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3

Camera Ludica: Reflections on Photography in Video Games

Sebastian Möring and Marco de Mutiis

Duncan Harris may be one of the most popular in-game photographers on the globe. His work is collected and presented on the weblog *Deadendthrills*, where Harris presents photos of characters and landscapes from many blockbuster games, including *The Elder Scrolls V: Skyrim* (Bethesda, 2011), *Grand Theft Auto V* (Rockstar North, 2013), and *Fallout 4* (Bethesda, 2015). In addition to his artistic endeavors, Harris works as a professional game photographer. As such, he produces dramatic and compelling screenshots which are used in promotional paratexts. This production of advertising material has so far been game photography's most apparent function. Historically, labeling advertising material for video games as produced purely from in-game graphics was used to indicate the graphic quality of a given game. In recent years, different agents have grown increasingly interested in photographic practices with and within video games that all participate in the phenomenon of what we include under the umbrella term "in-game photography": The video game industry has expanded the space of possibilities by implementing features like so-called photo-modes (e.g. *The Last of Us Remastered* (Naughty Dog, 2014)) and encourages players to take in-game images and distribute them via platforms such as Flickr. Artists make use of video games to create artworks (e.g. Kent Sheely, Roc Herms, Duncan Harris, and Robert Overweg). Even museums and universities have noticed the phenomenon and have begun to curate and study in-game photographs

and their production processes. Indeed, even *Time* magazine commissioned a war photographer to embed himself in the game *The Last of Us Remastered* in order to photograph the game's combat zone just as he would do in real life.¹

While in-game photography is not an entirely new phenomenon, it has barely received any scholarly attention so far. The few essays published on the topic were exclusively written by game scholars.² However, since in-game photography is clearly an intermedial phenomenon which combines two traditionally distinct media (the video game and photography), discourses from fields such as media studies, art history, media art, aesthetics, and visual culture studies should be taken into account when studying this phenomenon. In particular, in-game photography's implications on existing theories of photography—in particular within the contexts of the characteristics of the photographic image and contemporary discussions surrounding post-photography—and video games are far from being understood.³ Indeed, even our object of study remains somewhat elusive—what is in-game photography? Does the term denote photography simulations? Photography virtualizations? Taking screenshots? Game modifications that add photographic features? The artistic use of computer game photography? All of them? None of them? In this chapter, we aim to establish categories for the most central ways in which video games and photography interrelate. Within the context of intermedial research, we specifically focus on how the medium of the video game affords and limits photographic possibilities and how photography unfolds under the gameplay conditions.

Between remediation and simulation: approaching in-game photography

Jay David Bolter and Richard Grusin have famously argued that all media are part of an environment in which different media influence and reconfigure each other structurally as well as aesthetically.⁴ In the case of in-game photography, the younger medium, the video game, remediates photography by means of simulation. Following Bolter and Grusin's claim, in-game photography should likewise affect conventional photography in some way. However, in order to assess in-game photography's influence on conventional photography, the former must be understood first.

Different parties (artists, theorists, critics as well as players and developers) use the term "in-game photography" to describe a multitude of practices and technologies in which photography and video games interact. These practices

and technologies do not share a single set of characteristics, but they show family resemblances in the Wittgensteinian sense. Thus, we refrain from offering an ontological definition of in-game photography. Instead, we describe different types of “in-game photographs.” The resulting categories proposed in this chapter highlight different approaches and modalities in which photographic and ludic elements interact and overlap. We understand in-game photography in its various forms, from photographic capture to the materialization or visualization of the image and from notions of the apparatus to the role of the photographer/player. We will not try to argue that screenshots *are* photographs, or that modifying the game engine to simulate a camera transforms it into the photographic apparatus, but rather that some characteristics of the photographic tradition are present in game forms, thereby connecting video games and photography. Placing a DSLR in front of the unfolding events on the screen, using a video game’s photo mode to take a picture, or playing a game where the use of the camera is simulated as a core game mechanic are equally worthy and meaningful examples (while completely different in the way they remediate photography and how they affect play and games) when mapping the variety of in-game photography.

However, we do distinguish between some photographic media that may be used in-game and remediations of photography that do not happen in games. Screenshots which are taken during gameplay, for example, are one of the most common forms of in-game photographs, but would not be considered in-game photography if used to capture a computer desktop (unlike photo modes that can only exist in games). Screenshots may be taken by game-external means, like actual photo cameras, as well as by means which are provided by a given computer game platform like the print button on the keyboard of the personal computer or the share-button of the PlayStation 4 console. In-game photography may be realized both by means of a photo mode or a simulated photo camera in a game.

Cindy Poremba has suggested that remediations of screenshots are, in fact, one of the main types of in-game photography.⁵ This kind of remediation includes screenshots of glitches and gameplay trophies, but also “performance photography,” such as when *The Sims* (Maxis, 2000) screenshots are used to create “photo essays” by using the integrated photo album and storytelling functions of the game.⁶ Photographs of this kind are produced through ordinary screenshots, but photography is not simulated as a game mechanic. In contrast, in cases of what Poremba labels “photo as play,” photography (or some aspects of it) becomes part of the simulation.⁷ For example, in the first “Shutter Bug” mission of *Pilotwings 64* (Nintendo EAD and Paradigm Simulation, 1996), the player pilots a hang glider past an oil plant and has to

take a photo of the flame flickering from its smoke stack. The game rates the photo's quality as part of the mission's score. The photograph is of no further use after the mission has been completed, but it may be accessed from the game's photo album together with photos taken by the player outside of specific photo missions. Accordingly, *Pilotwings 64* is a simulation of photography, for a simulation is the "modell[ing of] a (source) system through a different system which maintains to somebody some of the behaviors of the original system."⁸

Within this category of photography simulations, Poremba introduces a further subdivision between "content-centered" and "practice-based" approaches to photography. *Pilotwings 64* provides an example of a content-centered approach to photography, as "players need to capture a certain image or object for maximum points." Games such as *Pokémon Snap* (HAL Laboratory and Pax Softnica, 1999) and *Wild Earth: Photo Safari* (Super X Studios, 2006), on the other hand, are practice-based, as they "use the rules and practice of photography as a framework for play."⁹ In *Pokémon Snap*, the player tries to visually document all Pokémon on Pokémon Island. Eventually, Professor Oak judges the quality of the images by awarding "points based on size, pose, and technique (simple composition, such as centering) and whether other 'Pokémon of the same type are in the shot.'"¹⁰

Poremba's analysis is certainly very valuable as a pioneering study which identifies many central issues of in-game photography. However, new forms of in-game photography have been emerging and need to be taken into account in order to map and understand this intermedial phenomenon. For example, artistic in-game photography remains a clear research desideratum. Matteo Bittanti has highlighted the "artistic significance of videogame screenshots" (which he also calls "'screenshot-ing' or 'screengrabbing'"), while Rainer Sigl has referred to in-game photography as the "art of the screenshot," going as far as explicitly calling game photography an "artform."¹¹ Similar to Poremba, Bittanti and Sigl consider in-game photography most closely related to the screenshot. Yet as curators and critics of game photography, they are more interested in the artistic process and the aesthetics of the resulting images rather than the ontology of game photography. In fact, it remains to be seen in what ways the practice of photography in game culture and art contexts is different from the way it is simulated in games.

