogames*, which aims to look at video games not as things, objects, or framed worlds but rather as spaces of multiple possibilities performed by both human and machine actors.[52] Bateson's earthy metaphor muddies the clear waters of positivism, rejecting the worldview of binary divisions and clear-cut boundaries. Just like Bateson's muddy ecology of mind and Jayemanne's performative multiplicities, Barad's philosophy intertwines a vast ecology of agencies.

An agential realist reading of computer-mediated play shies away from a cybernetic understanding of play as a symmetrical communication between clear-cut entities—humans on one end of the communication channel and computers on the other. Play is not seen as a one-way process whereby the human player exercises their agency over the game object. It is rather that which emerges out of intra-actions among human and nonhuman entities: players, hardware, software, sets of rules and representations, material practices, and ethical circumstances. Play is a material-discursive practice of active configuration and reconfiguration. What is at play is constantly negotiated; it is not set in (game) stone.

This configurability of digital play is not tied solely to procedurality or the ability of video games to generate branching narratives. It is also not about flipping the script by showing that human agential qualities may be attributed to games as matter—an animistic rhetorical move visible in the way current technology-driven discourse portrays AI and its capacity

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to "act," "think," and "play." Instead of animating matter, my aim in this chapter was to emphasize a complex web of relations among different agents of ludic entanglements. This perspective sees games not primarily as units or sets of rules but as *open-ended practices* whose meaning can only be established within a local context by placing concrete agential cuts. Games are part of the play phenomenon they coproduce. In this sense, matter (software/game/game world, hardware/controller) is an integral part of the gaming experience, a coagent at play. To see play through the lens of intra-action, then, is to understand it as an entanglement of human and nonhuman forces, turning away from the notion that the human must necessarily call the shots.[53]

A Baradian reading of video games may be revealing in many contexts. In this chapter I have tried to illustrate its relevance by applying it to the data-driven method of gameplay analysis and positioning its relevance within a broader ontological discourse around games. Agential realism brings in a necessary perspective to the study of games and play. It allows us to understand why, despite a huge effort behind what is often called "the science of gameplay," the actual experiences of thousands of players nevertheless remain personal and often surprising. Despite clear player typologies and study models, the experience of play tends to escape fixed meaning time and again. This paradox is troubling only within the context of Cartesian dualism. The uncertainty and unpredictability at and of play is its inherent characteristic rather than a metaphorical glitch. The moment we shift our understanding of the game from an apparatus or a mechanism to a web of relations or an entanglement of forces, the need to define it, encapsulate it within one meta-ontology, or describe its nature once and for all loses its raison d'être. Out of defined sets of rules emerge performative muddles, and what game studies needs is an ontological perspective that would manage not only to describe the order but also to address an open-ended messiness of play.

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6 Spectated Play

> "This contradiction between looking and observing, between 'superficial reading' and 'close reading,' raises the familiar issue of the distance between the observer and the observed."
>
> Vilém Flusser[1]

This chapter is devoted to the video game as an algorithmic spectacle. It is a reflection on the computed digital image as *dis-played*, observed and aesthetically contemplated during a gaming experience.[2] At first glimpse, spectating seems an indirect and distant practice compared to the supposedly direct and close experience of gaming. Within the context of video games, spectating has been often perceived as a marker of one's passivity rather than active doing. The capacity for physical configuration by users has long been emblematic of new media (and, by association, video games). This ability to physically intervene in the supposedly unconfigurable and linear process of displaying images laid ground for dominant perspectives, understanding video gaming as a medial practice facilitating human action, choice and physical effort.

More recently, however, livestreaming and professional esports have brought spectating, and the image along with it, back into the spotlight. Every month, hundreds of millions of people worldwide spend billions of collective hours watching games over the Twitch platform.[3] Such numbers speak to imagination. What puzzles me more than the ubiquity of this mass entertainment format, however, is the algorithmic and operational essence of the digital spectacle. I want to explore what it means to watch, look at, or otherwise observe computed images within the context of video games.

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Does watching gameplay require visual literacy that differs from viewing film, contemplating art, or spectating in nature? In other words, how do we experience a digital ludic spectacle through a media aesthetic lens? In my exploration of the spectacle, I am concerned not with observing other human players at play but rather with exploring the configurability and operationality of the dis-played video game image.

In this chapter, I aim to portray video games as algorithmic spectacles characterized by images that are "functions in the mathematical realm."[4] In an algorithmic spectacle, light, the basic "substance" of optics, is replaced by calculus.[5] This foundational transformation of the image provokes questions much deeper than those of a purely technical nature. Although high-fidelity graphics and ever more impressive photorealism have inscribed themselves in the popular consciousness of gamers, it is the media-historical and cultural dimension of the technical image that is truly spectacular, for there is more to it than meets the eye. Games are programmed systems; their images dis-played on the screen are effects of algorithmic operations and, at the same time, an important part of the game's operationality. To understand the ludic spectacle, the audience generally needs to know how to interpret the ever-changing visual "muddle" (think of fast-paced MOBAs, addressed in chapter 4). An algorithmic spectacle requires from its audience the ability not only to observe images as representations of something but also (and more crucially) to decode imaginary systems in action. Video game images emerge from the intersection of what Aubrey Anable refers to as the "representational/computational fold."[6] Spectated play, then, spans the space between the configurable image and its dis-played configuration.

In this chapter I will lean on two entry points to explore the algorithmic spectacle of computed play. The first one starts with the foundational theory of the *technical image* by the philosopher Vilém Flusser,[7] and the second explores the *operational image* as described by the filmmaker Harun Farocki. Both concepts rethink the image vis-à-vis its traditional representational character. Technical and operational (or operative) images no longer represent or signify objects found in reality. They construct reality. They do not depict but rather visualize, model, and simulate. In order to prepare some ground for the question of technicity and operationality of the video game image, I will start by addressing the problem of the representation–computation binary.

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Computed Representations/Represented Computations

Each medium relies on some sort of tension: the tension between signal and silence in radio; the tension between the visible and the invisible in film; and the tension between the said and the unspoken, or between the antagonist and the protagonist in literature. Being the most multifaceted medium of all, video games show tension in a variety of ways: tension between the non-acted (noninteractive) and the acted (interactive); between the observed and the performed; and between the human player and the machine or algorithm, as noted in previous chapters. But, above all, the video game is an aesthetic form emerging out of the tension between representation and computation; between what is displayed on the screen and what is computed behind it. The infamous "kill screen" glitch in *Pac-Man* makes for a particularly fitting example. Also known as the "split-screen level," level 256 of *Pac-Man* features a glitch that causes the right half of the screen into a colorful scramble of numbers and letters (figure 6.1). This glitch demonstrates how representation and computation fold into each other. They are not two separate and exclusive dimensions. Together they constitute a digital image or what Frieder Nake calls a "twofold image" (*das doppelte Bild* in German): "A work generated at least in part, if not entirely, by algorithms (programs), exists in an interesting mode of duplicity. It is, at the same time, visible (or other-wise sensually perceptible) and computable."[8] In other words, while the human eye is scratching the *surface* (*Oberfläche*), the digital machine keeps computing the *subface* (*Unterfläche*).[9]

The twofold image of *Pac-Man* brings back foundational questions regarding the "nature" of the video game. A lot of debates (including those that never actually took place[10]) and early concerns of game studies revolved around the issues of representation and computation. Theoretical perspectives that view video games as digital, rule-based processes have often cast narrative and visuality as secondary to those processes. The rules, mechanics, and computational structures have become the "subface" of gaming; as Frans Mäyrä notes, it is the gameplay that is the core of gameness, not the graphics or the story.[11] Espen Aarseth, by contrast, theorizes the video game as a double-layered object consisting of mechanics (code, rules, physics) on the one hand and semiotics (text, image, sound) on the other.[12] As

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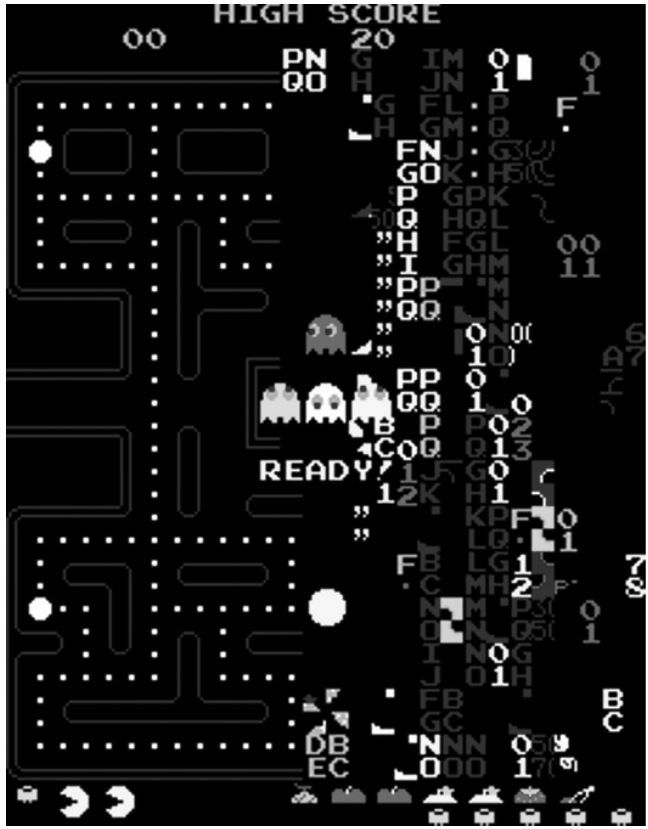

Figure 6.1
The "kill screen," or Map 256 glitch, in *Pac-Man* (1980). Image courtesy of the *Pac-Man* Wiki, https://pacman.fandom.com/wiki/Map_256_Glitch.

Aubrey Anable rightfully states, "computation/representation has become the structuring binary for game studies."[13] After closer examination, however, this representation–computation juxtaposition in game studies seems quite porous from a theoretical standpoint. After all, the surface dimensions of video games referred to by Mäyrä and other scholars are subject to the same computational processes and infrastructures as the idealized core. To classify video game images as representations and juxtapose them with the mechanics is to turn a blind eye to digital logic and the last few decades of image theory, hence my attempt to rethink this approach. After approximately twenty years of research dedicated specifically to video games, we

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no longer need to fear "colonization" by other disciplines.[14] Nowadays, the study of games stands firmly on interdisciplinary ground and can reexamine the old elephants still marking their presence in the room. I see the question of representation versus computation as one of the most settled proverbial elephants of our field.

As we will find out in the next section, the image abandoned the realm of representation many decades ago, along with the synthetization and discretization of information. Digital images no longer represent or signify and therefore cannot be placed vis-à-vis game mechanics or rule sets. Video games are played and displayed (or dis-played). Their operations are often displayed visually and their images are operational in nature. The misconception that they still belong to representational media rests on the erroneous conflation of the image with its sensorial reception on the part of the human player/viewer. The image is digital and discrete. The reception of it must remain analog and continuous.[15] The human observer is able to judge visually only the continuous aspect, so the discrete essence of the image needs to be displayed as if it were no different from the traditional analog image. Lev Manovich takes a similar perspective, viewing a digital image on the one hand as a representation that belongs to human culture and on the other as a computer file that belongs to "computer's own cosmogony."[16]

The representational/computational fold consolidates the old Cartesian mind–body split disguised under the digital veneer.[17] Perhaps this is why Friedrich Kittler, in his famous essay "There Is No Software," rejects the distinction between hardware and software altogether.[18] In the end, everything boils down to electric tension: "All code operations, despite such metaphoric faculties as call or return, come down to absolutely local string manipulations, that is, I am afraid, to *signifiers of voltage differences*."[19]

What may seem like a paradoxical proposition or a rhetorical exercise is rather a materially grounded philosophy of media. It shows how material processes determine the medial situation, or how firmly software is grounded in "hard" matter. And this is what I aim to point out in this chapter, laying bare the video game's visual and operational layers and bringing them back together, for they cannot and should not be seen as separate units. The computational "cut" performed by many game scholars places a default borderline where it does not really exist. I do not see it as necessarily productive to think of the system, the rules, and the procedures as the core and the instantiation of those rules, their representation, and how they

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are received as the periphery. The circular movement of thought from the center to the outside marginalizes some aspects of the ludic apparatus while privileging others. I would much rather think in terms of interferences,[20] tensions, and multiplicities[21] to acknowledge the multilayered dimension of the video game. That is why, in my explorations of video games as spectacles, I want to show how the displayed sequence of images is intertwined with the discrete operationality of the system; in other words, how the representational is computed and the computational represented.

Technical Images

Images influence our perceptions, values, and experiences. Their transformation brings about not only a purely technical change but also one that determines our very being in the world. For Vilém Flusser, the departure from representation toward computation marks a cultural revolution. In his monograph *Into the Universe of Technical Images*, first published in 1985, Flusser develops a media philosophy of the technical image. He begins his tour de force by juxtaposing the technical image with the prehistoric traditional image derived from early two-dimensional cave paintings. Flusser uses the term *traditional* to express the contextuality and placement of images within a longer tradition that makes them decipherable in the first place.[22] Technical images, by contrast, are characteristic of contemporary synthetic, electronic, and digital media such as photography, television, cinema, and computer-generated imagery. In the case of traditional images, the meaning is inscribed on the physical surface, whereas it is constructed from particles and pixels in technical images. Traditional images are observed and imagined; technical images are calculated and computed.[23] Their essence is a computed universe of particles that are then assembled into visible images. Flusser differentiates between two different types of technical image: chemical and electronic. The chemical ones can be subdivided into the silent and still (photography) as well as audible and moving (film). Computer images belong to the electronic category, as do video game images, which were not included in Flusser's work.