Another type of in-game photography that has eluded scholarship so far is the photo mode, which has become a basic feature of many contemporary video games. In these games, photography is simulated but qualifies for neither of Poremba's categories. Photography performed by using the photo mode of *The Last of Us Remastered* is neither content-centered nor practice-based, as it does not relate to any gameplay goal.

If the ultimate goal of this research trajectory is to evaluate how in-game photography influences photography at large, it is necessary to understand how photography is refashioned by the medium of the video game, its structure and its aesthetics. For her case of photography simulations, Poremba emphasizes that photography “is an inherently gamelike practice” and stresses the similarity between photography and “the most popular video game dynamic, gunplay.”¹² One could add that a difference between gunplay and photography play is that all instances of gunplay—at least in first-person shooters (FPS)—require the player to point at something, whereas photo play (if simulated well) requires the player to frame something. Accordingly, while in FPS gunplay, players aim the center of the screen at the target, in photoplay, players try to frame a motif which can consist of an arrangement of several characters and objects, none of which needs to be in the center of the frame.¹³

Finally, the answer to the question of how the medium of the video game refashions photography significantly depends on what one believes to be the central characteristic distinguishing video games from other media. In our view, this element is the gameplay condition, a concept Olli Leino has discussed in detail.¹⁴

Our aim in the rest of this chapter is to introduce a typology which accounts for the different ways in which photography and video games interrelate through in-game photography. This typology offers more distinctions than Poremba’s categories, as it takes into account the types mentioned above that scholarship has so far ignored. We characterize the different types of in-game photography by how they relate to the gameplay condition. But before we set out to introduce our typology, we shall offer an understanding of video games from the perspective of their imagery and characterize them as a double image which is contingent upon each game’s gameplay condition.

The medium of the video game and questions of visibility

In his video game ontology, Espen Aarseth conceptualizes video games as double-layered objects consisting of mechanics (code, algorithms, rules, physics, etc.) and semiotics (sound, text, images, etc.), which come into being through the process of gameplay.¹⁵ Aarseth considers the mechanical layer as more important than the semiotic layer, since the mechanics distinguish video games from other media. After all, in video games, the fundamental question is not what the player sees and hears while playing but under which conditions these images and sounds are produced. These conditions are embedded in the mechanical layer of video games and become effective during the

performance of a game. As a result, the appearance of individual images on the screen depends on the player's performance and the mechanics invisibly operating in the background. Crucially, when thinking about in-game photography, one intuitively prioritizes the visual dimension of video games. The question is how to combine these performative and visual dimensions.

Inspired by Frieder Nake, Stephan Schwingeler has integrated Aarseth's ontological distinction by conceiving of video games as navigable and manipulable double-images consisting of a visible surface and an algorithmic underside which the computer interprets.¹⁶ Schwingeler's conceptualization allows for considering video games as a set of potential images of which a particular sequence is realized with each playthrough. Importantly, a playthrough is not as trivial an exercise as turning the pages of a photo book, since the player has to make an effort to progress. Aarseth thus refers to video games as "ergodic texts."¹⁷ "Ergodic" connotes both the navigability which Schwingeler addresses and the "gameplay condition," which Olli Leino has defined as "a duality of freedom and responsibility: the game gives [the player] a freedom of choice while simultaneously making her responsible for this freedom by resisting her project of playing."¹⁸

For example, in *The Last of Us*, the "Infected" embody this resistance by threatening to harm or even kill the player character. The player can deal with this resistance by either killing these mutants or avoiding them. Accordingly, the player tries to expand the space between the player character and the foes, whereas the monsters try to contract it. As Leino has explained, "survival when faced with the resistance inscribed in the gameplay condition amounts to an achievement," continuing that a "[s]uccessful player is someone who is able to make the decision whether to continue playing, whereas a failed player will find that decision was already made on her behalf."¹⁹

In view of Leino's remarks, the video game becomes a navigable and manipulable image contingent upon the performance of the player and the game's specific gameplay condition. With this interrelation between the video game, its visual dimension, and the gameplay condition in mind, we will, in the following, define different types of in-game photography based on their relation to the gameplay condition.

Types of photography in video games

We suggest differentiating between four types of in-game photography: (a) simulated photography central to the gameplay condition, (b) an additional photo mode, (c) artistic screenshotting, and (d) creative photographic interventions made possible by photo modifications.

A. Simulated photography central to the gameplay condition

This category is akin to Poremba's category of "photo play" and Seth Giddings' category of games in which "the production of photograph-like images is central to the gameplay."²⁰ It covers all games which simulate photography in one way or another and in which taking photographs is central to the gameplay condition. Examples range from overly simplistic to more complex simulations.

For example, in *Gekibo: Gekisha Boy* (Tomcat System, 1992), the player controls a young photographer solving tricky photography assignments (e.g. photograph a flying car) in a two-dimensional side-scrolling world. The player needs to position a framed crosshair right over the motif and pull the trigger. The player earns points for each photo if the motif is in the center of the crosshairs. This simulation of photography is reminiscent of gunplay in rail shooters, as photography is reduced to a simple point-and-click mechanic. The pictures are also simply evaluated based on timing. If the player manages to take a picture of a man slipping on a banana peel or a snapshot of a Marilyn Monroe-like character with her skirt lifted by a sudden wind, she will earn a higher score. This focus on capturing the right moment is reminiscent of ideas expressed in Henri Cartier-Bresson's seminal photography book *The Decisive Moment* (1952), as the freezing of a fragment of time becomes an idea driving the game mechanic.²¹ Regardless of the simulation's simplicity, success in the game depends on the photography mechanic: Only if the player accumulates enough points per level will she see more parts of the game. In other words, the further exploration of the gameworld is contingent upon taking photographs.

In this type of game, players often assume the role of a journalist or documentary photographer taking photos in a nature setting. These games may implement more intricate aspects of photography in their gameplay and simulate many standard features of analog and digital SLR photography, such as zooming, framing, and focusing, as well as adjusting ISO, shutter speed, and aperture. These processes are simulated in the gameworld and are often incorporated in a scoring system, as an algorithm analyzes and evaluates the resulting photographs. Depending on the simulation's complexity, the algorithm evaluates more or fewer parameters.

Afrika (Rhino Studios, 2008; see Figure 3.1), a game co-produced by National Geographic, is an example of a more complex simulation of wildlife photography. Similar to *Wild Earth*, the player controls a freelance photojournalist in a conservation area in Africa modeled in 3D and populated by animals such as giraffes, elephants, and lions. The player character is equipped with licensed "real-world" photography equipment and drives around in a jeep to document

animals and plants for magazines and other clients. The game attempts to simulate the most important aspects of the (digital) photographic process, choosing different lenses and camera bodies, saving files to a hard disk, and emailing them to clients. The gameplay condition of this game is twofold. On the one hand, the player's freedom depends on the photos she has taken on assignments. In-game photographs are analyzed and evaluated through an algorithm measuring parameters such as angle, motif, distance, and technique. At the end of this process, the client submits a mission report, assessing the player's performance. The rating system works in a conventional capitalist fashion: The higher the rating, the more money the player receives, the better equipment she can buy, eventually enabling her to take better—or at least different—photos than before. On the other hand, the gameplay condition restricts the player's freedom by not allowing her to approach animals too closely. Some of them can become dangerous and even injure the player-character. If this happens, the player character wakes up at the base camp and loses all photos from the previous session.

While not technically employing a safari or hunting setting, *Paparazzi's* (HuneX, 2004) title announces that in this game, the player "hunts" for the best shots of female models. The player can ask the model to look at the camera, to "adopt a charming pose," "adopt a sexy pose," and "get a kiss on the fly" in order to improve the chances for a good shot.²² In addition, the player character can dance, jump, and wave hands to establish a relationship with the model and

FIGURE 3.1 Taking a photo in Afrika. Screenshot from Afrika (Rhino Studios, 2008).

move around the location to take the best shots possible. While the game's basic premise is objectionable, as it is downright sexist (e.g. much of the game's 3D physics simulation is spent on rendering the models' oversized breasts), the camera simulation in manual mode contains many parameters adapted directly from real-world SLR cameras, including flash, zoom, focus, aperture, and shutter speed. In a way, *Paparazzi* works (and plays) like a hunting game, as it treats the objectified female model the same way game would be treated on a hunt. However, this sort of sexism permeates not only in-game, as *Paparazzi* simulates the exploitative nature of various genres of conventional photography, from the eponymous, borderline-legal practices to advertising photography.

In games such as *Afrika* and *Paparazzi*, the photography simulation evokes elements of real-life photography. Indeed, players may push buttons on a controller instead of a camera, but the function of the in-game camera remains that of freezing a moment and framing the (game)world in a rectangular image. Video games represent the camera apparatus to varying detail, from the basic framing functions in *Gekibo: Gekisha Boy* to the sophisticated simulation of ISO, depth of field, and zoom of licensed cameras in *Afrika*, but the camera always remains recognizable as a camera simulation.

However, in the process of "gamifying" the apparatus, other games transform the camera into something else by endowing it with special powers that have nothing to do with photography. For example, in the *Fatal Frame* horror series (2001–2014), the player finds a "Camera Obscura," an antiquated-looking device reminiscent of early large-format cameras, which allows the player to "take pictures of impossible things."²³ Of course, this idea plays on Victorian ghost photography, but the video game adds to the function of revealing spirits that of exorcizing them. In fact, the game system awards points depending on how much damage the ghost photograph inflicts. Unlike photography games in which the camera is simplified and simulated in a faithful way, video games such as *Fatal Frame* take certain elements and turn them into something new, a "camera magica" of sorts.

In the games discussed in this section, photography is key to the gameplay condition. We have already noted that this category largely corresponds to Poremba's practice-based approaches to in-game photography. However, our focus on the gameplay condition allows us to distinguish between practice-based and content-centered approaches in a useful manner: the former are usually central to the gameplay condition for the entire game; in the latter, in contrast, simulated photography only plays a vital role in some missions or levels. Whereas Poremba has suggested that the difference between practice-based and content-centered approaches is a matter of quality, we would argue that it is rather a matter of degree. In both cases, photography is simulated and is essential to the gameplay condition. However, in content-centered

approaches, photography is central to the gameplay condition only in some levels or missions and not throughout the whole game.

Interestingly, most games revolving around photography evaluate photographs according to very technical parameters such as distance, angle, and whether the motif is centered; aesthetic aspects such as the “rule of thirds” and lighting are ignored. Indeed, these aesthetic aspirations only become important when in-game photography is no longer performed to fulfill the gameplay condition and the player decides to take in-game photos for a reason other than progressing in the game. To be sure, some games in which simulated photography is central to the gameplay condition do, in fact, allow the player to take photos for aesthetic reasons. For instance, in *Wild Earth*, the player may take photos which are not required by the game’s gameplay condition and which she may later access on her hard drive for further editing or sharing via social media.

B. Additional photo mode—suspended gameplay condition

Video games such as the post-apocalyptic survival horror game *The Last of Us Remastered* feature a rather elaborate photo mode with quite sophisticated simulations of photography, but photography is not an essential component of the gameplay condition. These games include ways for the player to take pictures of the gameworld which are unrelated to the game’s objectives and central game mechanics. In these games, pushing a button permits the user to freeze the flow of the action and to effectively step out of the game in order to focus on the isolated act of photographing landscapes or character portraits. Accordingly, these photo modes allow the player to focus on the aesthetic qualities of the games, free from the worries of approaching enemies. Since taking photos is a supplementary part of these games, no algorithm evaluates the quality of the pictures taken.

Contemporary video games increasingly sport stunning landscape designs (e.g. *The Elder Scrolls V: Skyrim*), which, indeed, seem to invite the player to admire the scenery, meditate on it, and memorize spectacular views. Since the gameplay condition tends to demand all of the player’s attention, and thus prevents her from admiring the beautiful vistas she passes on her way, the spectacular view appears like a reward for a cleared level. Apart from enabling snapshots of memorable moments and visually impressive views, Christopher Moore has astutely remarked that game developers implement photo modes since they are useful for a player’s identity management in social media; posting images of specific scenes allows them to show other players that “I

was here and saw that,” as Poremba has put it.²⁴ In addition to contributing to the sharing culture prevalent in social media, photo modes also make for a well-functioning crowd-sourced publicity tool.

In contrast to photography which is essential to the gameplay condition, photo mode photography has aesthetic aspirations, as these games permit players to suspend the gameplay condition. Similar to photography simulations, photo modes tend to provide a variety of simulated photo functions, from camera focus and aperture to photo filters and watermarks. However, due to their emphasis on the aesthetic qualities of the images, these games allow for an aesthetic freedom not encountered in games in which photography is essential to gameplay.

Originally released for the PlayStation 3, *The Last of Us* was graphically overhauled for the launch of the PlayStation 4 and was republished as *The Last of Us Remastered*. In addition to the visual enhancements, the developers added a photo mode to the game: Pushing a button freezes the action in the PS4 version, allowing the player to freely move the camera to find an adequate motif. Suspended in time and freed from spatial constraints, the photographer is free to explore the gameworld as if it was an “augmented decisive moment,” to draw on Cartier-Bresson. In contrast to *Pokémon Snap* and *Afrika*, the player of *The Last of Us Remastered* can not only frame a scene, but also define the field of view and the depth of field; she can use different filters to create specific moods and atmospheres; and she can hide the game interface, make the image look grainy and select a particular frame for the photo.