The computational nature of technical images questions their very ontological position as images in the first place. Unlike optical media, technical images are constructed mathematically and therefore do not actually depict anything. What we are able to see are the visualizations of computational

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processes. As human observers, we must decode technical images as continuous representations; otherwise, they would remain entirely inaccessible to our aesthetic judgment. In other words, "as [an] object of computability, the image must be digital; as [an] object of perceptibility, the image must be analogue."[24]

Flusser does not develop his argument to demonstrate the shortcomings of a human observer equipped with the physical capacity for sight being unable to see behind the veneer of computational imagery; quite the contrary. It is the human observer who has the capacity to turn technical images back to images in the first place. Technical images can only be called images in the strictest sense of the term, when viewed superficially (i.e., near the surface), Flusser argues.[25] At the foundation of the technical image, then, lies the concept of *distance* between the observer and the observed.[26] And although traditional images also require the act of distancing from the concrete experience—they are, after all, two-dimensional representations and interpretations of it—the kind of distancing involved in spectating computed and simulated imagery renders a completely different experience.

The question of distance culminates in Flusser's reflections on the critical reception of the technical image. He sees it as necessary to create new criteria according to which a technical image analysis should take place. These criteria are fundamentally different from the ones known to the traditional realm. Since technical images are no longer representations of the outside world but rather approximations and models of reality, their "critical reception . . . demands a level of consciousness that corresponds to the one in which they are produced."[27] The meaning of a technical image is therefore literally encoded. To decode a technical image, as Flusser argues, we do not need to read what it shows but rather read how it has been programmed:

> We must criticize technical images on the basis of their program. We must start not from the tip of the vector of meaning but from the bow from which the arrow was shot. Criticism of technical images requires an analysis of their trajectory and an analysis of the intention behind it. And this intention lies in the link, the suture of the apparatus that produced them with the envisioners who produced them.[28]

Flusser made his observation three decades before the emergence of critical code studies. Whether this influence is direct or incidental is of lesser importance here; it only shows the prognostic quality of his work. It is also a sign of its time. To grasp digital media is to learn the language of

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operationality in order to be able to critically approach its digital logic. As emphasized by Marc C. Marino, the author of *Critical Code Studies*, we must read code for more than what it does—we must consider what it means.[29] To understand digitality, it does not suffice to merely observe the effects displayed on the screen; we need to be able to critically analyze the operations of code in addition to its effects. Marino's assertion echoes Flusser's call to study the apparatus behind the veneer of the technical image. I will return to this point later.

Operational Images

Within the context of image theory, operationality is often reflected with and alongside the critical video installation trilogy (2001–2003) of Harun Farocki, especially its last part, the *Eye/Machine III*. Farocki's preoccupation with the operational quality of the image goes beyond its aesthetic dimension. He develops the concept of operational image within a highly political and ethical military context. His operational images are concerned with regimes of control and perform specialized tasks, such as guiding remote-controlled missiles (as depicted in *Eye/Machine I*). This is how Aud Sissel Hoel, a media and visual culture theorist, introduces Farocki's work:

> The catalyzing event for the Eye/Machine trilogy was the outrage and sensation of the 1990–1991 Gulf War, where point-of-view footage from laser-guided bombs (popularly known as smart bombs) was widely broadcasted to TV audiences. The military deployment of eye machines prepared the way for a new type of warfare—a "war at a distance" facilitated by a new kind of images that Farocki terms operative images (*operative Bilder*).[30]

Farocki's concept of the *operational image* complements and expands on the technical image. Like Flusser, Farocki too sees a major shift in the role played by the digital image. It no longer represents reality but rather constructs it. Operative images "do not represent an object, but rather are part of an operation."[31] Commenting on Farocki's work, Trevor Paglen writes, "Instead of simply representing things in the world, the machines and their images were starting to "do" things in the world."[32] This active role of the image does not correspond to deception or delusion but rather revolves around the idea that images have some kind of agency of their own.[33]

What differentiates Farocki's operational images from other types of images is their implied audience. They are not intended for human sight.

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Operational images ". . . exceed the human scale"[34] and are made "neither to entertain nor to inform."[35] They are interfaces mediating between algorithmically generated processes and the human observer. The visual aspect of the operational image remains superfluous for the machine. All it needs to do is process numerical data.

The above interpretation of operationality has become a key reference point in ongoing media theoretical debates regarding the digital image. However, as we learn from Hoel's in-depth analysis of operative images, the meaning behind and the use of the term "operation" has remained quite diverse.[36] For instance, in "The Algorithmic Art Manifesto" Frieder Nake uses "operative" as a synonym of computability and algorithmicity:

> We cannot see the digital. Nor can we hear or smell or taste or touch it. The digital does not exist for human senses. We just cannot perceive it.
> . . .
> The computable is the operative and dynamic aspect.
> . . .
> Computability thus is the primary aspect; digitality is only secondary. The computable is also called the algorithmic.[37]

For William Uricchio, the operationality of the digital image is also directly connected to its algorithmic construction.[38] The new ways of representing are tied to algorithmic intermediations between the subject and the viewed object. In his understanding, algorithms form a layer that separates the calculating subject from the calculated object. Lev Manovich, by contrast, sees operations as "technologically based cultural practices" that are not exclusively tied to computer software.[39]

Within the context of video games, perhaps the most recognizable theory of operationality is the work of Ian Bogost, specifically his concept and method of performing video game criticism known as unit operations: "Any medium—poetic, literary, cinematic, computational—can be read as a configurative system, an arrangement of discrete, interlocking units of expressive meaning. I call these general instances of procedural expression *unit operations*."[40] Bogost, similarly to Manovich, does not attribute operational logic exclusively to digital computational media. To him, "operation" denotes a process that performs transformations of input information. Operations include decisions, transitions, and state changes. They may be mathematical, but they may also refer to such mundane processes as brewing tea or steering a car.

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My own interpretation of operationality does not expand on Bogost's unit operations. It is closely tied to the technical medium and builds on Harun Farocki's perspective, connecting operations with computational and algorithmic processes. Unlike Farocki's military images, however, video games—even the self-playing ones—are intended for human sight.

Watching Game Operations

Art tends to make the materiality of the medium particularly striking; it has the ability to bring the medium's most fundamental aspects to light. One example of this capacity is Ian Cheng's *Emissaries* (2015–2017) (figure 6.2), which was discussed in chapter 4 in the context of automation. Consisting of "computer-generated simulations like those used in predictive technologies for complex scenarios such as climate change or elections," each of the *Emissaries* installments was exhibited in galleries and livestreamed over the online platform Twitch.[41] Cheng designed the simulations to be watched rather than physically manipulated. With its algorithmically generated images, *Emissaries* provides a perfect springboard for exploring the crossover between operationality and spectated video gameplay.

Figure 6.2
Ian Cheng, *Emissary in the Squat of Gods* (2015). Video still © Ian Cheng. Courtesy the artist, Pilar Corrias (London), Standard (Oslo), and Gladstone Gallery (New York).

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Cheng elaborates on the diversity of visual experience in *Emissaries* as follows:

> The hope with the simulation is that you can really occupy the attention across the spectrum: people looking at it for five seconds as an image, as an interesting image that they've never seen before and they come back multiple times to; or for five hours, the way you feel like looking out of the window and seeing kids play or squirrels run up the tree. Or you can watch and zone in on one or two characters and observe the story of their whole life. I designed those simulations to mimic nature so that you could shift your attention like a bird-watcher—if you had some knowledge of what you're looking at, you could look at it one way; if you had no idea what you're looking at, you could also experience pleasures of this kind of second nature. It's for all kinds of attention spans.[42]

Cheng's description identifies three ways of spectating. When viewed for a short time, *Emissaries* can be interpreted as images or representations. When we choose to focus on a particular character within the simulation, the moving images can be interpreted as continuous narratives or series of events. And when *Emissaries* is watched for a prolonged time, it can be interpreted as an observation of an operating system.

These three ways of looking at *Emissaries* accurately depict different cultural techniques employed in the process of looking at games. Cultural techniques (*Kulturtechniken*) is a concept in German media theory that refers to the interactions between humans and media; examples include writing, reading, painting, counting, or music making.[43] A video game may therefore be viewed as a collection of images whose visual characteristics are a source of delight; take, for instance, the practice of in-game photography, which allows players to take screenshots of the in-game scenery and exhibit them as digital images to be contemplated.[44] Many games feature "photo mode" in order to encourage the players to marvel at and capture in-game scenes and landscapes. Oftentimes, a video game is watched as a narrative—a sequence of images and events acted out, watched on the screen, remembered, and retold as a consistent cause-and-effect chain. But the aspect I find the most mesmerizing from a media theoretical standpoint—with regard to games and simulations in particular—is watching the changing behavior of the performing system. Audrey Anable analyzes system observation within the context of another video game art: Cory Arcangel's *Various Self-Playing Bowling Games* (2011), a collection of six hacked bowling games that play on their own (figure 6.3). Anable writes: "As viewers,

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Figure 6.3
Cory Arcangel, *Various Self Playing Bowling Games* (2011). Hacked video game controllers, game consoles, cartridges, disks, video, and artist's software. Installation view: Pro Tools, Whitney Museum of American Art, New York, USA, May 2011–September 2011. Photo: Adam Reich. Image courtesy of the artist.

we are completely outside the cybernetic loop, a position that violates the most basic (if exaggerated) principle of video games: that we can control them. Denied the possibility of playing the games, we contemplate the games as systems."[45] Unfortunately, she does not develop the concept of system observation beyond a broad statement that instead of watching a looped montage, the audience looks at the gaming system's enactment of each game's gutter ball algorithm.

Emissaries and *Bowling Games* demonstrate how video game images are closely tied to the notions of functionality, usability, and computing. In that sense, video game images often end up being technical instruments in the players' hands rather than representations. For spectators (or "observers of systems"), they do not only represent the in-game world but become visual instantiations of the game's operationality.[46] As I have already argued with regard to Flusser and Farocki, the operationality of the digital image usually remains distant and indecipherable to the human eye, staying buried beneath the digital veneer. We see only approximations and representations of operationality projected onto the screen; in other words,

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we watch the representational surface of multiple software operations. This algorithmic spectacle displays characteristics of a *post-perceptual image*; one that "has attained a certain autonomy from synthetic operations that necessarily involve human forms of perception and sensation."[47] The digital quality of the image (pixels susceptible to purely machinic protocols) not only marks its break with the legacy of cinema and photography but, more importantly, makes it impossible to be perceived and, furthermore, aesthetically judged by the human eye.

Layers of Spectated Meaning

The question remains: How do we perform an aesthetic analysis of spectated play beyond that which is accessible to our senses? At this point, I would like to revisit the proposition made by Vilém Flusser to understand the image by examining its apparatus. Performing a Flusserian interpretation requires a systematic analysis of how the image has been constructed. One method of accomplishing this, as advocated by the emerging discipline of critical code studies, is interpreting its underlying code. Conor Mckeown's close reading of code within the context of video games is a rare example of the method in question.[48] Mckeown analyzes an image of a black square he programmed to be displayed on the screen and maneuvered around by the player (figure 6.4). He begins by asking what may seem like a trivial question: "How is the image displayed on the screen?" He then moves on to technical specifications (figure 6.5): the square's dimensions (64 × 64 pixels), the size of the image file (239 bytes), and the code snippet that makes it appear (image.src = "blacksquare.png";).

Before the image can be displayed, the computer needs to "know" that there is an object var bs, which will be filled with graphical material. As Mckeown states, "only once the image, the digital object and the function are in place can we place the object on the screen."[49] For the graphical information to be displayed to the external user, a "renderer" must be specified. In reading Mckeown's code analysis, we discover that it is not "blacksquare.png" that is *the* image. Instead, he defines an image as an ongoing, contextualized process. The operations behind the display of an image as simple as a black square demonstrate the complexity of the video game spectacle and the technical conditions required for it to produce meaning.

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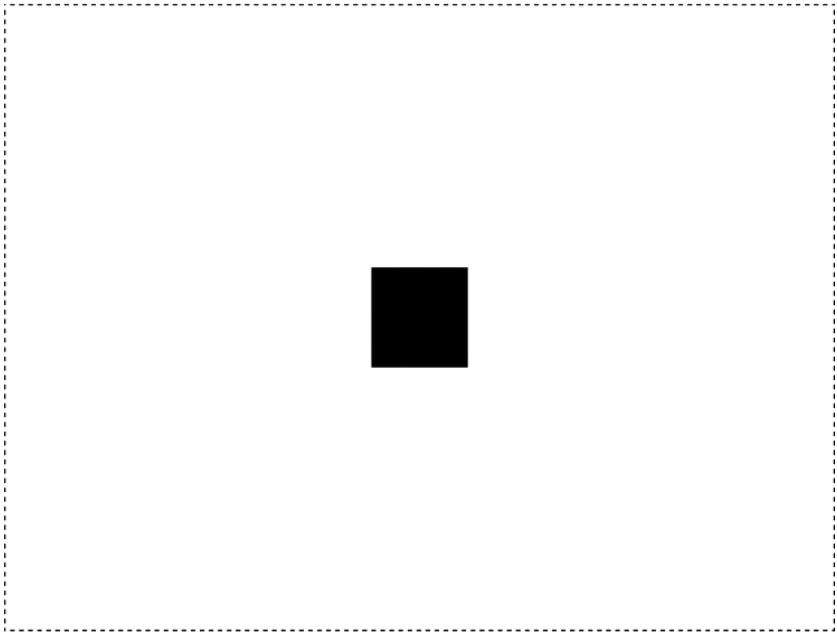

Figure 6.4
An image of a black square, coded and analyzed by Conor Mckeown in his PhD dissertation, *Videogame Ecologies: Interaction, Aesthetics, Affect* (2018).

```
var spriteObject =
 {sourceX: 0, sourceY: 0, sourceWidth: 64, sourceHeight:
64, x: 0, y: 0, width: 64, height: 64, vx: 0, vy: 0 };
var bs = Object.create(spriteObject);
bs.x = 243;
bs.y = 168;
var image = new Image();
image.addEventListener("load", loadHandler, false);
image.src = "blacksquare.png";
```

Figure 6.5
Selected code lines describing the properties and functions of Mckeown's black square.

In an attempt to capture the algorithmic spectacle, we could also follow Friedrich Kittler's media archeological method of descending from higher to lower levels of observation:[50] moving from what is visible on the screen to programs and their infrastructural logic to the operating system to low-level

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programming languages—including the very machine code responsible for the operationality of the hardware itself. It is, of course, technically challenging if at all necessary to perform an image analysis that cascades all the way down to the electricity powering the hardware. Kittler's perspective, however, may inspire another medium-centered method of image analysis, one involving an examination of various drawing and modeling tools (Maya, Substance Painter, and ZBrush, to name just a few) in addition to a study of the program's infrastructure, which enables the emergence of the image in the first place. Each program comes with certain design possibilities as well as constraints. In that sense, it becomes an active agent in the process of image "envisioning" as theorized by Flusser. As we have learned from the black square example, images in games may be displayed as parts of objects equipped with certain functionalities (e.g., the ability to move the square around the screen). In more complex game worlds, this relation between image and object can also be explored by analyzing how a particular image created in a specific visual art software becomes part of a functional game space once it has been imported into the game engine. At that point, the image not only transforms into a new instantiation of itself but also can gain a layer of operationality it did not have before. We might say that the image is turned into an instrument-image that can be acted on and that behaves in accordance with the simulated physics of the game world. To interpret and analyze spectated play, then, is to look at the conditions of its production (software), examining the underlying code of that image or game scene, and finally determining how the image is placed within a gameplay context (how it corresponds with the physics of the engine, which parts of it attain the instrumental qualities of objects, etc.).

In many cases, to spectate is also to look into the behavior of the system displayed on the screen in search of relevant pieces of information, which would then allow the player to interpret the gaming situation. Such interpretation of the visual "muddle" becomes a skill that demands highly developed ludic literacy and, oftentimes, even nonhuman capabilities. A glimpse of a screenshot from *League of Legends* match portrays the complexity of the spectacle (figure 6.6).

To a spectator who is unfamiliar with the genre, the title, and the rules of the game, the operational aspect of the image is difficult—if not outright impossible—to decipher. The spectator may be able to look at the image as a depiction of a fictional world, recognizing its characters, landscape,

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Figure 6.6
A *League of Legends* screen capture in spectator's mode. Courtesy of Riot Games.

and elements of its user interface. The position of the opposing teams, the color coding during a battle, and the dynamically changing layout will not yield any helpful information that might be used to interpret the outcome of the game. Within the context of esports, a deeper interpretation of the spectacle is oftentimes enhanced by data analytics that rely on live tracking of on-screen data, such as player movement across the game map.[51] In such a case, the ongoing spectacle playing out in front of the human player is translated into a discrete set of operations interpretable by the computer.[52] These can include continuous live tracking of the player's location in the game world, the attacks they've performed, the amount of damage they've avoided and inflicted, and their health levels, among many other variables. Such methods are used in computer science to calculate and interpret win probability models. I will not delve further into this aspect of spectating here, but I see these developing practices as important aspects of the algorithmic spectacle and as an opening for new interpretational perspectives around media aesthetic.

The Aesthetic of Spectated Play

Within the context of video games, spectacle turns out to be a complex topic, partially due to the diversity of games themselves and partially due to

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the variety of cultural techniques revolving around the practice of watching digital images. There must be a difference between watching a self-playing simulation like *Emissaries*, watching others play video games, and watching a livestreamed esports tournament. The algorithmic spectacle, then, is always situational. How we look and what we see depends largely on the context of the spectacle and on the apparatus set-up (e.g., watching gameplay in a museum setting, on a mobile phone, on a computer screen). A digital spectacle puts the player at a distance from the object of play. As mentioned in the introductory chapter, spectating is a form of engagement with video games that requires no direct physical action. It also points toward an aspect of distancing activated by the technical and operational facets of the image (as argued in this chapter through the work of Flusser and Farocki). Computers mediate between players and spectators and the games themselves, putting the former at an ever-greater distance from the latter.

Above all, it is the digitality of the spectacle that poses a real challenge to the question of aesthetic. After all, video games are both spectacular (highly visual) and computational (highly operational) media. Can we speak of an image at all if it remains inaccessible to human senses? How can meaning be captured within the context of an image whose operationality reveals as much as it obscures? Such questions culminate in the concept of digital aesthetic, which stays in "the impasse between continuity and discreteness."[53] My aim in this chapter was to capture this deadlock within the context of spectated algorithmic play.

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Postlude: Distance at Play

> "We cannot remove the 'nonplay' components of a videogame and hope to arrive at a pure, essential 'gameness' that in any way represents the experiences players have with that videogame."
>
> Brendan Keogh[1]

Our journey to the borderlands of video game aesthetic is coming to an end. I hope this exploration of the periphery of gameness has shown how central it is to the understanding of play in the computer age. The interpretation of the ludic frontier proposed in this book has reached beyond a human-centered approach to gaming. It has displayed other agents at play, human and machine alike. I was fascinated not only by how we play with computers but also by how they play with us, and I wanted to understand how computational logic engraves itself in the plasticity of play and how the computational medium interferes with and co-constitutes the aesthetic experiences of play.

But the word *frontier* does not merely signify what lies on the edge. It is also something that is facing forward. Perhaps somewhat immodestly, this work has striven to provide an outlook into play on the verge of its current cultural-technological moment. The human urge to play may seem a historical constant, but the forms of play emerging out of our intra-actions with digital technology remain highly time-and-medium specific. As digital technology transforms, our patterns and rhythms of play change, too. The early computers were, at their core, machines meant to be operated by humans, but today's computing is happening at an ever-greater distance from human action. Such a seismic shift only naturally manifests itself at play. The computer changes practices of play, changes us as players, and

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facilitates specific aesthetic experiences characteristic of its own logic. It introduces layers of computational mediation between us and the games we play. Many processes, even in the most interactive games, run automatically in the background. This puts us at an aesthetic distance toward the object of play. Thus, at a fundamental level, media aesthetic of video games is a computational aesthetic. To ask about the aesthetic of video games is to look at how play "conjoins, contributes to or contrasts with computation," in the words of the media theorists M. Beatrice Fazi and Matthew Fuller.[2] This project has been just such an attempt to understand the complexity that arises from the entanglement of play with computerized media.

The construction of media aesthetic of video games calls for a reworking of many of its conceptual categories and the vocabulary to carve out new theories able to grasp the changing aesthetic practices. In many ways, this work is a reply to Brian Sutton-Smith's call to develop a "vocabulary of distance" within the context of play and games.[3] The framework of distance has allowed me to open space to think through a variety of peripheral play forms that are often labeled "nonplay" or "notgames," despite their highly ludic character. Mediated distance also partially explains the erroneous but prevailing division between aesthetic and mechanics in video games. Computation is not only the technological core; it is also a method and a logical framework. That which is seen, touched, and experienced cannot be decoupled from the computational logic determining the aesthetic experience.

In the last five chapters I have introduced different facets of distance at play: delegation, automation, ambience, intra-action, and spectacle. To explore emergent forms of play and game genres and their relation to computation, I have presented a variety of ideas and concepts grounded in media theory, play theory, philosophy, and cultural and film studies, all the while engaging with past and current research streams in the rich field of game studies. Ultimately, however, this book was conceptualized as an interdisciplinary encounter between game studies and media theory, and it is primarily those two disciplines that I would like to dialogue with most vigorously.

With this project, I also hope to contribute to and inspire further research trajectories at the intersection between play, aesthetic, and computation. Topics that I only briefly discussed—and that I would like to devote more critical attention to in the future—include the role of encoded structures, game analytics, and metrics in molding (as opposed to measuring) aesthetic

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experiences of play. Such a perspective sees code not as much as an intermediary and facilitator of ludic experiences but as a co-agent at play. In the words of Marc C. Marino, we must read code not only for what it does but also (and perhaps more importantly) for what it means.[4]

Critical interventions at the intersection between game studies and critical code studies could become a posthuman play theory in the making. I see posthumanism as a vital perspective in the study of computerized play. It allows us to reconceptualize agency and action as qualities distributed between humans, AI, and hardware. A closer critical reading of encoded play structures could yield some answers to such questions as: How does one judge the beauty of an automated game; or a new, algorithm-inspired move combination in the game of Go; or an incrementally growing semi-automated game system? Perhaps a posthuman aesthetic could involve a combination of the procedural artistry of the system and the human spectatorship of it. Posthumanism serves as a metaphorical angle, a framework of thought that makes visible all the multiplicities of play in digital environments. By focusing on play through posthumanism, we are able to open the video game category to different human–nonhuman constellations of play, human, and machine acts, and all of the experiments that may be described as posthuman or nonanthropocentric play.

With computation comes not only a certain way of playing but also a very particular sense of responsibility encoded into play. In one of his most recent publications, Miguel Sicart writes, "one needs to inquire about the moral foundation of *Homo ludens*: to understand the ethical challenges of a playful computational culture, and the ways in which we can intervene to analyze problems and effect change."[5] In my project, the ethical aspects of playing at a distance have not been given much attention; however, the ethical stakes of delegated, automated, ambient, or otherwise distant play forms and practices remain high. Let me conclude with a short example that may perhaps serve here as a signpost for further study of mediated distance through the lens of ethics. In chapter 3, I concluded that ambient play introduces much-needed balance to the accelerating rhythms of the digital age: the bombardment with information, the ubiquity of data, and the fast pace of communication. However, it may also be read as an example of the strategy of self-care embedded in the contemporary neoliberal digital culture of optimization and nonstop connectivity. Ambience, then, is not only a fruitful aesthetic category but also one that has far-reaching

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political and ethical implications. Ambience is sold as a product of self-optimization rather than a way out of the oppressive system. Seth Kim-Cohen's open critique of the ambient aesthetic illustrates the problem: "We deserve an art that is the equal of our information age. Not one that parrots the age's self-assertions or modes of dissemination, but an art that is hyper-aware, vigilant, active, engaged, and informed."[6]

A perspective grounded in ethics offers the necessary counterweight to the material and posthuman musings on computational aesthetic. Paradoxically, the biggest problem with an aesthetic perspective so deeply grounded in the materiality of the medium is its distance from the human experience. For instance, in "digging" deep into the digital constitution of the spectacle (chapter 6), one drifts further away from the human action of spectating. This is perhaps a general tendency of media-theoretical perspectives, which are more preoccupied with the technology itself than with the human experience of it. I too tend to be more fascinated by the operations of the medium than with the operations of the human in front of it. So, in an attempt to draft a more human-centered or human-friendly (a pun on "user-friendliness," if you will) end to this highly medium-driven book, let me conclude with a remark by M. Beatrice Fazi:

> To address digital technologies in aesthetic terms, we need to revise its quantitative functions in terms of qualitative vectors of modulation and differentiation, or couple them with material and affective proprieties (such as for instance those of art, or of society and culture) that would negotiate the numerical operations of the digital machine.[7]

In other words, the media aesthetic of computational processes must eventually return to the human realm. Numerical operations are always entangled with human operations, so an analysis of operations and material infrastructures needs to loop back to the lived experience.

In the end, the question of video game aesthetic rests on the fluid relationship between the human and the technological—a dynamic that remains far from straightforward in times when both categories are being constantly contested. This project has been an attempt to rewrite the largely anthropocentric theory of interactive video games (metaphorically hard-coding the borderlines between the two) while, at the same time, trying not to remove the human aspect entirely from my material musings. I can only hope to have achieved this.

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Notes

Prelude: Play at a Distance

1. Donna J. Haraway, "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective," *Feminist Studies* 14, no. 3 (1998): 583.

2. Albert Einstein, Boris Podolsky, and Nathan Rosen, "Can Quantum-Mechanical Description of Physical Reality Be Considered Complete?" *Physical Review* 47, no. 10 (1935): 777–780, https://doi.org/10.1103/PhysRev.47.777.

3. The influence of technical media on humans is a central question of media theory after Friedrich Kittler. In one of the texts devoted to the work of Kittler, Jussi Parikka emphasizes the role of media processes and procedures in shaping the human, who is no longer seen as a self-governing subject but rather is subjected to media. See Parikka, "Friedrich Kittler—A Media Anthropology without the Man?," published online by the European Association of Social Anthropologists, 2012, https://www.easaonline.org/downloads/networks/media/39p.pdf.

4. To get acquainted with the history of the player-piano, see Arthur W. J. G. Ord-Hume, *Player Piano: The History of the Mechanical Piano and How to Repair It* (London: George Allen and Unwin, 1970).

5. See Johan Huizinga, *Homo Ludens: A Study of the Play-Element in Culture*, trans. Richard Francis Carrington Hull (London: Routledge & Kegan Paul, 1949 [1938]); Roger Caillois, *Man, Play, and Games*, trans. Meyer Barash (Urbana: University of Illinois Press, 2001 [1958]); Chris Crawford, *The Art of Computer Game Design* (New York: McGraw-Hill, 1984); Jesper Juul, "The Game, the Player, the World: Looking for a Heart of Gameness" (paper, 2003 DiGRA International Conference, Utrecht, the Netherlands, November 4–6, 2003), https://www.jesperjuul.net/text/gameplayerworld/; Katie Salen and Eric Zimmerman, *Rules of Play: Game Design Fundamentals* (Cambridge, MA: MIT Press, 2003).