Remarkably, a few months after the release of the remastered edition, the online edition of *Time* featured a story about real-life war photographer Ashley Gilbertson who, commissioned by the magazine, documented the combat zone of *The Last of Us Remastered* (see Figure 3.2). In the article, Gilbertson recounts how he was unable to adapt to his double role of as “camera-avatar”—a role which was surprisingly different from his role in real-life war photography:

I initially played the game at home. But after a short time playing it, I noticed I was having very strong reactions in regards to my role as the protagonist: I hated it. When I covered real war, I did so with a camera, not a gun. At home, I'd play for 30 minutes before noticing I had knots in my stomach, that my vision blurred, and then eventually, that I had simply crashed out. I felt like this could well be my last assignment for TIME.²⁵

The anecdote illustrates that although the player can suspend the gameplay condition and switch to the photo mode whenever she wants, the game is still subject to this condition. To be sure, the gameplay condition largely operates

FIGURE 3.2 *The photo mode in The Last of Us Remastered. Screenshot from The Last of Us Remastered (Naughty Dog, 2014).*

invisibly in the background. However, when attempting to give in to the visual gravitas of a particular view or cherishing the success of reaching a spot which is difficult to get to, the gameplay condition might come to the fore and force the player into engaging with the game as such. Indeed, Gilbertson, who is not a regular video game player, was unable to cope with the surges of enemies in the game, which limit his freedom as a player, but, even more so, his freedom as a photographer.

While Gilbertson's quotation presented above may be read as a general criticism of video game's naturalization of violence—a critique all the more forceful, as it comes from someone who has experienced real-life war first hand, it might also simply indicate that Gilbertson failed to understand that killing the Infected is, in fact, not a requirement in order to be successful in the game. One may also simply avoid their attention. In addition, Gilbertson could have simply frozen the action at any time by pressing the L3 button on the PlayStation controller to calmly take a photo. In other words, Gilbertson miscalculated his gaming skills and the impact of the gameplay condition. Once he came to understand that his gaming skills were insufficient, he outsourced playing to a more experienced assistant who eliminated the enemies before Gilbertson assumed control again and started looking for motifs. With this strategy in place, Gilbertson turned the game into an “experience [which] resembled an actual embed, with someone doing the fighting and me taking photographs.”²⁶

In a sense, Gilbertson modified the game for co-operative gameplay without modifying the game's code. Josh Raab (the assistant) accordingly

performed what Katie Salen has called “transformative play” by ignoring the implied goals of the game (i.e., deliver Ellie to the Fireflies) in pursuit of a different goal (i.e., get to places with photo-worthy motifs).²⁷ Satisfying the gameplay condition is thus no longer the central goal of playing, but rather becomes an unavoidable condition to be worked around or played *with* in order to reach other goals, such as taking photographs.²⁸ As a result, Gilbertson’s work was not at all subject to the gameplay condition, but merely to his aesthetic judgment and his skills to frame his motifs satisfactorily.

While built-in photo modes encourage transformative play, they do not demand it. In conventional photography, car photography is a popular genre which now expands to the realm of video games almost naturally, since cars are very often simulated in games and play central roles. Unsurprisingly, many racing titles, such as *Project CARS* (Slightly Mad Studios, 2015), *Gran Turismo 4–6* (Polyphony Digital, 2005–2013), and *Forza Motorsport 5* (Turn 10 Studios, 2013), include photo modes. In these games, the photo mode is part of extensive replay functions which allow the player to review and analyze their driving skills.

For example, *Gran Turismo 6* features a sophisticated camera simulation and two photo modes: photo travel and race photos. In the race photo mode, the player can choose spectacular views of her car during a race and take snapshots. These pictures are subject to the gameplay condition insofar as the recorded race depends on the player’s performance in the game. To be sure, the player could engage in transformative play and cause numerous crashes in order to create spectacular images. In the photo travel mode, on the other hand, the gameplay condition is completely suspended, and the player can “take photos of cars in a number of exotic locations,” as the game’s manual suggests. Similar to a film studio, she can choose the location, the camera position, a car of her liking, and even an avatar. In viewfinder mode, she can adjust aspects such as shutter speed and aperture, which have similar effects on the photographic result as in real-world photography. For instance, a low F-stop (aperture) provides “sharp focus on the car and some nice bokeh fuzziness in the background.”²⁹

The smartphone camera in *Grand Theft Auto V* (*GTA V*) presents a borderline case in our typology. This camera may be considered a photo mode, since players can take and save photos and upload them to *GTA V*’s equivalent to Flickr, called Snapmatic. Rockstar Games’ Social Club members may even access Snapmatic outside the game. The player can take selfies, choose a photo frame, use filters, and so on, but while taking photographs, the gameplay condition is not suspended, as the busy gameworld continues to feel alive even when the player pulls out the smartphone camera. Accordingly, when the player looks through the smartphone camera’s frame, life in the

virtual world goes on, as it would in real life. As a result, a player who decides to take photos while her character is standing in the middle of a busy road risks that her character will be run over. *Need for Speed* (Ghost Games, 2015) has implemented a similar photo mode, which suggests that a new type of in-game photography might be emerging here: a photo mode that neither suspends the gameplay condition nor is part of it.

In this context, we would be remiss not to mention the screenshot modes of widely used gaming platforms such as Steam, PlayStation 4, and Xbox One. All of these platforms feature a button which allows players to take screenshots at almost any time. Thus, if players would like to capture images from a game such as *FIFA 16* (Electronic Arts Canada, 2015), they may do so by pressing the share-button on their PlayStation 4 controllers, for example. Depending on the user's configuration, the screenshot might even be immediately uploaded to the PlayStation Network. Notably, these platform-dependent screenshot modes reduce the simulation of the process of taking a photograph to pushing the shutter release. Thus, these modes emphasize the technical distinction between a screenshot and the elaborate photo modes included in the games discussed in this section.

To conclude, video games with photo modes generally suspend the gameplay condition in order to offer the player the time and space needed to produce artistic images. These games usually showcase a rather sophisticated camera simulation, allowing the player to embrace her aesthetic freedom. To be sure, the gameplay condition still influences the scene (and scenery) which the player may photograph. Compared to games which feature photography as central element of the gameplay condition, the former category is more focused on gameplay, whereas photo modes emphasize the aesthetic quality of the photographs. Gameplay thus becomes a means toward an (aesthetic) end. To draw on Heidegger, games of category (a) are ready-at-hand while taking photographs, as photography *is* the game and *is* its gameplay. Photography in games of category (b) makes games quite literally present-to-hand, as the photos taken in the games may exist independent from the game while being saved on a hard drive, shared via social media, or even printed and put in galleries and other exhibition spaces.³⁰ The game's still images thus trump the game's use.