6. Espen Aarseth, *Cybertext: Perspectives on Ergodic Literature* (Baltimore: Johns Hopkins University Press, 1997).

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7. See Crawford, *The Art of Computer Game Design*; Laura Ermi and Frans Mäyrä, "Fundamental Components of the Gameplay Experience: Analysing Immersion" (paper, 2005 DiGRA International Conference, Vancouver, BC, Canada, June 16–20, 2005), http://www.digra.org/wp-content/uploads/digital-library/06276.41516.pdf.

8. Lev Manovich, *The Language of New Media* (Cambridge, MA: MIT Press, 2001), 71.

9. An aesthetic concept developed by Samuel Taylor Coleridge in the nineteenth century with regard to literature.

10. This crucial difference goes beyond pure rhetoric. Being *in the (game) world* presupposes the existence of it on the one hand, and the "invading" subject on the other. Being *of the (game) world* means being part of it, being co-constructed and co-constructing at the same time. This distinction has been theorized by Karen Barad in their philosophy of agential realism, taking as its point of reference Bohr's insights about the impossibility of objective physical measurement: "Apparatuses are not mere static arrangements *in* the world, but rather apparatuses are dynamic (re)configurings *of* the world." Barad, "Posthuman Performativity: Toward an Understanding of How Matter Comes to Matter," *Signs: Journal of Women in Culture and Society* 28, no. 3 (2003): 816.

11. Brian Sutton-Smith, *The Ambiguity of Play* (Cambridge, MA: Harvard University Press, 1997), 8.

12. John Durham Peters, Florian Sprenger, and Christina Vagt, *Action at a Distance* (Minneapolis: University of Minnesota Press, 2020).

13. Franco Moretti, *Distant Reading* (New York: Verso Books, 2013).

14. Or what Espen Aarseth calls *analytical play*. See "Playing Research: Methodological Approaches to Game Analysis" (paper, 5th International Digital Arts and Culture [DAC] Conference, Melbourne, Australia, May 19–23, 2003), http://www.bendevane.com/VTA2012/herrstubbz/wp-content/uploads/2012/01/02.GameApproaches2.pdf.

15. Brian Sutton-Smith touched on the subject of mediated distance in the video conference session at the 1st DiGRA International Conference, intro. Jeffrey Goldstein, host Eric Zimmerman (Utrecht, the Netherlands, November 5, 2003), video, 49:37, https://digra2003.org/videoconferencing-session-brian-sutton-smith/.

16. Jacques Henriot's concept of distance at play has been revived by contemporary Francophone researchers on the pages of *Sciences du jeu*, a journal dedicated to the so-called science of play. Its first issue in 2013 was devoted to Henriot's theory of play: https://journals.openedition.org/sdj/195.

17. To understand the significance of Benjamin's thinking for the media aesthetic of digital play, it is also important to look into his writings on first and second technology. See Walter Benjamin, "The Work of Art in the Age of Its Technological Reproducibility: Second Version," in *The Work of Art in the Age of Its Technological*

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Reproducibility, and Other Writings on Media, ed. Michael W. Jennings, Brigid Doherty, and Thomas Y. Levin, trans. Edmund Jephcott and Harry Zohn (Cambridge, MA: Belknap Press of Harvard University Press, 2008 [1991, 1935]), 19–55.

18. Parikka, "Friedrich Kittler," 2.

19. M. Beatrice Fazi, "Digital Aesthetic: The Discrete and the Continuous," *Theory, Culture & Society* 36, no. 1 (2019): 3–26. Published online ahead of print, May 11, 2018, https://doi.org/10.1177/0263276418770243.

20. Claus Pias, *Computer Game Worlds*, trans. Valentine A. Pakis (Berlin: Diaphanes, 2017). First published in 2002 as *Computer Spiel Welten* by Sequenzia (Munich).

21. Alexander R. Galloway, *Gaming: Essays on Algorithmic Culture* (Minneapolis: University of Minnesota Press, 2006).

22. Ian Bogost, *Unit Operations: An Approach to Videogame Criticism* (Cambridge, MA: MIT Press, 2006).

23. Miguel Sicart, *Play Matters* (Cambridge, MA: MIT Press, 2014); see also Sicart's forthcoming monograph on the subject, *Playing Software: Homo Ludens in Computational Culture* (Cambridge, MA: MIT Press, 2023).

24. Brian Upton, *The Aesthetic of Play* (Cambridge, MA: MIT Press, 2015).

25. Another early attempt to define games independently of the medium appears in Jesper Juul's transmedial definition of play. See Juul, "The Game, The Player, The World." The problem with such a perspective is that by thinking outside of the medium, it looks for some external reality not embedded in real, performed ludic situations. These, however, as I argue in this book, are always tied to a certain medium, be it a piece of wood, paper, or a silicon chip.

26. Ian Bogost, *Alien Phenomenology, or What It's Like to Be a Thing* (Minneapolis: University of Minnesota Press, 2012).

27. Matter and materiality are central to Karen Barad's philosophy: "It is vitally important that we understand how matter matters." Barad, "Posthuman Performativity," 803.

28. Jussi Parikka, *What Is Media Archeology?* (Cambridge: Polity Press, 2012), 36.

29. James Vincent, "A Game about AI Making Paperclips Is the Most Addictive You'll Play Today," *Verge*, October 11, 2017, https://www.theverge.com/tldr/2017/10/11/16457742/ai-paperclips-thought-experiment-game-frank-lantz.

30. Ian Cheng, *Emissaries Trilogy: Emissary in the Squat of Gods; Emissary Forks at Perfection; Emissary Sunsets the Self*, 2015–2017, live simulation, prod. Veronica So, MoMA PS1, New York, https://www.twitch.tv/moma.

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31. In their monograph, Mia Consalvo and Christopher A. Paul address the problematic of "real games." See Consalvo and Paul, *Real Games: What's Legitimate and What's Not in Contemporary Videogames* (Cambridge, MA: MIT Press, 2019).

32. On participatory culture, see Henry Jenkins with Ravi Purushotma, Margaret Weigel, Katie Clinton, and Alice J. Robison, *Confronting the Challenges of Participatory Culture: Media Education for the 21st Century* (Cambridge, MA: MIT Press, 2009). I refer to the "automatic turn" in an editorial to the special issue of the *Journal of Gaming & Virtual Worlds* devoted to automation. See Sonia Fizek and Markus Rautzenberg, "The Work of Game in the Age of Automation," in "Autoplay—Gaming in the Age of Automation," special issue, *Journal of Gaming & Virtual Worlds* 10, no. 3 (2018): 197–201. On the "material turn," see Thomas H. Apperley and Darshana Jayemane, "Game Studies' Material Turn," *Westminster Papers in Communication and Culture* 9, no. 1 (2012): 5–25, http://doi.org/10.16997/wpcc.145.

33. Sigfried Giedion, *Mechanisation Takes Command: A Contribution to Anonymous History* (New York: Oxford University Press, 1948; Minneapolis: University of Minnesota Press, 2013), 3. Page citations refer to the 2013 edition.

34. Giedion, *Mechanisation Takes Command*, 3.

35. Gilles Deleuze, Félix Guattari, and Robert Brinkley, "What Is a Minor Literature?" *Mississippi Review* 11, no. 3 (1983): 13–33, http://www.jstor.org/stable/20133921.

36. I presented on the subject of interpassivity in video games at the annual DiGRA Conference in 2017 and subsequently published an article: "Interpassivity and the Joy of Delegated Play in Idle Games," *ToDIGRA: Transactions of the Digital Games Research Association* 3, no. 3 (2018): 137–163, http://todigra.org/index.php/todigra/article/view/81. To find out more about interpassivity, see the numerous works of Robert Pfaller; for instance, *Interpassivity: The Aesthetics of Delegated Enjoyment* (Edinburgh: University of Edinburgh Press, 2017).

Chapter 1: Beyond Interactivity

1. An ironic example of the choice infrastructure may be found in *Black Mirror: Bandersnatch* (2018), a dedicated interactive film in the Netflix anthology series *Black Mirror*. On a meta-level, it offers the viewer a myriad of choices, yet within the episode itself, reminds the choose-your-own-adventure game programmer that "you are not in control"; somebody else is making the choices for you (the Netflix algorithm or the spectator, in this case). *Black Mirror: Bandersnatch*, directed by David Slade (House of Tomorrow / Endemol Shine UK, 2018). https://www.netflix.com/title/80988062.

2. Aubrey Anable, *Playing with Feelings: Video Games and Affect* (Minneapolis: University of Minnesota Press, 2018), 49.

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3. See Guy Debord, *Society of the Spectacle*, trans. Donald Nicholson-Smith (New York: Zone Books, 1994 [1967]).

4. Marshall McLuhan, *Understanding Media: The Extensions of Men* (New York: McGraw-Hill, 1964); Henry Jenkins, Mizuko Ito, and danah boyd, *Participatory Culture in a Networked Era: A Conversation on Youth, Learning, Commerce, and Politics* (Cambridge: Polity Press, 2016); Chris Crawford, *The Art of Computer Game Design* (New York, McGraw-Hill, 1984).

5. See Chicago School of Media Theory, s.v. "interactive." https://lucian.uchicago.edu/blogs/mediatheory/keywords/interactive/. Also see Margaret Morse, *Virtualities: Television, Media Art, and Cyberculture* (Bloomington: Indiana University Press, 1998), 16, 22.

6. Janet H. Murray, *Hamlet on the Holodeck: The Future of Narrative in Cyberspace* (Cambridge, MA: MIT Press, 1998), 90.

7. Chris Crawford, *The Art of Interactive Design*: *A Euphonious and Illuminating Guide to Building Successful Software* (San Francisco: No Starch Press, 2002), 387.

8. Victor Kaptelinin and Bonnie Nardi, *Acting with Technology: Activity Theory and Interaction Design* (Cambridge, MA: MIT Press, 2006).

9. Friedrich A. Kittler, *Gramophone, Film, Typewriter*, trans. Geoffrey Winthrop-Young and Michael Wutz (Stanford, CA: Stanford University Press, 1999), xxxix.

10. Claus Pias, *Computer Game Worlds*, trans. Valentine A. Pakis (Berlin: Diaphanes, 2017 [2002]), 326.

11. See Seth Giddings, "Events and Collusions: A Glossary for the Microethnography of Video Game Play," *Games and Culture* 4, no. 2 (2009): 144–157.

12. See Jesper Juul, "The Game, the Player, the World: Looking for a Heart of Gameness" (paper, 2003 DiGRA International Conference, Utrecht, the Netherlands, November 4–6, 2003), https://www.jesperjuul.net/text/gameplayerworld/.

13. See Mia Consalvo and Christopher A. Paul, *Real Games: What's Legitimate and What's Not in Contemporary Videogames* (Cambridge, MA: MIT Press, 2019).

14. Espen Aarseth, *Cybertext—Perspectives on Ergodic Literature* (Baltimore: Johns Hopkins University Press, 1997), 51.

15. Lev Manovich, *The Language of New Media* (Cambridge, MA: MIT Press, 2001), 71.

16. Dominic Arsenault and Bernard Perron, "In the Frame of the Magic Cycle: The Circle(s) of Gameplay," in *The Video Game Theory Reader 2*, ed. Bernard Perron and Mark J. P. Wolf (London: Routledge, 2009), 109–131.

17. Brendan Keogh, *A Play of Bodies: How We Perceive Video Games* (Cambridge, MA: MIT Press, 2018), 171.

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18. Langdon Winner, *Autonomous Technology: Technics-out-of-Control as a Theme in Political Thought* (Cambridge, MA: MIT Press, 1977), 8.

19. Jerry Kaplan, "AI's PR Problem," *MIT Technology Review*, March 3, 2017, https://www.technologyreview.com/s/603761/ais-pr-problem.

20. The "notgames" category was subverted in a playful way for the purpose of the exhibition, which took place in 2015 at the Cologne Game Lab under the motto: *Not a category / Not an art movement / Not a genre / Not games*. The festival took a "unique approach to the public (dis)play of games," hosting a variety of experiences to be played or simply watched, including the ambient procedural Mountain or the performative ZYX, among many other games out of joint.

21. Matt Garite, "The Ideology of Interactivity (or Video Games and Taylorization of Leisure)" (paper, 2003 DiGRA International Conference, Utrecht, the Netherlands, November 4–6, 2003), http://www.digra.org/wp-content/uploads/digital-library/05150.15436.pdf.

22. Pias, *Computer Game Worlds*, 134.

23. Charles Bernstein, "Play It Again, Pac-Man," chap. 6 in *A Poetics* (Cambridge, MA: Harvard University Press, 1992), 139.

24. Langdon Winner, "Do Artifacts Have Politics?" *Daedalus* 109, no. 1 (1980): 121.

25. Alexei Shulgin, "Art, Power and Communication," published online, October 6, 1996. Quoted in Lev Manovich, "On Totalitarian Interactivity: Notes from the Enemy of the People," *Telepolis*, April 3, 1996, https://www.heise.de/tp/features/ON-TOTALITARIAN-INTERACTIVITY-3412599.html.

26. Alexander R. Galloway, *Protocol: How Control Exists after Decentralization* (Cambridge, MA: MIT Press, 2004), 147.

27. See Wendy Hui Kyong Chun, *Control and Freedom: Power and Paranoia in the Age of Fiber Optics* (Cambridge, MA: MIT Press, 2006).

28. Winner, "Do Artifacts Have Politics?," 127.

29. Dieter Mersch, "Digital Criticism: A Critique of 'Algorithmic' Reason," trans. Michael Turnbull, *Diaphanes.net* (website), December 10, 2017, https://www.diaphanes.net/titel/digital-criticism-5313.

30. Fred Turner, *From Counterculture to Cyberculture: Stewart Brand, the Whole Earth Network, and the Rise of Digital Utopianism* (Chicago: University of Chicago Press, 2006); Mersch, "Digital Criticism," 95.

31. See Vilém Flusser, *Dinge und Undinge Phänomenologische Skizzen* (Munich: Carl Hanser, 1993).

32. Manovich, "On Totalitarian Interactivity."

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33. Pias, *Computer Game Worlds*, 193. Pias devoted an entire chapter of his book to the study of time-critical optimization, synchronization, and the rhythm of human–machine interaction as foundations for what he calls action games or time-critical games; see Pias, 101, 110–123.

34. Memex refers to an electromechanical device in a shape of a desk, which was a protohypertext system prototyped by Vannevar Bush in 1945. The device's purpose was to mimic the highly associative way the human mind works. It is often described as an analog precursor to the modern digital computer.

35. Kittler, *Gramophone, Film, Typewriter*, xxxix.

36. Umberto Eco, *Six Walks in the Fictional Woods* (Cambridge, MA: Harvard University Press, 1994), 3.

37. Manovich, "On Totalitarian Interactivity."

38. See Hugo Münsterberg, *The Photoplay: A Psychological Study* (New York: D. Appleton, 1916), in *Hugo Münsterberg on Film:* The Photoplay—A Psychological Study *and Other Writings*, ed. Allan Langdale (New York: Routledge, 2002). Page references are to the 2002 edition.

39. Münsterberg, *The Photoplay*, 97.

40. Münsterberg, 98.

41. Münsterberg, 93.

42. Friedrich A. Kittler, *Optical Media*, trans. Anthony Enns (Cambridge: Polity Press, 2010), 31.

43. Jean-Marc Offner and Agnès Sander, "For a Geography of Trajectories: An Interview with Paul Virilio," *FLUX Cahiers scientifiques internationaux Réseaux et Territoires*, no. 5 (1991): 48–54, 50.

44. Manovich, "On Totalitarian Interactivity."

45. Winner, "Do Artifacts Have Politics?," 121.

46. See Nicholas Taylor and Katreena Alder, "Man Caves and the Fantasy of Homosocial Escape" (abstract, 2018 DiGRA International Conference, Turin, Italy, July 25–28, 2018), http://www.digra.org/wp-content/uploads/digital-library/DiGRA_2018_paper_121.pdf.

47. *Generation ZX(X)* by Mona Bozdog, a mixed-reality performance, is one of very few documented traces of the herstory behind the ZX Spectrum. The project engaged with the heritage of the Timex factory in Dundee, Scotland, where the ZX Spectrum consoles were assembled by a skilled female workforce whose labor has not been acknowledged in the predominantly male-written history of gaming in the United Kingdom. See https://www.performingplay.co.uk/generation-zx-x.

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48. Adapted from the following quote: "Is it possible to describe modes of cinematic spectatorship without regard for issues of identity politics?" See Vinzenz Hediger, "The Existence of the Spectator," in *At the Borders of (Film) History: Temporality, Archaeology, Theories*, ed. Alberto Beltrame, Giuseppe Fidotta, and Andrea Mariani, XXI International Film Studies Conference Publication (Udine, Italy: Forum, 2015), 315–324.

49. Keogh, *Play of Bodies*, 172.

50. Melissa Kagen, "Walking, Talking and Playing with Masculinities in *Firewatch*," *Game Studies* 18, no. 2 (2018), http://gamestudies.org/1802/articles/kagen.

51. Kagen, "Walking, Talking and Playing."

52. Melissa Kagen, "Walking Simulators, #GamerGate, and the Gender of Wandering," in *The Year's Work in Nerds, Wonks, and Neocons*, ed. Jonathan P. Eburne and Benjamin Schreier (Bloomington: Indiana University Press, 2017), 275–300.

53. Bonnie Ruberg, "Video Games Have Always Been Queer," NYU Game Center Lecture Series, 2019, https://youtu.be/Hfh_vavSasE.

54. Keogh, *Play of Bodies*, 167.

55. Keogh, 196.

Chapter 2: Interpassive Play

1. Translation by Sonia Fizek. Theodor Fontane, "Aber wir lassen es andere machen," in *Gedichte* (Stuttgart: J. G. Cotta'sche Buchhandlung Nachfolger, 1905), 57. See note 20 in this chapter for the original German text. The poem is cited by Robert Pfaller in relation to interpassivity, and by Claus Pias in "Genießen unterstellen," *Frankfurter Allgemeine Zeitung*, September 2000, https://www.uni-due.de/~bj0063/texte/interpassiv.html.

2. Ian Bogost, "*Cow Clicker*: The Making of Obsession," Bogost.com (blog), July 21, 2010, http://bogost.com/writing/blog/cow_clicker_1.

3. "Grinding" is a term denoting the repetition of certain in-game actions, usually performed in order to level up the character and gather more experience points within the game. Grinding is a controversial practice and has been researched, for instance, within the context of labor and play by Lisa Nakamura. See Nakamura, "Don't Hate the Player, Hate the Game: The Racialization of Labor in *World of Warcraft*," in *Digital Labour: The Internet as Playground and Factory*, ed. Trebor Scholz (New York: Routledge, 2013), 187–204.

4. Simon Parkin, "The Rise of Games You (Mostly) Don't Play," *Gamasutra*, March 3, 2015, http://www.gamasutra.com/view/news/237926/The_rise_of_games_you_mostly_dont_play.php.

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5. Roland Barthes, *The Pleasures of the Text*, trans. Richard Miller (New York: Hill and Wang, 1975), 17.

6. See Staffan Björk and Jesper Juul, "Zero-Player Games, Or: What We Talk about When We Talk about Players" (paper, 6th Philosophy of Computer Games Conference, Madrid, Spain, January 29–31, 2012), https://www.jesperjuul.net/text/zeroplayergames/; Stefano De Paoli, "Automatic-Play and Player Deskilling in MMORPGs," *Game Studies* 13, no. 1 (2013), http://gamestudies.org/1301/articles/depaoli_automatic_play; Sebastian Deterding, "Progress Wars: Idle Games and the Demarcation of 'Real' Games" (paper, 1st International Joint Conference of DiGRA and FDG, Dundee, UK, August 1–6, 2016), http://www.digra.org/wp-content/uploads/digital-library/paper_267.pdf; Sonia Fizek, "Człowiek i algorytm. Ku automatyzacji rozgrywki w grach crowsourcingowych" [Towards the Automation of Play: Humans and Algorithms in Crowdsourcing Games], *Teksty Drugie: Dwumiesięcznik Instytutu Badań Literackich PAN*, no. 3 (2017): 15–31; Sonia Fizek, "Self-Playing Games: Rethinking the State of Digital Play" (paper, 11th International Conference on the Philosophy of Computer Games, Kraków, Poland, November 28–December 1, 2017).

7. Pias, "Genießen unterstellen."

8. Parkin, "Rise of Games."

9. Anthony Pecorella, "Idle Games: The Mechanics and Monetization of Self-Playing Games" (talk, Game Developers Conference, San Francisco, CA, March 2–6, 2015), video, 55:20, http://www.gdcvault.com/play/1022065/Idle-Games-The-Mechanics-and.

10. See Nakamura, "Don't Hate the Player"; Bonnie Nardi and Yong Ming Kow, "Digital Imaginaries: How We Know What (We Think) We Know About Chinese Gold Farming," *First Monday: Peer-reviewed Journal on the Internet* 15, no. 6 (2010); José P. Zagal and Roger Altizer, "Examining 'RPG Elements': Systems of Character Progression" (paper, 9th International Conference on the Foundations of Digital Games, Fort Lauderdale, FL, April 3–7, 2014), http://www.fdg2014.org/papers/fdg2014_paper_38.pdf.

11. Alexander R. Galloway, *Gaming: Essays on Algorithmic Culture* (Minneapolis: University of Minnesota Press, 2006).

12. Bogost, "*Cow Clicker*."

13. The question of what constitutes "real games" rests at the core of the book *Real Games . . .* by Consalvo and Paul.

14. Mia Consalvo and Christopher A. Paul, "Welcome to the Discourse of the Real: Constituting the Boundaries of Games and Players" (paper, 8th International Conference on the Foundations of Digital Games, Crete, Greece, May 14–17, 2013); Consalvo and Paul, *Real Games*; Sebastian Deterding, "Progress Wars."

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15. De Paoli, "Automatic-Play."

16. Bogost, "*Cow Clicker*."

17. Pfaller, *Interpassivity*, 19.

18. Slavoj Žižek, *The Plague of Fantasies* (London: Verso, 1997), 149.

19. Žižek, *Plague of Fantasies*, 113.

20. Fontane, "Aber wir lassen," 57; translated by Sonia Fizek. The original German text reads:

> Ein Chinese, ('s sind schon an 200 Jahr)
> In Frankreich auf einem Hofball war.
> Und die Einen frugen ihn: ob er das kenne?
> Und die Andern frugen ihn: wie man es nenne?
> "Wir nennen es tanzen," sprach er mit Lachen,
> "Aber wir lassen es Andere machen."
>
> Und dieses Wort, seit langer Frist,
> Mir immer in Erinnerung ist.
> Ich seh das Rennen, ich seh das Jagen,
> Und wenn mich die Menschen umdrängen und fragen,
> "Was thust Du nicht mit? Warum stehst Du bei Seit'?"
> So sag' ich: "Alles hat seine Zeit.
> Auch die Jagd nach dem Glück. All derlei Sachen,
> Ich lasse sie längst durch Andere machen."

21. Pfaller, "Little Gestures of Disappearance."

22. Pfaller, "Um Die Ecke Gelacht," 71.

23. Pfaller, *Interpassivity*, 55.

24. Pfaller, 19.

25. Žižek, *Plague of Fantasies*, 109, 111.

26. Pfaller, *Interpassivity*, 56.

27. Žižek, *Plague of Fantasies*, 149.

28. Pfaller, "Um Die Ecke Gelacht," 71.

29. Žižek, *Plague of Fantasies*, 147.

30. McLuhan, *Understanding Media*; Pias, "Genießen unterstellen."

31. See Robert Feustel, Nico Koppo, and Hagen Schölzel, eds., *Wir sind nie aktiv gewesen: Interpassivität zwischen Kunst- und Gesellschaftskritik* (Berlin: Kulturverlag Kadmos, 2011).

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32. See Markus Walz, Sean Hingston, and Mikael Andéhn, "The Magic of Ethical Brands: Interpassivity and the Thievish Joy of Delegated Consumption," *Ephemera: Theory and Politics in Organisation* 14, no. 1 (2014): 57–80.

33. See Marzena Falkowska, "Gry wideo jako medium—podstawowe kategorie badawcze," *Kultura i Historia* [Culture and History Journal], no. 19 (2011); Laetitia Wilson, "Interactivity or Interpassivity: A Question of Agency in Digital Play" (paper, 5th International Digital Arts and Culture Conference, Melbourne, Australia, May 19–23, 2003), https://www.academia.edu/1367070/Interactivity_or_interpassivity_A_question_of_agency_in_digital_play; Sarah Thorne, "Perverse and Interpassive Gaming: Enjoyment and Play in Gamespaces," *Psychoanalysis, Culture and Society* 22 (2016): 106–113.

34. Bogost, "*Cow Clicker*."

35. Umberto Eco, *Lector in fabula: La cooperazione interpretativa nei testi narrativi* (Milan: Bompiani, 1979), 52. Citation translated and quoted in Morana Alač, *The Model Reader and the Mundanity of Reading Practices*, in *The Philosophy of Umberto Eco*, vol. XXXV of *The Library of Living Philosophers*, ed. Sara G. Beardsworth and Randall E. Auxier (Chicago: Open Court, 2017).

36. Galloway, *Gaming: Essays*, 10.

37. Martin Seel, *Die Künste des Kinos* (Frankfurt: Fischer Verlag, 2013), quoted in Vinzenz Hediger, "The Existence of the Spectator," in *At the Borders of (Film) History: Temporality, Archaeology, Theories*, ed. Alberto Beltrame, Giuseppe Fidotta, and Andrea Mariani, XXI International Film Studies Conference Publication (Udine, Italy: Forum, 2015), 315–324.

38. Brendan Keogh, *A Play of Bodies: How We Perceive Video Games* (Cambridge, MA: MIT Press, 2018); Aubrey Anable, *Playing with Feelings: Video Games and Affect* (Minneapolis: University of Minnesota Press, 2018); Fizek, "Człowiek i algorytm"; Fizek, "Self-Playing Games"; T. L. Taylor, *Watch Me Play: Twitch and the Rise of Game Live Streaming* (Princeton, NJ: Princeton University Press, 2018).

39. Björk and Juul, "Zero-Player Games."

40. Pfaller, *Interpassivity*, 43.

41. T. L. Taylor, *Raising the Stakes: E-sports and the Professionalization of Computer Gaming* (Cambridge, MA: MIT Press, 2012), 183.

Chapter 3: Ambient Play

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2. Forster, "The Machine Stops," 116.

3. The term *ambient* comes from the Latin *embient-*, the stem of *ambiēns* and present participle of *ambīre* ("to go around").

4. Mike Elgan, "Ambient Computing Is in the Air," *Computerworld*, December 15, 2018, https://www.computerworld.com/article/3328545/ambient-computing-is-in-the-air.html.

5. Wendy Hui Kyong Chun, *Updating to Remain the Same: Habitual New Media* (Cambridge, MA: MIT Press, 2016), 1.

6. See Nicholas Taylor and Jessica Elam, "People Are Robots, Too: Expert Gaming as Autoplay," *Journal of Gaming and Virtual Worlds* 10, no. 3 (2018): 243–260.

7. Chun, *Updating to Remain the Same*.

8. Larissa Hjorth and Ingrid Richardson, *Ambient Play* (Cambridge, MA: MIT Press, 2020).

9. Melissa Kagen, *Wandering Games* (Cambridge, MA: MIT Press, 2022).

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15. Luke Jaaniste, "Approaching the Ambient: Creative Practice and the Ambient Mode of Being" (PhD diss., Queensland University of Technology, 2007), 3.