C. Artistic screenshotting

The kinds of in-game photography described so far may be used for artistic intentions and strategies. However, these modes are mostly used for vernacular and amateur in-game photography, as described by Eron Rauch.³¹

In contrast, most artists practicing game photography develop their own strategies and methods of screenshotting, which may be as simple as taking screenshots by pressing the “print” key on the keyboard or shooting photos with a DSLR camera positioned in front of a screen. Whereas photographs made with the help of photo modes highlight a connection between the image and the game from which it emerged, artistic screenshotting is more autonomous, an artistic creation (largely) independent from the source game. Indeed, the source game becomes the medium to express a particular idea photographically, as it turns into a stage, which may be altered to create art. Crucially, this creation process is still subject to the gameplay condition.

Duncan Harris is one of the pioneers among screenshotters/in-game photographers. A community of amateurs and aspiring game photographers has emerged around his persona and website, sharing images and ideas, all the while discussing techniques as well as styles and critiquing each other’s work. More recently, the SweetFX website (sfx.thelazy.net) has emerged, where discussions mainly revolve around questions such as applying shaders to games in order to obtain specific visual effects before taking a screenshot. The SweetFX Shader Suite is, in fact, a plug-in that allows players to apply a selection of post-processing effects to a game. However, the community surrounding Harris and the SweetFX community are merely two examples, as the proliferation of in-game photography has led to a mushrooming of these groups. Indeed, one can easily find a number of different groups dedicated to in-game photography on platforms such as Flickr. But even before this popularization of in-game photography, several artists had already been working at the intersections of photography and video games.

Artistic in-game photography became prominent through books such as *Gamescenes: Art in the Age of Videogames* (2006), a catalog which presents early works of game art and suggests that video games have changed art altogether.³² On his eponymous blog, the book’s co-editor Matteo Bittanti has been collecting game art and presents game photography that does not so much document some aspects of a game as it tries to express something *through* the resulting image. For example, Kent Sheely’s piece “Grand Theft Photo” (2007) consists of street photography in *Grand Theft Auto: San Andreas* (Rockstar North, 2004), showing motifs such as an empty and seemingly endless road tunnel and the close-up of a geometric skyscraper façade whose windows form an abstract pattern of squares. Sheely describes his performance as a subversion of the gameplay condition: “I abandoned the violent role in which the game’s narrative initially placed me, choosing instead to go out and take some nice photos of the game’s expansive world.”³³ Instead of fulfilling the role of the implied player, Sheely seemingly played against the

game's expectations.³⁴ However, one could also argue that Sheely played within the game's constraints, for the sheer endless virtual space of *San Andreas* practically produces a free-roaming player just as much as a player who follows the pre-designed quest structure.³⁵ While Sheely accordingly did not engage in transformative play, he still *played with* the game, while still being subjected to the gameplay condition. Similar to an actual walk through a city, Sheely needed to heed the traffic and ensure that his game character would not be run over by cars so that he could take photographs. Not coincidentally, this strategy is reminiscent of war photographer Gilbertson's approach to *The Last of Us Remastered* except for the fact that Gilbertson used an integrated photo mode for his project.

D. Photo mod(ification)s

On top of screenshotting as an artistic practice, some artists take more extensive and complex approaches by modifying core game parameters, intervening directly at a level of code manipulation, or even taking the artistic work entirely out of the game. For "DoD" (2009–13; see Figure 3.3), for example, Sheely created photos which remediate the "grainy, blurred aesthetics" of Robert Capa's Omaha Beach Landing photographs, which "were blurred due to a lab technician's error but became iconic."³⁶ The recreation of these classics from the world of analog photography challenges the notions of the realism and the indexicality of the image, and the photograph as a document and witness of history. Sheely, like most artistic in-game photographers, is interested in the tension between the real world and the gameworld. Reenacting real-world scenes in gameworlds or vice versa triggers an aesthetic interplay of references between real-world photography, in-game photography, and computer games.

For "DoD," Sheely modified *Day of Defeat: Source* (Valve, 2005). In this game, the player normally controls a soldier who is required to attack enemies and defend himself. However, Sheely played the game as a war photographer—a role not intended by the game. Accordingly, the game cannot measure the war photographer's level of success or failure. Sheely's modifications remove the character's weapons and convert the trigger key into a screenshot key:

To become a journalist, I edited the game files to remove all stats, ammo counters, and other indicators from the screen, and made my weapon invisible. I also changed the control scheme so that I could not attack; pressing the "fire" button on the mouse would simply save a screenshot.³⁷

FIGURE 3.3 Screenshot by Kent Sheely from “DoD” (Sheely 2012). Courtesy of the artist.

This modification required Sheely to play defensively in order to survive: “The gameplay, for me, became a matter of documenting the action without putting my avatar at risk, hiding inside destroyed buildings and ducking behind piles of rubble as I took my photos.”³⁸ The purpose of the game is thus turned upside-down: by changing the gameplay condition, the only possible way to play the game is to play as a photographer. The images Sheely produced in this manner show a stunning similarity to Capa’s Normandy photographs. It almost seems as if Sheely short-circuited our typology by transforming *Day of Defeat* into a category (a) game, as in-game photography becomes key to the gameplay condition. However, the game does not evaluate the pictures. Accordingly, while photography is subjected to the game’s gameplay condition, it is not central to it. What is central after Sheely’s modification is the survival of the unarmed character, whose use of the camera does not suspend the gameplay condition. Sheely’s project is also clearly different from the many popular photo scripts and modifications players have created, such as the *Minecraft* (Mojang, 2009) mod CameraCraft, which allows players to craft different photo devices and gadgets and use them in the gameworld. In the end, Sheely’s

photographs clearly do not mean to showcase the game in the way that photo modes or user-created mods do, but instead invite a comparison to iconic real-world photographs.

Mixing real-world installations with real-world photography and in-game photography, John Paul Bichard's take on the relation between games and photography is different from Sheely's. For an invited show at an art gallery in Lisbon, Bichard created the installation "Evidência #001" (2004), which consists of

chicken blood, police tape, bits of a dead cow, some fabric and a lot of adrenalin and I came up with a real world equivalent of what would happen if you could see a game level at the end of the level, in real life. It was an installation, it stank after 2 days, so I had to photograph it and clean it up. This was the first time I used photography and art and gaming together.³⁹

It may not be immediately clear how Bichard's real-world installation relates to in-game photography, not least because his work modifies the game on a conceptual level by isolating some specific aspects of game logic rather than intervening directly in the game code. Indeed, the installation follows a strategy contrary to most in-game photography by molding a real-world installation out of a possible gameworld event, "explor[ing] the relationship between the forensic (crime) space and the violent videogame space."⁴⁰ The photos of "Evidência #001" display a crime scene as if it had been sliced from a larger crime scene. The photos do not explicitly indicate that the installation refers to video game rather than real-world crime scenes, but the onlooker may begin to ponder the similarities and dissimilarities between violence in games and in the real world as soon as she realizes that the crime scene installation refers to well-known video game scenes. To be sure, "Evidência #001" does not refer to a specific video game, but rather to the spectral presence of a gameplay condition in all video games and to the human condition, more generally. Of course, the artwork as such is not subjected to a gameplay condition. Indeed, if it was subjected to specific conditions, then to the conditions of the artworld and the human condition we all are always-already subjected to.

In contrast to photo mode photography, artistic screenshot photography does not depend on in-game photo modes but rather establishes its own strategies while playing *with* the gameplay condition. In addition, the resulting photographs do not merely show something which has happened in a particular game, but rather reveal media specifics of video games and their relations to other media and human practices.

Conclusion

As we have demonstrated in this chapter, video games remediate photography in four dominant ways. In category (a), photography is remediated by means of simulation, as a simulation of photography is framed by an achievement structure. Depending on the game in question, the simulated camera may be a faithful rendition and/or simplification of a real-world camera, sometimes also a magical device endowed with supernatural powers. In category (b), photography is also remediated by means of simulation (photo mode). Here, the accurate simulation of camera technology (e.g. aperture and shutter speed) and aspects of post-processing (e.g. filters) play vital roles. However, photography may be implemented into games despite the lack of integrated cameras in the respective games. This may be achieved by way of (c) taking screenshots or (d) modding the game.

While we have tried to carve out the main differences between these four categories, they do overlap. Accordingly, as with any typology, we should stress that the borderlines between these categories should be understood as semi-permeable membranes rather than sealed concrete walls. As the borderline cases of *GTA V* and *Need for Speed* have shown, practices in in-game photography constantly develop and require a further fine-tuning of descriptive and analytical terms. Likewise, *Firewatch* (Campo Santo, 2016) has recently forayed further into blending in-game photography with traditional photography, allowing players to retrieve and use a disposable cardboard camera in-game whose pictures they can have printed and delivered to their real homes once they have completed the story. In addition, we have not dealt with examples where photography exists as part of the gameworld, but never asks the player to, in fact, perform photography. For example, the protagonist in *Life is Strange* (Dontnod Entertainment, 2015) is an amateur photographer who frequently takes pictures, but, for the players, taking photographs comes down to a simple yes/no decision that does not even require them to look through a viewfinder. Indeed, although the interplay between video games and photography can be traced back several years, if not decades, in-game photography remains a rather recent phenomenon. Accordingly, we expect to see new trends in, and approaches to, in-game photography evolve in the next couple of years.

Notes

- 1 Josh Raab and Ashley Gilbertson, "A War Photographer Embeds Himself Inside a Video Game," *Time*, September 15, 2014, <http://time.com/3393418/a-war-photographer-embeds-himself-inside-a-video-game>.

- 2 Cindy Poremba, "Point and Shoot: Remediating Photography in Gamespace," *Games and Culture* 2, no. 1 (2007); Seth Giddings, "Drawing without Light," in *The Photographic Image in Digital Culture*, ed. Martin Lister (Abingdon: Routledge, 2013); Christopher Moore, "Screenshots as Virtual Photography: Cybernetics, Remediation, and Affect," in *Advancing Digital Humanities: Research, Methods, Theories*, ed. Katherine Bode and Paul Longley Arthur (Basingstoke: Palgrave, 2014); Jason Lajoie, "Playing the Photographer in *The Last of Us Remastered*: A New Frontier of Digital Photography," *First Person Scholar*, June 24, 2015, <http://www.firstpersonscholar.com/playing-the-photographer-in-the-last-of-us-remastered/>; Alexandra Orlando and Betsy Brey, "Press A to Shoot," *First Person Scholar*, April 15, 2015, <http://www.firstpersonscholar.com/press-a-to-shoot/>.
- 3 Rosalind Krauss, "A Note on Photography and the Simulacral," *October* 31 (1984); W.J.T. Mitchell, *The Reconfigured Eye: Visual Truth in the Post-Photographic Era* (Cambridge, MA: MIT Press, 1992); Geoffrey Batchen, *Each Wild Idea: Writing, Photography, History* (Cambridge, MA: MIT Press, 2002); Poremba, "Point and Shoot," 53.
- 4 Jay David Bolter and Richard Grusin, *Remediation: Understanding New Media* (Cambridge, MA: MIT Press, 1999).
- 5 Poremba, "Point and Shoot."
- 6 Ibid., 51.
- 7 Ibid., 53.
- 8 Gonzalo Frasca, "Simulation versus Narrative: Introduction to Ludology," in *The Video Game Theory Reader*, ed. Mark J.P. Wolf and Bernard Perron (New York: Routledge, 2003), 223.
- 9 Poremba, "Point and Shoot," 54.
- 10 Cindy Poremba, "Discourse Engines for Art Mods," *Eludamos: Journal for Computer Game Culture* 4, no. 1 (2010): 54–5.
- 11 Matteo Bittanti, "The Art of Screenshoot-Ing: Joshua Taylor, Videogame Photographer," *Wired IT—Mister Bit*, December 24, 2011, <http://blog.wired.it/misterbit/2011/12/24/the-art-of-screenshoot-ing-joshua-taylor-videogame-photographer.html>; Rainer Sigl, "In-Game-Fotografie: Die Kunst des Screenshots," *Die Zeit*, August 2, 2012, <http://www.zeit.de/digital/games/2012-08/in-game-fotografie>.
- 12 Poremba, "Discourse Engines," 53–4.
- 13 Stephan Günzel, *Egos shooter: Das Raumbild des Computerspiels* (Frankfurt/Main: Campus, 2012), 52.
- 14 Olli Tapio Leino, "On the Logic of Emotions in Play," in *Proceedings of ISAGA 2009 Conference* (Singapore: Society of Simulation and Gaming of Singapore, 2009).
- 15 Espen Aarseth, "Define Real, Moron! Some Remarks on Game Ontologies," in *DIGAREC Keynote-Lectures 2009/10*, ed. Stephan Günzel, Michael Liebe, and Dieter Mersch (Potsdam: Potsdam University Press, 2011); see also Espen Aarseth, "Playing Research: Methodological Approaches to Game Analysis," in *Game Approaches/Spiel-Veje: Papers from Spilforskning.dk*