16. Axel Stockburger, "Listen to the Bulk of the Iceberg: On the Impact of Sound in Digital Games," in *Space, Time, Play: Computer Games, Architecture and Urbanism: The Next Level*, ed. Friedrich von Borries, Steffen P. Walz, and Matthias Böttger (Basel: Birkhauser, 2007), 111.

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20. See Jens Schröter et al., eds., *Ambient: Ästhetik des Hintergrunds* (Wiesbaden, Germany: Springer, 2018).

21. Larissa Hjorth and Ingrid Richardson, "Ambient Play," chap. 5 in *Gaming in Social, Locative and Mobile Media* (London: Palgrave Macmillan, 2014), 59–75.

22. Sebastian Deterding et al., "Gamification: Toward a Definition" (paper, ACM CHI Conference on Human Factors in Computing Systems, Vancouver, BC, Canada, May 7–12, 2011), http://gamification-research.org/wp-content/uploads/2011/04/02-Deterding-Khaled-Nacke-Dixon.pdf; Mathias Fuchs et al., eds., *Rethinking Gamification* (Lüneburg, Germany: meson press, 2014); Anne Dippel and Sonia Fizek, "Ludification of Culture: The Significance of Play and Games in Everyday Practices of the Digital Era," in *Digitalisation: Theories and Concepts for Empirical Cultural Research*, ed. Gertraud Koch (London: Routledge, 2017), 276–292; Joost Raessens, "The Ludification of Culture," in Mathias Fuchs et al., *Rethinking Gamification*, 91–114; Julian Kücklich, "Precarious Playbour: Modders and the Digital Gaming Industry," *Fibreculture Journal*, no. 5 (2005), https://five.fibreculturejournal.org/fcj-025-precarious-playbour-modders-and-the-digital-games-industry; Anne Dippel and Sonia Fizek, "Laborious Playgrounds: Citizen Science Games as New Mode of Work/Play in the Digital Age," in *The Playful Citizen: Civic Engagement in a Mediatized Culture*, ed. René Glas et al. (Amsterdam: Amsterdam University Press, 2019), 255–272; Pablo Abend et al., eds., "Laborious Play and Playful Work (I/II)," double special issue, *Digital Culture & Society* 5/6, no. 2/2 (2019/2020).

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24. See Larissa Hjorth and Ingrid Richardson, *Ambient Play* (Cambridge, MA: MIT Press, 2020).

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30. See Lars Hallnäs, "On the Philosophy of Slow Technology," *Acta Universitatis Sapientiae-Social Analysis* 5, no. 1 (2015): 29–39, http://www.acta.sapientia.ro/acta-social/C5-1/social51-03.pdf; Miguel Sicart, *Beyond Choices: The Design of Ethical Gameplay* (Cambridge, MA: MIT Press, 2013), 73.

31. Lars Hallnäs and Johan Redström, "Slow Technology—Designing for Reflection," *Personal and Ubiquitous Computing* 5, no. 3 (2001): 201.

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33. Paul Roquet, *Ambient Media: Japanese Atmospheres of Self* (Minneapolis: University of Minnesota Press, 2016).

34. Roquet, *Ambient Media*, 89.

35. Roquet, 106.

36. Roquet, 92.

37. Claus Pias, *Computer Game Worlds*, trans. Valentine A. Pakis (Berlin: Diaphanes, 2017). First published in 2002 as *Computer Spiel Welten* by Sequenzia (Munich).

38. Aubrey Anable, *Playing with Feelings: Video Games and Affect* (Minneapolis: University of Minnesota Press, 2018).

39. Roquet, *Ambient Media*, 99.

40. See Markus Rautzenberg, *Framing Uncertainty*: *Computer Game Epistemologies* (London: Palgrave Macmillan, 2020).

41. Media and air have a lot in common. Paul Roquet traces the ambient character of media in Newtonian physics, which sees air as a medium. Media and air took different paths just to reunite conceptually again.

42. Gordon, "Ambient Video Game."

43. Coziness in games is usually discussed within the context of ambience and affect. Coziness is a term describing a video game aesthetic that creates worlds in which players can satisfy their needs for safety. It refers to "how strongly a game evokes the fantasy of safety, abundance, and softness." For more on coziness in games, see Agata Waszkiewicz and Martyna Bakun, "Towards the Aesthetics of Cozy Video Games," *Journal of Gaming & Virtual Worlds* 12, no. 3 (2020): 225–240, https://doi.org/10.1386/jgvw_00017_1.

44. Roquet, *Ambient Media*, 21.

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46. Ernst, "Achtsames Ambient," 223.

47. Susanna Paasonen, Kylie Jarrett, and Ben Light, "What Does 'NSFW' Mean in the Age of Social Media? On the Protean, Problematic Humor of the Internet," *Literary Hub*, November 8, 2019. https://lithub.com/what-does-nsfw-mean-in-the-age-of-social-media.

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49. N. Katherine Hayles, "Hyper and Deep Attention: The Generational Divide in Cognitive Modes," *Profession* (2007): 187–199, https://www.jstor.org/stable/25595866.

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53. See Miriam Hansen, "Early Cinema, Late Cinema: Permutations of the Public Sphere," *Screen* 34, no. 3 (1993): 197–210.

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Chapter 4: Automated Play

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2. The *Emissaries Trilogy* is the latest in a series of live simulations by Ian Cheng, preceded by *Entropy Wrangler* (2013), *Metis Suns* (2014), or *+–Human* (2013).

3. Andrea K. Scott, "Watch the Absorbing and Tedious Simulations of Ian Cheng," *New Yorker*, May 16, 2017, https://www.newyorker.com/culture/culture-desk/watch-the-absorbing-and-tedious-simulations-of-ian-cheng.

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6. Some of the examples that found wider media coverage include Sony's first fully AI-produced music album; J. Walter Thompson's 3D-printed Rembrandt "created" by deep learning algorithms; *Sunspring*, a sci-fi film co-written by an AI; and Google's experiments with natural language learning and poetry.

7. Frieder Nake, "There Should Be No Computer Art," *Page: Bulletin of the Computer Arts Society*, no. 18 (1971): 1–2.

8. A selection of scholarly and popular science works about AI and automation within the context of video games: Julian Togelius, *Playing Smart: On Games, Intelligence, and Artificial Intelligence* (Cambridge, MA: MIT Press, 2019); Michael Mateas and Mark J. Nelson, "Towards Automated Game Design," in *AI*IA 2007: Artificial Intelligence and Human-Oriented Computing*, ed. Roberto Basili and Maria Teresa Pazienza, vol. 4733 of *Lecture Notes in Computer Science* (Berlin/Heidelberg: Springer, 2007), 626–637; Georgios N. Yannakakis and Julian Togelius, *Artificial Intelligence and Games* (Cham, Switzerland: Springer International Publishing, 2018).

9. Seth Giddings was one of the leading voices in the technocultural interpretation of digital play as a network of distributions and delegations of agency between technologies and players engaged in the act of play. He saw technological agency as a necessary condition for understanding digital play. See Giddings, "Playing with Non-Humans: Digital Games as Techno-Cultural Form" (paper, 2005 DiGRA International Conference, Vancouver, BC, Canada, June 16–20, 2005), http://www.digra.org/wp-content/uploads/digital-library/06278.24323.pdf; and "Events and Collusions: A Glossary for the Microethnography of Video Game Play," *Games and Culture* 4, no. 2 (2009): 144–157. Another well-known interpretation of the digitality of digital games is Alexander Galloway's *Gaming: Essays on Algorithmic Culture*, in which he interpreted a variety of so-called gamic actions, some undertaken by human players, other executed by the game software itself. See Galloway, *Gaming: Essays on Algorithmic Culture* (Minneapolis: University of Minnesota Press, 2006), 1–38.

10. For a recent media theoretical analysis of automation within the context of digital play, see Anne Dippel, "Play in the Age of Automated Reproducibility" (keynote address, 2018 DiGRA International Conference, Turin, Italy, July 25–28, 2018).

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11. Although this chapter focuses on automated gameplay, there is a huge subfield in game design concerned with automating the game design process via the use of diverse AI models. I do not cover it in this chapter, but it is worth noting that the very design of games or parts of games by an automated system may also influence their aesthetic reception.

12. The first example points to a longer tradition of and fascination with mechanizing and automating cognitive processes, which are echoed in Deep Mind's self-playing AlphaGo algorithm of 2016. The second example of an automated musical instrument emphasizes the capacity of technical media to evolve into automated systems, opening a certain technology to a wider unskilled audience that would otherwise be excluded from hands-on experience. I want to draw the reader's attention to those media technologies of the past to highlight certain tendencies and draw some historical continuities. I should note, however, that I am not trying to conduct a fully fledged media archeological analysis here but rather demonstrating the potential for a media archeological analysis to open the horizon to understand the video game far beyond its own time line. An excellent example of such an in-depth analysis is Claus Pias, *Computer Game Worlds*, trans. Valentine A. Pakis (Berlin: Diaphanes, 2017). First published in 2002 as *Computer Spiel Welten* by Sequenzia (Munich).

13. E. R. Truitt, *Medieval Robots: Mechanism, Magic, Nature, and Art* (Philadelphia: University of Pennsylvania Press, 2015), 2.

14. Lev Manovich, *The Language of New Media* (Cambridge, MA: MIT Press, 2001), 32.

15. Michael Mateas, "Expressive AI: Games and Artificial Intelligence" (paper, 2003 DiGRA International Conference, Utrecht, the Netherlands, November 4–6, 2003), http://www.digra.org/wp-content/uploads/digital-library/05150.02104.pdf.

16. Kaplan, "AI's PR Problem."

17. Giddings, "Playing with Non-Humans."

18. Mateas, "Expressive AI," 3.

19. The anthropomorphizing of AI has been discussed in Anne Dippel, "Metaphors We Live By: Three Commentaries on Artificial Intelligence and the Human Condition," in *The Democratization of Artificial Intelligence: Net Politics in the Era of Learning Algorithms*, ed. Andreas Sudmann (Bielefeld: transcript, 2019), 33–42.

20. Christopher Livingston, "The Sim Settlements Mod for *Fallout 4* Is So Good It Should Be an Official Part of the Game," *PC Gamer*, March 27, 2017, http://www.pcgamer.com/the-sim-settlements-mod-for-fallout-4-is-so-good-it-should-be-an-official-part-of-the-game.

21. Jim Rossignol, "Idle Musing: Watching the AI Fight," *Rock Paper Shotgun* (blog), March 2, 2012, https://www.rockpapershotgun.com/idle-musing-watching-the-ai-fight.

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22. Giddings, "Playing with Non-Humans."

23. Jan Stasieńko, "Automaty, hybrydy, afekty—posthumanistyczne konteksty aparatu gry komputerowej i praktyk grania," *Teksty Drugie*: *Dwumiesięcznik Instytutu Badań Literackich PAN*, no. 3 (2017): 32–50.

24. Automata were already built in antiquity and described in the treatises of the Hero of Alexandria, alluding to self-moving water clocks, automatic theatres, and many other self-moving hydraulic wonders. See Jessica Riskin, "The Defecating Duck, or, The Ambiguous Origins of the Artificial Life," *Critical Inquiry* 29, no. 4 (2003): 599–633; Truitt, *Medieval Robots*; Adelheid Voskuhl, *Androids in the Enlightenment: Mechanics, Artisans, and Cultures of the Self* (Chicago: University of Chicago Press, 2013).

25. Among those who visited the court of the empress Maria Theresa were the French illusionist François Pelletier, who presented his experiments on magnetism, and the German mechanic Friedrich von Knaus (1724–1789), who presented the "Miracle Writing Machine" (*Allesschreibende Wundermaschine*) to the empress in 1760.

26. BBC Newsnight, "AlphaGo and the Future of Artificial Intelligence," March 9, 2016, YouTube video, 7:44, https://youtu.be/53YLZBSS0cc.

27. John von Neumann's machines, which would be able to self-replicate in an automatic and evolutionary manner, were described in *Theory of Self-Reproducing Automata*, ed. and compl. Arthur W. Burks (Urbana: University of Illinois Press, 1966).

28. J. C. R. Licklider, "Man–Computer Symbiosis," *IRE Transactions on Human Factors in Electronics* HFE-1, no. 1 (1960): 4–11.

29. Quoted in Ian Sample, "'It's Able to Create Knowledge Itself': Google Unveils AI That Learns on Its Own," *Guardian*, October 18, 2017, https://www.theguardian.com/science/2017/oct/18/its-able-to-create-knowledge-itself-google-unveils-ai-learns-all-on-its-own.

30. John Cohen, *Human Robots in Myth and Science* (New York: A. S. Barnes, 1967), 120.

31. Cohen, *Human Robots in Myth and Science*, 121.

32. "Reinforcement learning is a field of machine learning in which an agent learns to perform tasks by trial-and-error, while receiving feedback in form of reward signals." University of Oxford Department of Computer Science, "Deep Reinforcement Learning," accessed February 15, 2022, https://www.cs.ox.ac.uk/activities/drl/.

33. As Sherry Turkle argues, the move from a modernist culture of computation to a postmodernist culture of simulation rests on two very different aesthetics of the computer—the first one is founded on linearity and logics, whereas the second one

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embraces complexity and decentering. Intelligence is no longer programmed into computers but rather is supposed to emerge from a set of interactions. See Turkle, "Who Am We?," *Wired*, January 1996, https://www.wired.com/1996/01/turkle-2/.

34. Riskin, "Defecating Duck," 605–606.

35. Anonymous, *Observations on the Automaton Chess Player: Now Exhibited in London, At 4, Spring Gardens* (London: Printed for J. Hatchard, 1819), 32.

36. Truitt, *Medieval Robots*, 19.

37. Jean Paul, "Menschen sind Maschinen der Engel" (1785), quoted in Adelheid Voskuhl, *Androids in the Enlightenment* (Chicago: University of Chicago Press, 2013); and Voskuhl, "Motions and Passions: Music-Playing Women Automata and the Culture of Affect in Late Eighteenth-Century Germany," in *Genesis Redux: Essays in the History and Philosophy of Artificial Life*, ed. Jessica Riskin (Chicago: University of Chicago Press, 2007), 293–320.

38. Ayhan Aytes, "Cognitive Labor, Crowdsourcing, and Cultural History of the Mechanization of the Mind," *Leonardo Electronic Almanac* 17, no. 1 (2011): 118–127.

39. The Progressive Automation mod was originally developed during the 2014 Modjam4 competition. For more information, see https://ftb.gamepedia.com/Progressive_Automation.

40. Blizzard Entertainment, "Recent Actions against Botting in WoW" (statement posted on the company's official forum, May 13, 2015). Quoted in GR Staff, "Blizzard Bans over 100,000 *World of Warcraft* Players," *GameRant*, May 15, 2015, https://gamerant.com/blizzard-bans-100000-world-warcraft-players/.

41. "Starting today, Pokémon caught using third-party services that circumvent normal gameplay will appear marked with a slash in the inventory and may not behave as expected. This is one small part of our continued commitment to maintaining the integrity of our community and delivering an amazing *Pokémon Go* experience." Quoted in Patricia Hernandez, "*Pokémon Go* Starts Giving Cheaters Marks of Shame," *Kotaku*, June 21, 2017, https://kotaku.com/pokemon-go-starts-giving-cheaters-marks-of-shame-1796297049.

42. Huizinga, *Homo Ludens*.

43. Benjamin, "Work of Art," 40.

44. Benjamin, 40.

45. Although this often-repeated assertion expresses the primary view of video gaming culture, it should be put into a broader perspective. In its early days, gaming was depicted as a social activity in which entire families could participate, gathering around a TV set connected to an electronic console (see, for instance, 1972 advertisements for the Magnavox Odyssey).

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46. De Paoli, "Automatic-Play."

47. Ord-Hume, *Player Piano*, 29.

48. Wilcox and White Co., advertisement for the Angelus Orchestral, *AMICA News Buletin: Automatic Musical Instrument Collector's Association* 27, no. 6 (1990): 247. https://stacks.stanford.edu/file/druid:pv060bw2313/27-06.pdf.

49. One of the earliest attempts to find an essentialist definition of (video) games appears in Jesper Juul's paper at the first conference of the Digital Games Research Association. Based on a rather narrow selection of previous interdisciplinary definitions of games and play, Juul conjures five characteristics of archetypical or core games, among others "player's effort." The examples that do not fit the definition entirely are classified as "borderlines" cases and "not games." In the latter category, we can find John Horton Conway's *Game of Life*, a zero-player cellular automaton. In a 2012 conference paper, Juul and his coauthor Staffan Björk dismiss zero-player games as games based on the assertion that every game needs a human player. See Juul, "The Game, the Player, the World: Looking for a Heart of Gameness" (paper, 2003 DiGRA International Conference, Utrecht, the Netherlands, November 4–6, 2003), https://www.jesperjuul.net/text/gameplayerworld/; Björk and Juul, "Zero-Player Games."

50. Pias, *Computer Game Worlds*, 273.

51. Giddings, "Playing with Non-Humans."

52. McKenzie Wark, *Gamer Theory* (Cambridge, MA: Harvard University Press, 2007), viii.

53. Karen Barad, "Posthuman Performativity: Toward an Understanding of How Matter Comes to Matter," *Signs: Journal of Women in Culture and Society* 28, no. 3 (2003): 807.

Chapter 5: Intra-active Play

1. Gregory Bateson, *Steps to an Ecology of Mind*: *A Revolutionary Approach to Man's Understanding of Himself* (New York: Ballantine 1977), 249.

2. To learn more about the term "ambient state of the machine," see Alexander R. Galloway, *Gaming: Essays on Algorithmic Culture* (Minneapolis: University of Minnesota Press, 2006).

3. Usually, the player immersed in user-friendly transparent interfaces does not notice the gamepad as such. It remains an integral part of the bodily configuration, enabling the player to negotiate their way within and through the game world. It is the game world, which is the object of focus and analysis, not the gamepad. In the moment of the power cut, however, the controller manifests its own existence

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as an object external to the player's body, no longer seemingly merged with it or extending it. Depending on the local gaming situation, the boundary between the subject and the object shifts. When the gameplay progresses fluidly, the gamepad belongs to the player's cyborgian configuration. The moment the habitual use of the medium is interrupted; the gamepad all of a sudden becomes a distinct entity with an empty battery exposing its mattering materiality. To find out more about habitual media, see Wendy Hui Kyong Chun, *Updating to Remain the Same: Habitual New Media* (Cambridge, MA: MIT Press, 2016).

4. The well-known subject–object conundrum has been a perplexing phenomenological puzzle for many thinkers, including Martin Heidegger, Maurice Merleau-Ponty, the physicist Niels Bohr, and, more recently, Karen Barad.

5. Karen Barad, "Posthuman Performativity: Toward an Understanding of How Matter Comes to Matter," *Signs: Journal of Women in Culture and Society* 28, no. 3 (2003): 803.

6. Although, as Friedrich Kittler, a German media theorist, has argued: software does not exist. It all boils down to matter and voltage differences, which provide the foundation for the entire content-based culture. See Friedrich Kittler, "There Is No Software," *Friedrich A. Kittler Essays: Literature, Media, Information Systems*, ed. John Johnston (Amsterdam: Overseas Publishers Association, 1997), 147–155.

7. See Galloway *Gaming: Essays*; Ian Bogost, *Unit Operations: An Approach to Videogame Criticism* (Cambridge, MA: MIT Press, 2006); Jesper Juul, "The Game, the Player, the World: Looking for a Heart of Gameness" (paper, 2003 DiGRA International Conference, Utrecht, the Netherlands, November 4–6, 2003), https://www.jesperjuul.net/text/gameplayerworld/.

8. This problematic has been discussed in Aubrey Anable, *Playing with Feelings: Video Games and Affect* (Minneapolis: University of Minnesota Press, 2018).

9. Espen Aarseth differentiates between the internal code and the external skin in "Define Real, Moron! Some Remarks on Game Ontologies," *DIGAREC Keynote–Lectures 2009/10*, ed. Stephan Günzel, Michael Liebe, and Dieter Mersch (Potsdam, Germany: University Press, 2011), 50–69, https://publishup.uni-potsdam.de/opus4-ubp/frontdoor/deliver/index/docId/5044/file/digarec06_S050_069.pdf.

10. See Juul, "The Game, the Player, the World."

11. The "material turn" has also emerged in game studies. One of the most prominent examples of this is the initiation of platform studies by Ian Bogost and Nick Montfort. Although their project focuses on the materiality of gaming platforms and on the complex forms in which this materiality influences design, they too fall into the Cartesian trap by separating code from platform. For an interpretation of the material turn in game studies, see Thomas H. Apperley and Darshana Jayemane,

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"Game Studies' Material Turn," *Westminster Papers in Communication and Culture* 9, no. 1 (2012): 5–25, http://doi.org/10.16997/wpcc.145.

12. Barad, "Posthuman Performativity," 807.

13. Niels Bohr (1885–1962) was a physicist best known for his foundational contributions to quantum theory, which won him the 1922 Nobel Prize in Physics. He is associated with the most widely accepted interpretation of the quantum theory, known as the Copenhagen interpretation. Bohr's framework has become the starting point for Karen Barad's natural philosophy known as "agential realism." In Barad's view, Bohr's work takes a protoperformative perspective on the scientific practice.

14. Developed by Michel Callon, Bruno Latour, and John Law, actor–network theory is a methodological and theoretical approach in science and technology studies, mapping out material-semiotic relationships among diverse actors, human and nonhuman. For an in-depth discussion of the subject, see Bruno Latour, *Science in Action: How to Follow Scientists and Engineers Through Society* (Cambridge, MA: Harvard University Press, 1987).

15. Michel Foucault's dispositif (also dispositive or apparatus) describes a heterogeneous ensemble of elements, such as: "discourses, institutions, architectural forms, regulatory decisions, laws, administrative measures, scientific statements, philosophical, moral and philanthropic propositions—in short, the said as much as the unsaid." Foucault, "The Confession of the Flesh," in *Power/Knowledge: Selected Interviews and Other Writings 1972–1977*, ed. Colin Gordon, trans. Colin Gordon, Leo Marshall, John Mepham, and Kate Soper (New York: Pantheon Books, 1980), 194.

16. See Bateson, *Ecology of Mind*.

17. Some of the most prominent work in posthumanism: Rosi Braidotti, *The Posthuman* (Cambridge: Polity Press, 2013); Francesca Ferrando, *Philosophical Posthumanism* (London: Bloomsbury Academic, 2019); Cary Wolfe, *What Is Posthumanism?* (Minneapolis: University of Minnesota Press, 2010).

18. Barad, "Posthuman Performativity," 803.

19. The metaphor of wave interference has been used to illustrate another media theoretical and cultural phenomenon—that of work/play interference; see Anne Dippel and Sonia Fizek, "Laborious Playgrounds: Citizen Science Games as New Mode of Work/Play in the Digital Age," in *The Playful Citizen: Civic Engagement in a Mediatized Culture*, ed. René Glas et al. (Amsterdam: Amsterdam University Press, 2019), 255–272.

20. I would like to draw a line between the ambiguity of nature and ambiguity of play by reading Brian Sutton-Smith's discussion on the ambiguity of play through Karen Barad's philosophy underpinned by quantum theory. Depending on the lens through which it is being examined, play manifests itself as a concrete, localized

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phenomenon, as either a surplus of energy, a creative outburst of energy, or a functionalist survival category of a glue that holds society together. In other words, any attempt to provide a top-down, absolutist perspective on play is as futile as the conviction that light is a wave, to stick to our physico-philosophical reading.

21. Rick Dolphijn and Iris van der Tuin, "Matter Feels, Converses, Suffers, Desires, Yearns and Remembers: Interview with Karen Barad," in *New Materialism: Interviews & Cartographies* (Ann Arbor: University of Michigan Library / Open Humanities Press, 2012), 62.

22. Barad, "Posthuman Performativity," 803.

23. Barad, 806.

24. Barad, 807.

25. See Donna J. Haraway, *When Species Meet* (Minneapolis: University of Minnesota Press, 2008).

26. An *agential cut*, according to Karen Barad's philosophy, is a momentary stabilization that creates a boundary in a particular context and situation within a particular phenomenon. Boundaries, however, do not sit still, so they are open to reconfiguration. The discursive-material arrangements remain relational and thus the agential cuts may be placed anew, depending on the theoretical perspective at hand. Barad's agential cut stands in opposition to a *Cartesian cut*, which makes an attempt to disentangle mental and material phenomena.

27. Justyna Janik, "Meaningful Transformation: Intra-Activity and Video Games" (paper, 2019 DiGRA International Conference, Kyoto, Japan, August 6–10, 2019), http://www.digra.org/wp-content/uploads/digital-library/DiGRA_2019_paper_416.pdf; Janik, "Intra-Acting Bio-Object: A Post-Human Approach to the Player–Game Relation" *Journal of Gaming & Virtual Worlds* 13, no.1 (2021): 21–39.

28. See World Encyclopedia of Puppetry Arts: https://wepa.unima.org/en/tadeusz-kantor.

29. Conor Mckeown, "Playing with Materiality: An Agential-Realist Reading of Sethbling's *Super Mario World* Code-Injection," *Journal of Information, Communication and Society* 21, no. 9: "Work and Play" (2018): 1234–1245.

30. Seth Giddings, "Playing with Non-Humans: Digital Games as Techno-Cultural Form" (paper, 2005 DiGRA International Conference, Vancouver, BC, Canada, June 16–20, 2005), http://www.digra.org/wp-content/uploads/digital-library/06278.24323.pdf.

31. Alenda Y. Chang, *Playing Nature: Ecology in Video Games* (Minneapolis: University of Minnesota Press, 2019), 124.

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32. Jan Stasieńko, *Niematerialne Galatee w wehikułach rozkoszy i bólu* (Wydawnictwo Katedry Etnologii i Antropologii Kulturowej Uniwersytetu Wroclawskiego, Poland: 2015); Stasieńko, *Media Technologies and Posthuman Intimacy* (London: Bloomsbury, 2021).

33. Paolo Ruffino, "Nonhuman Games: Playing in the Post-Anthropocene," in *Death, Culture & Leisure: Playing Dead*, ed. Matt Coward-Gibbs (Bingley, UK: Emerald Publishing, 2020).

34. Frans Mäyrä, "The Player as a Hybrid: Agency in Digital Game Cultures," *GAME: The Italian Journal of Game Studies* 8 (2019), https://www.gamejournal.it/the-player-as-a-hybrid-agency-in-digital-game-cultures/.

35. Design supported or driven by game analytics could be regarded as a meta-game in itself. It develops play scenarios not on the spur of the creative moment but as a result of precise measurement. The tokens of the meta-game are strategically placed on the board to maximize the "endgame" results and extend the longevity value of the service, to put it in marketing terms. In that sense, the majority of freemium mobile games are developed as predictable measurement systems. In an ideal case, they are supposed to yield optimal aesthetic experience for each player to keep their retention for as long as possible.

36. Game analytics can be used to optimize a variety of factors, such as "the time needed to complete a specific task, the price of a specific virtual item or the power of a specific weapon." Matti Mäntymäki, Sami Hyrynsalmi, and Antti Koskenvoima, "How Do Small and Medium-Sized Game Companies Use Analytics? An Attention-Based View of Game Analytics," *Information Systems Frontiers* 22, no. 5 (2020): 1164, https://doi.org/10.1007/s10796-019-09913-1.