- Conference, August 28–29, 2003* (Melbourne: 2003), <http://hypertext.rmit.edu.au/dac/papers/Aarseth.pdf>; Espen Aarseth, "Genre Trouble," in *First Person: New Media as Story, Performance, and Game*, ed. Noah Wardrip-Fruin and Pat Harrigan (Cambridge, MA: MIT Press, 2004); Christian Elverdam and Espen Aarseth, "Game Classification and Game Design," *Games and Culture* 2, no. 1 (2007).
- 16 Stephan Schwingeler, "Simulation of Arbitrary Perspectives in Video Games," paper presented at the *Ludotopia II* workshop, University of Salford, Greater Manchester, UK, February 24, 2011; Frieder Nake, "Das Doppelte Bild," *Bildwelten des Wissens* 3, no. 2 (2006).
 - 17 Espen Aarseth, *Cybertext: Perspectives on Ergodic Literature* (Baltimore: Johns Hopkins University Press, 1997).
 - 18 Olli Tapio Leino, "Death Loop as a Feature," *Game Studies* 12, no. 2 (2012), http://gamestudies.org/1202/articles/death_loop_as_a_feature.
 - 19 Ibid.
 - 20 Giddings, "Drawing," 42.
 - 21 Henri Cartier-Bresson, *The Decisive Moment* (New York: Simon & Schuster, 1952).
 - 22 *Paparazzi*, dev. HuneX (D3Publisher, 2004), PlayStation 2.
 - 23 *Fatal Frame II: Crimson Butterfly*, developed by Tecmo (Tecmo, 2003), PlayStation 2.
 - 24 Poremba, "Point and Shoot"; Moore, "Screenshots".
 - 25 Raab and Gilbertson, "A War Photographer."
 - 26 Ashley Gilbertson quoted in Poremba, "Point and Shoot," 51.
 - 27 Katie Salen, "Quake! Doom! Sims! Transforming Play: Family Albums and Monster Movies," *Walker Art Center*, October 19, 2002, <http://www.walkerart.org/archive/7/A5736D3C789330FC6164.htm>; see also Poremba, "Point and Shoot."
 - 28 Olli Tapio Leino, *Emotions in Play: On the Constitution of Emotion in Solitary Computer Game Play* (PhD diss., IT University of Copenhagen, 2010), 129–34.
 - 29 Tony Coles, "Shooting Cars: The Art of *Gran Turismo 6*'s Photography," *Eurogamer.net*, December 12, 2013, <http://www.eurogamer.net/articles/2013-12-19-shooting-cars-the-art-of-gran-turismo-6s-photography>.
 - 30 Martin Heidegger, *Being and Time*, trans. Joan Stambaugh (Albany, NY: SUNY Press, 2010).
 - 31 Eron Rauch, "Virtual Light: Exploring In-Game Photography and Photo History," *Videogametourism*, August 28, 2012, <http://videogametourism.at/content/virtual-light-exploring-game-photography-and-photo-history>.
 - 32 Matteo Bittanti and Domenico Quaranta, ed., *Gamescenes: Art in the Age of Videogames* (Milano: Johan & Levi, 2006).
 - 33 Kent Sheely, "Touring San Andreas," 2007, <http://www.kentsheely.com/grand-theft-photo>.

- 34 Espen Aarseth, "I Fought the Law: Transgressive Play and the Implied Player," *Situated Play: Proceedings of the DiGRA 2007 Conference*.
- 35 Ragnhild Tronstad, "Semiotic and Non-Semiotic MUD Performance," in *COSIGN Conference*, Amsterdam, 2001; Susana Pajares Tosca, "The Quest Problem in Computer Games," paper presented at the *Technologies for Interactive Digital Storytelling and Entertainment (TIDSE)* conference, Darmstadt, 2003, <http://www.itu.dk/people/tosca/quest.htm>; Espen Aarseth, "From Hunt the Wumpus to EverQuest: Introduction to Quest Theory," in *Entertainment Computing: ICEC 2005*, ed. Fumio Kishino et al. (Berlin: Springer, 2005).
- 36 Kent Sheely, "DoD," 2009–2013, <http://www.kentsheely.com/dod>.
- 37 Ibid.
- 38 Ibid.
- 39 John Paul Bichard, "Game Art: John Paul Bichard, a Pioneer of In-Game Photography," interview by Mathias Jansson, *GameScenes*, November 2010, <http://www.gamescenes.org/2010/11/interview-with-john-paul-bichard-pioneer-of-in-game-photography.html>.
- 40 Ibid. Significantly, in a follow-up work, "The White Room" (2004), Bichard inverted his strategy by recreating potential real-world crime scenes in the gameworld of *Max Payne 2* (Remedy Entertainment, 2003), digitally removing the bodies of dead opponents in post-processing.

References

- Aarseth, Espen. *Cybertext: Perspectives on Ergodic Literature*. Baltimore: Johns Hopkins University Press, 1997.
- Aarseth, Espen. "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: Potsdam University Press, 2011.
- Aarseth, Espen. "From Hunt the Wumpus to EverQuest: Introduction to Quest Theory." In *Entertainment Computing: ICEC 2005*, edited by Fumio Kishino, Yoshifumi Kitamura, Hirokazu Kato, and Noriko Nagata, 496–506. Berlin: Springer, 2005.
- Aarseth, Espen. "Genre Trouble." In *First Person: New Media as Story, Performance, and Game*, edited by Noah Wardrip-Fruin and Pat Harrigan, 45–55. Cambridge, MA: MIT Press, 2004.
- Aarseth, Espen. "I Fought the Law: Transgressive Play and the Implied Player." *Situated Play: Proceedings of the DiGRA 2007 Conference*, 24–8.
- Aarseth, Espen. "Playing Research: Methodological Approaches to Game Analysis." In *Game Approaches/Spiel-Wege: Papers from Spilforskning.dk Conference, August 28–29, 2003*. Melbourne: 2003. Accessed March 17, 2016. <http://hypertext.rmit.edu.au/dac/papers/Aarseth.pdf>.
- Afrika*. Developed by Rhino Studios. Sony Computer Entertainment, 2008. PlayStation 3.

- Batchen, Geoffrey. *Each Wild Idea: Writing, Photography, History*. Cambridge, MA: MIT Press, 2002.
- Bichard, John Paul. "Game Art: John Paul Bichard, a Pioneer of In-Game Photography." Interview by Mathias Jansson. *GameScenes*, November 2010. Accessed March 17, 2016. <http://www.gamescenes.org/2010/11/interview-with-john-paul-bichard-pioneer-of-in-game-photography.html>.
- Bittanti, Matteo. "The Art of Screenshoot-Ing: Joshua Taylor, Videogame Photographer." *Wired IT—Mister Bit*, December 24, 2011. Accessed March 17, 2016. <http://blog.wired.it/misterbit/2011/12/24/the-art-of-screenshoot-ing-joshua-taylor-videogame-photographer.html>.
- Bittanti, Matteo, and Domenico Quaranta, eds. *Gamescenes: Art in the Age of Videogames*. Milano: Johan & Levi, 2006.
- Bolter, Jay David, and Richard Grusin. *Remediation: Understanding New Media*. Cambridge, MA: MIT Press, 1999.
- Cartier-Bresson, Henri. *The Decisive Moment*. New York: Simon & Schuster, 1952.
- Coles, Tony. "Shooting Cars: The Art of *Gran Turismo 6*'s Photography." *Eurogamer.net*, December 12, 2013. Accessed March 17, 2016. <http://www.eurogamer.net/articles/2013-12-19-shooting-cars-the-art-of-gran-turismo-6s-photography>.
- Day of Defeat: Source*. Developed by Valve. Valve, 2005. Windows.
- Elverdam, Christian, and Espen Aarseth. "Game Classification and Game Design." *Games and Culture* 2, no. 1 (2007): 3–22.
- Fatal Frame II: Crimson Butterfly*. Developed by Tecmo. Tecmo, 2003. PlayStation 2.
- FIFA 16*. Developed by EA Canada. EA Sports, 2015. PlayStation 4.
- Firewatch*. Developed by Campo Santo. Panic and Campo Santo, 2016. Windows.
- Forza Motorsport 5*. Developed by Turn 10 Studios. Microsoft Studios, 2013. Xbox One.
- Frasca, Gonzalo. "Simulation versus Narrative: Introduction to Ludology." In *The Video Game Theory Reader*, edited by Mark J.P. Wolf and Bernard Perron, 221–35. New York: Routledge, 2003.
- Gekibo: Gekisha Boy*. Developed by Tomcat System. Irem, 1992. TurboGrafx-16.
- Giddings, Seth. "Drawing without Light." In *The Photographic Image in Digital Culture*, edited by Martin Lister, 41–55. Abingdon: Routledge, 2013.
- Gran Turismo 4*. Developed by Polyphony Digital. Sony Computer Entertainment, 2004. PlayStation 2.
- Gran Turismo 5*. Developed by Polyphony Digital. Sony Computer Entertainment, 2010. PlayStation 3.
- Gran Turismo 6*. Developed by Polyphony Digital. Sony Computer Entertainment, 2013. PlayStation 3.
- Grand Theft Auto: San Andreas*. Developed by Rockstar North. Rockstar Games, 2004. PlayStation 2.
- Grand Theft Auto V*. Developed by Rockstar North. Rockstar Games, 2013. PlayStation 3.
- Günzel, Stephan. *Egoshoooter: Das Raumbild des Computerspiels*. Frankfurt am Main: Campus, 2012.
- Heidegger, Martin. *Being and Time*. Translated by Joan Stambaugh. Albany, NY: SUNY Press, 2010.

- Krauss, Rosalind. "A Note on Photography and the Simulacral," *October* 31 (1984): 49–68.
- Lajoie, Jason. "Playing the Photographer in *The Last of Us Remastered*: A New Frontier of Digital Photography." *First Person Scholar*, June 24, 2015. Accessed March 17, 2016. <http://www.firstpersonscholar.com/playing-the-photographer-in-the-last-of-us-remastered/>.
- The Last of Us Remastered*. Developed by Naughty Dog. Sony Computer Entertainment, 2014. PlayStation 4.
- Leino, Olli Tapio. "Death Loop as a Feature." *Game Studies* 12, no. 2 (2012). Accessed March 17, 2016. http://gamestudies.org/1202/articles/death_loop_as_a_feature.
- Leino, Olli Tapio. *Emotions in Play: On the Constitution of Emotion in Solitary Computer Game Play*. PhD diss. Copenhagen: IT University of Copenhagen, 2010.
- Leino, Olli Tapio. "On the Logic of Emotions in Play." In *Proceedings of ISAGA 2009 Conference*. Singapore: Society of Simulation and Gaming of Singapore, 2009.
- Life Is Strange*. Developed by Dontnod Entertainment. Square Enix, 2015. PlayStation 4.
- Mitchell, W.J.T. *The Reconfigured Eye: Visual Truth in the Post-Photographic Era*. Cambridge, MA: MIT Press, 1992.
- Moore, Christopher. "Screenshots as Virtual Photography: Cybernetics, Remediation, and Affect." In *Advancing Digital Humanities: Research, Methods, Theories*, edited by Katherine Bode and Paul Longley Arthur, 141–60. Basingstoke: Palgrave, 2014.
- Nake, Frieder. "Das Doppelte Bild." In *Bildwelten des Wissens* 3, no. 2 (2006): 40–50.
- Orlando, Alexandra, and Betsy Brey. "Press A to Shoot." *First Person Scholar*, April 15, 2015. Accessed March 17, 2016. <http://www.firstpersonscholar.com/press-a-to-shoot/>.
- Paparazzi*. Developed by HuneX. D3Publisher, 2004. PlayStation 2.
- Pilotwings 64*. Developed by Nintendo EAD and Paradigm Simulation. Nintendo, 1996. Nintendo 64.
- Pokémon Snap*. Developed by HAL Laboratory and Pax Softnica. Nintendo, 1999. Nintendo 64.
- Poremba, Cindy. "Discourse Engines for Art Mods." *Eludamos: Journal for Computer Game Culture* 4, no. 1 (2010): 41–56.
- Poremba, Cindy. "Point and Shoot: Remediating Photography in Gamespace." *Games and Culture* 2, no. 1 (2007): 49–58.
- Project CARS*. Developed by Slightly Mad Studios. Bandai Namco, 2015. PlayStation 4.
- Raab, Josh, and Ashley Gilbertson. "A War Photographer Embeds Himself Inside a Video Game." *Time*, September 15, 2014. Accessed March 17, 2016. <http://time.com/3393418/a-war-photographer-embeds-himself-inside-a-video-game/>.
- Rauch, Eron. "Virtual Light: Exploring In-Game Photography and Photo History." *Videogametourism*. August 28, 2012. Accessed March 17, 2016. <http://>

- videogametourism.at/content/virtual-light-exploring-game-photography-and-photo-history.
- Salen, Katie. "Quake! Doom! Sims! Transforming Play: Family Albums and Monster movies." *Walker Art Center*, October 19, 2002. Accessed May 15, 2016. <http://www.walkerart.org/archive/7/A5736D3C789330FC6164.htm>.
- Schwingeler, Stephan. "Simulation of Arbitrary Perspectives in Video Games." Paper presented at the Ludotopia II workshop, University of Salford, Greater Manchester, UK, February 24, 2011.
- Sheely, Kent. "DoD." 2009–2012. Accessed March 17, 2016 <http://www.kentsheely.com/dod>.
- Sheely, Kent. "Grand Theft Photo." 2007. Accessed March 17, 2016. <http://www.kentsheely.com/grand-theft-photo>.
- Sigl, Rainer. "In-Game-Fotografie: Die Kunst Des Screenshots." *Die Zeit*, August 2, 2012. Accessed March 17, 2016. <http://www.zeit.de/digital/games/2012-08/in-game-fotografie>.
- The Elder Scrolls V: Skyrim*. Developed by Bethesda Game Studios. Bethesda Softworks, 2011. Windows.
- The Sims*. Developed by Maxis. Electronic Arts, 2000. Windows.
- Tosca, Susana Pajares. "The Quest Problem in Computer Games." Paper presented at the Technologies for Interactive Digital Storytelling and Entertainment (TIDSE) conference, Darmstadt, 2003. Accessed March 17, 2016. <http://www.itu.dk/people/tosca/quest.htm>.
- Tronstad, Ragnhild. "Semiotic and Non-Semiotic MUD Performance." In *COSIGN Conference*. Amsterdam, 2001.
- Wild Earth: Photo Safari*. Developed by Super X Studios. Ubisoft, 2006. Windows.