37. Bohr's philosophy-physics has been discussed in detail by Karen Barad. See Barad, "Posthumanist Performativity," 813.

38. Claus Pias, *Computer Game Worlds*, trans. Valentine A. Pakis (Berlin: Diaphanes, 2017), 18. First published in 2002 as *Computer Spiel Welten* by Sequenzia (Munich).

39. Norbert Wiener defined cybernetics in 1948 as "the scientific study of control and communication in the animal and the machine." See Wiener, *Cybernetics: Or Control and Communication in the Animal and the Machine* (New York: John Wiley & Sons; Paris: Hermann, 1948). The Greek etymological roots of cybernetics point toward governance and steering.

40. See Brendan Keogh, *A Play of Bodies: How We Perceive Video Games* (Cambridge, MA: MIT Press, 2018).

41. Brian Sutton-Smith, "Play Theory: A Personal Journey and New Thoughts," *American Journal of Play* 1, no. 1 (2008): 82.

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42. A selection of foundational contributions to making sense of video games: Espen Aarseth, "Playing Research: Methodological Approaches to Game Analysis" (paper, 5th International Digital Arts and Culture [DAC] Conference, Melbourne, Australia, May 19–23, 2003), http://www.bendevane.com/VTA2012/herrstubbz/wp-content/uploads/2012/01/02.GameApproaches2.pdf; Mia Consalvo and Nathan Dutton, "Game Analysis: Developing a Methodological Toolkit for the Qualitative Study of Games," *Game Studies* 6, no. 1 (2006), http://gamestudies.org/06010601/articles/consalvo_dutton; Lars Konzack, "Computer Game Criticism: A Method for Computer Game Analysis" (paper, Computer Games and Digital Cultures Conference, Tampere, Finland, June 6–8, 2002), http://www.digra.org/wp-content/uploads/digital-library/05164.32231.pdf.

43. In an introductory and foundational paper, Espen Aarseth proposes to study the aesthetic of games in virtual environments, taking into account three dimensions: gameplay, game structure, and game world (see Aarseth, "Playing Research"). While the first one takes into account the player (their actions, strategies, and motives), the third one examines the world manipulated by the player, including its fictional content, textures, and level design. What combines both is the system's behavior; that is, the rules of the game. This well-established way of making sense of games and play rests on the dualistic assumption of a clear-cut Cartesian division existing between the player as a subject and the game as an object manipulated in accordance with set rules.

44. Illusion already includes play in its Latin root word, *illudere*, which means "in play" or "at play." We could say that an illusion literally opens up room for play.

45. See Aarseth, "Define Real, Moron!"; Aarseth and Paweł Grabarczyk, "An Ontological Meta-Model for Game Research" (paper, 2018 DiGRA International Conference, Turin, Italy, July 25–28, 2018), http://www.digra.org/wp-content/uploads/digital-library/DIGRA_2018_paper_247_rev.pdf.

46. Bateson, *Ecology of Mind*, 249.

47. A succinct interpretation of the Baradian *together/apart* compound may be found in Mirko Nikolić, "Apparatus × Assemblage," *New Materialism Almanac*, March 28, 2018, https://newmaterialism.eu/almanac/a/apparatus-x-assemblage.html.

48. Karen Barad, *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning* (Durham, NC: Duke University Press, 2007), 179.

49. See Sutton-Smith, *The Ambiguity of Play*(Cambridge, MA: Harvard University Press, 1997).

50. Barad, *Meeting the Universe Halfway*, 174.

51. Barad, 33.

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52. Darshana Jayemanne, *Performativity in Art, Literature, and Videogames* (London: Palgrave Macmillan, 2017).

53. Andrew Pickering, "The Mangle of Practice: Agency and Emergence in the Sociology of Science," *American Journal of Sociology* 99, no. 3 (1993): 562.

Chapter 6: Spectated Play

1. Vilém Flusser, *Into the Universe of Technical Images*, trans. Nancy Ann Roth, intro. Mark Poster (Minneapolis: Minnesota University Press, 2011), 33. First published in 1985 as *Ins Universum der technischen Bilder* by European Photography (Göttingen).

2. As introduced in the prelude to this book, to *dis-play* is to be at a distance from a direct action of play, to participate in the algorithmic spectacle and to witness the game unfold on the screen. The hyphen is to be understood not as a dividing line but as a connector between the visual and the operational aspect of computer mediated play.

3. For Twitch statistics and charts, see https://twitchtracker.com/statistics.

4. Jussi Parikka, *What Is Media Archeology?* (Cambridge: Polity Press, 2012), 38.

5. Parikka, *What Is Media Archeology?*, 38.

6. Aubrey Anable, *Playing with Feelings: Video Games and Affect* (Minneapolis: University of Minnesota Press, 2018), 50.

7. See Flusser, *Into the Universe*.

8. Frieder Nake, "We Find Aesthetics in Between: A Remark on Algorithmic Art," *Zeitschrift für Ästhetik und Allgemeine Kunstwissenschaft* 59, no. 2 (2014): 288.

9. Frieder Nake's work on the twofold image has been reinterpreted within the context of video games in Stephan Schwingeler, "Simulation of Arbitrary Perspectives in Video Games" (paper, Ludotopia II Conference and Workshop, Greater Manchester, UK, February 24–25, 2011).

10. See Gonzalo Frasca, "Ludologists Love Stories, Too: Notes From a Debate That Never Took Place" (paper, 2003 DiGRA International Conference, Utrecht, the Netherlands, November 4–6, 2003), http://www.digra.org/wp-content/uploads/digital-library/05163.01125.pdf.

11. Frans Mäyrä, *An Introduction to Game Studies: Games in Culture* (London: Sage Publications, 2008), 17–18.

12. Espen Aarseth, "Define Real, Moron! Some Remarks on Game Ontologies." In *DIGAREC Keynote–Lectures 2009/10*, edited by Stephan Günzel, Michael Liebe, and Dieter Mersch, 50–69. Potsdam, Germany: University Press, 2011. https://publishup

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.uni-potsdam.de/opus4-ubp/frontdoor/deliver/index/docId/5044/file/digarec06_S050_069.pdf.

13. Anable, *Playing with Feelings*, 50.

14. "If and when games and especially computer games are studied and theorized, they are almost without exception colonised from the fields of literary, theatre, drama and film studies." Markku Eskelinen, "The Gaming Situation," *Game Studies* 1, no. 1 (2001), http://www.gamestudies.org/0101/eskelinen/.

15. See Frieder Nake, "Das doppelte Bild," in *Digitale Form*, Bildwelten des Wissens: Kunsthistorisches Jahrbuch für Bildkritik (Berlin: De Gruyter, 2006).

16. Lev Manovich, *The Language of New Media* (Cambridge, MA: MIT Press, 2001), 45–46.

17. I have provided a more extensive discussion on Cartesian dualism within the context of video games in chapter 6.

18. Friedrich Kittler, "There Is No Software," *Friedrich A. Kittler Essays: Literature, Media, Information Systems*, ed. John Johnston (Amsterdam: Overseas Publishers Association, 1997), 147–155.

19. Kittler, "There Is No Software," 148.

20. The concept of interference was originally used in physics to denote the superposition of waves and has been used within the context of work and play to demonstrate how those two qualities permeate and transform each other. See Anne Dippel and Sonia Fizek, "Laborious Playgrounds: Citizen Science Games as New Mode of Work/Play in the Digital Age," in *The Playful Citizen: Civic Engagement in a Mediatized Culture*, ed. René Glas et al. (Amsterdam: Amsterdam University Press, 2019), 255–272.

21. See the concept of "performative multiplicity" introduced by Darshana Jayemanne in *Performativity in Art, Literature, and Videogames* (London: Palgrave Macmillan, 2017).

22. Flusser, *Into the Universe*, 12.

23. Flusser, 7.

24. Frieder Nake, "The Algorithmic Art Manifesto," in *Nevertheless: 17 Manifestos*, ed. Andrea Sick (Hamburg: Textem Verlag, 2018), page 70 of 83, PDF, http://17.manifestos.de/.

25. "Technical images are images at all only if they are seen superficially. To be images they require that the viewer keep his *distance*." Flusser, *Into the Universe*, 34.

26. ". . . technical images and traditional images arise from completely different kinds of *distancing* from concrete experience." Flusser, 7.

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27. Flusser, 22.

28. Flusser, 48.

29. Mark C. Marino, *Critical Code Studies* (Cambridge, MA: MIT Press, 2020).

30. Aud Sissel Hoel, "Operative Images: Inroads to a New Paradigm of Media Theory," in *Image—Action—Space: Situating the Screen in Virtual Practice*, ed. Luisa Feiersinger, Kathrin Friedrich, and Moritz Queisner (Berlin: De Gruyter 2018), 12.

31. Harun Farocki, "Phantom Images," *Public, no*. 29: "New Localities" (2004): 17, https://doi.org/10.25969/mediarep/12195.

32. Trevor Paglen, "Operational Images," *e-flux Journal*, no. 59 (2014), https://www.e-flux.com/journal/59/61130/operational-images.

33. Aud Sissel Hoel demonstrates this shift using the example of computer-generated medical imagery: "At once artificial and real, medical images do not fit the commonplace distinctions between natural and arbitrary signs. More than signs and representations, they are instruments." Hoel, "Images as Active Powers for Reality: A Simondonian Approach to Medical Imaging," in *Dynamis of the Image: Moving Images in the Global World*, ed. Emmanuel Alloa and Chiara Cappelletto, vol. 5 of Contact Zones: Studies in Global Art, ed. Lars Blunck, Bénédicte Savoy, and Avinoam Shalem (Berlin: De Gruyter, 2020), 309, https://doi.org/10.1515/9783110530544.

34. See Hoel, "Operative Images," 14.

35. Farocki, "Phantom Images," 17.

36. Aud Sissel Hoel provides an overview of the concept of operationality as used in image and media theory; see Hoel, "Operative Images." The question of operationality has become central to German media theory and in the past few years has invited scholars to think along the lines of *operative ontologies*.

37. Nake, "Algorithmic Art Manifesto," page 69 of 83, PDF.

38. William Uricchio, "The Algorithmic Turn: Photosynth, Augmented Reality and the Changing Implications of the Image," *Visual Studies* 26, no. 1 (2011): 26.

39. Manovich, *Language of New Media*, 118.

40. Ian Bogost, *Unit Operations: An Approach to Videogame Criticism* (Cambridge, MA: MIT Press, 2006), ix.

41. The description for the exhibition at the Museum of Modern Art in New York City can be viewed at https://www.moma.org/calendar/exhibitions/3656.

42. Ian Cheng, "A Portal to Infinity," interview by Kasper Bech Dyg, Louisiana Channel, Louisiana Museum of Modern Art, September 2017, video, 17:07, https://channel.louisiana.dk/video/ian-cheng-portal-infinity.

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43. A succinct description of *Kulturtechniken* may be found in the online wiki *Monoskop*, which is devoted to the arts, media, and humanities: https://monoskop.org/Cultural_techniques.

44. See Sebastian Möring and Marco de Mutiis, "Camera Ludica: Reflections on Photography in Video Games," in *Intermedia Games—Games Inter Media: Video Games and Intermediality*, ed. Michael Fuchs and Jeff Thoss (New York: Bloomsbury Academic, 2019), 69–94.

45. Anable, *Playing with Feelings*, 107.

46. Anable, 107.

47. Mark Hansen, "Algorithmic Sensibility: Reflections on the Post-Perceptual Image," in *Post-Cinema: Theorizing 21st-Century Film*, ed. Shane Denson and Julia Leyda (Falmer: REFRAME Books, 2016), 786.

48. See Conor Mckeown, "Videogame Ecologies: Interaction, Aesthetics, Affect" (PhD diss, University of Glasgow, 2018), http://theses.gla.ac.uk/8878/1/2018mckeownphd.pdf.

49. Mckeown, "Videogame Ecologies," 94.

50. Kittler, "There Is No Software," 150.

51. See Philip Z. Maymin, "Smart Kills and Worthless Deaths: eSports Analytics for *League of Legends*," *Journal of Quantitative Analysis in Sports* 17, no. 1 (2021): 11–27, https://doi.org/10.1515/jqas-2019-0096.

52. Machines watching and interpreting visualizations of gameplay bring to mind the algorithm-driven method of "distant reading" discussed in chapter 1.

53. M. Beatrice Fazi, "Digital Aesthetic: The Discrete and the Continuous," *Theory, Culture & Society* 36, no. 1 (2019): 2. Published online ahead of print, May 11, 2018, https://doi.org/10.1177/0263276418770243.

Postlude: Distance at Play

1. Brendan Keogh, *A Play of Bodies: How We Perceive Videogames* (Cambridge, MA: MIT Press, 2018), 196.

2. M. Beatrice Fazi and Matthew Fuller, "Computational Aesthetics," in *A Companion to Digital Art*, ed. Christiane Paul (Oxford: John Wiley & Sons, 2016).

3. Video conference session with Brian Sutton-Smith, intro. Jeffrey Goldstein, host Eric Zimmerman (1st DiGRA International Conference, Utrecht, the Netherlands, November 5, 2003), video, 49:37, https://digra2003.org/videoconferencing-session-brian-sutton-smith.

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4. Marc C. Marino, *Critical Code Studies* (Cambridge, MA: MIT Press, 2020).

5. Miguel Sicart, "*Homo Ludens* Reloaded: The Ethics of Play in the Information Age," in *Games and Ethics*, ed. Maike Groen et al. (Wiesbaden, Germany: Springer, 2020), 7.

6. Seth Kim-Cohen, *Against Ambience* (New York: Bloomsbury Publishing 2013).

7. M. Beatrice Fazi, "Digital Aesthetic: The Discrete and the Continuous," *Theory, Culture & Society* 36, no. 1 (2019): 3–26, https://doi.org/10.1177/0263276418770243

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