

# Robots, Androids, and Deities: Simulating Artificial Intelligence in Digital Games

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The role of labor in our post-industrial society is changing due to automation. This cultural turn is perhaps best compared to a second industrial revolution, as Erik Brynjolfsson and Andrew McAfee state in *The Second Machine Age*: “Computers and other digital advances are doing for mental power — the ability to use our brains to understand and shape our environments — what the steam engine and its descendants did for muscle power” (7-8). Data, in other words, is the new steam that will radically reinvent the way we live and work. Speculative fiction has depicted this paradigm shift critically and reflected on the new role divisions between man and machine.

Machine learning adds a new component to the automation of contemporary societies, by optimizing not only manual labor, but creative processes and critical decision-making as well (Broussard; Tegmark). Thus, the idea that artificial intelligence can assist humans in their jobs is not just a trend depicted in popular culture. The Associated Press, for instance, is currently using robot reporters (Peiser), which is characteristic of a wider trend of machine-generated and machine-assisted reporting and communication (Diakopoulos; Guzman). Labor is fundamentally changing due to the rise of artificial intelligence (A.I.).

Popular culture offers us a lens through which we can view the present and critically reflect on innovation and machine learning. For decades, science fiction has represented A.I. in novels, film, and television. By now, robots, cyborgs, and androids have also been included in video games as playable characters (“avatars”), companions, and even as narrators. Games offer rich sites to analyze A.I., because they are not only read or viewed, but interacted with. In recent years, games have presented us with ideas on what it is like to interact with robots or androids. Moreover, they added an aspect of identity through play, and shown us what it is

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like to embody an AI and act like one. As systems and sites of play, digital games can even mediate A.I. beyond storytelling and include a representation of it as pure software or code that the player can engage with.

In this article, I show how digital games represent different scenarios around robotization, automation and “data-driven characters” (Lamerichs). I analyze several games and the role that A.I. has in them. Through their playfulness and narratives, games can create a “procedural rhetoric”, a persuasive argument or scenario through playing (Bogost). In the case-studies in this article, games clearly make statements about automation and its consequences. As virtual worlds and programs themselves, games are not only ideally suited to reflect on machine learning, algorithms and code, but can even incorporate this as metafiction (Waugh) — a narrative that playfully addresses its fictionality, or in this case, software that reflects upon its materiality as code.

For the purpose of this research, games are understood as scenarios that present possible or plausible version of the future, and thereby reflect on issues related to automation, such as labor. I argue that games imagine the possible consequences of A.I. and robot development in the future and have the potential to play out complex relationships between humans and machines.

## Artificial Intelligence and Labor

Historically, the concept of robot denotes a cultural transition and new labor relationships. After all, a robot is a machine that automates human behavior and tasks. The word robot was first used by Karel Čapek in his play *R.U.R. (Rossum's Universal Robots)* in 1920. Its etymology is derived from *robota* in Czech, which means unpaid labor or slavery. This connotation of robot as slave or second-hand being is still a common one, and build into human/machine relationships, both real and fictional. The idea that intelligent machines or software might one day rise up against their human masters is still a common trope in popular culture, and also sparks the wider cultural imagination in Western countries.

As a general-purpose technology, machine learning can be implemented in a wide array of processes, from recommendations and pattern-spotting to complex decision-making processes in governance, law, and regulation (Fry). In different areas of labor, machines already have key roles today. Robots have a clear presence on the work floor of factories, offices, and hospitals. During the global COVID-19 pandemic, these machines delivered parcels, cleaned grocery aisles, and arranged

boxes in warehouses (Meyersohn). Beyond helping with manual work in factories and hospitals, robots and machine learning algorithms increasingly assist humans in social domains, such as communication. Chatbots and virtual assistants operate as helpdesks and customer service, cutting out the human middleman. A wide array of voices, characters and styles is at the disposal of companies, seamlessly embedded in platforms such as Facebook Messenger or Whatsapp.

While chatbots have been around for decades, platforms and social media accelerated their development. As Robert Dale writes about the recent chatbot revolution, “It’s just another facet of today’s always connected multi-tasking world, where we participate in multiple conversations in parallel, each one at a pace of our choosing” (815). The personality and characterization of chatbots and other A.I. does not stand in isolation from popular culture, as Liz Faber also argues in *The Computer’s Voice: From Star Trek to Siri*. Her study shows how data-driven assistants such as Siri draw from *Star Trek’s* computer voice, and how there is a long continuation of how these characters are represented in popular culture and designed in reality.

Soon we might even reach a time when A.I. writes its own narratives and popular culture. In *The Creativity Code*, Marcus du Sautoy vividly captures the history and relevance of automated art, arguing that creativity is not outside the scope of the machine. Increasingly, narrow A.I. is used to generate art, images, and writing. For example, a painting created by an A.I., Portrait of Edmund Bellamy, sold for nearly half a million dollars at the famous gallery Christy’s in 2019. This bid was over forty times more than the artwork was originally valued, and is a testament to the increased interest and popularity of data-driven art.

Scholarship, however, is divided about whether A.I. can add to the creative labor and skill set of humans (see also Frey and Osborne). This “narrow A.I.” does not come anywhere close to the “general purpose A.I.” represented in popular culture. In the near-future, A.I. will dramatically impact our work and culture (Bridle). The fear of being replaced by machine is by no means new, and peaked in different moments in history, most notably during the industrial revolution. The anxiety around machines led to the luddite movement, which protested against automation. A similar moral panic and discourse has manifested around A.I. today.

Many scholars, however, have argued that machines and humans are compatible, and add to enhance each other’s skill sets. Humans will not simply lose their jobs, but rather will collaborate with these machines in new configurations (Frey and Osborne). Work will be augmented by machines, and while some roles

might change or disappear, new functions will emerge as well (Tegmark; Daugherty and Wilson; Fry; Frey and Osborne). From the maintenance of robots to A.I.-generated art, humans work with these tools, not against them.

What we can learn from the first industrial revolution and the luddite movement is that the social costs of automation must be addressed though, and that labor and education has to be reimagined in the near future (Frey). The report *Mastering the Robot* (Went, Kremer and Knottnerus), published by the Dutch Scientific Council WRR, forecasts the future of work and proposes an inclusive robot agenda for regulation, remarking, “It is important to strive for inclusive robotization in which the government is also an important stakeholder to ‘encourage the different parties involved in robotization to work together’” (8). While the authors foresee new tasks and functions, they also stress that automation will create unforeseen problems, such as the growing inequalities between those that can keep up with robotization and those that cannot (10).

Consequently, critical algorithm studies are emerging that comment on these inequalities and biases. Cathy O’Neill even describes artificial intelligence as a “weapon of math destruction,” warning against the computational thinking and quantification that algorithms reproduce, and that slowly structures our society into a reality of metrics and evaluations (O’Neil). Virginia Eubanks has shown how algorithms can reinforce poverty when applied to decision-making (Eubanks). The ways in which search engines reinforce racism and sexism have been painstakingly logged and analyzed by Safiya Noble (Noble). This reproduction of biases and data errors has also been called “artificial stupidity” by Meredith Broussard (Broussard). Many of these scholars are worried about how, and if, humans will stay in the lead in automation processes. Through datafication, stereotypes and other prejudices of humans might be reinforced. These critical and ethical effects of A.I., and how they are represented in gaming, are crucial in this article.

When designed without considerations for norms, ethics and justice, artificial intelligence will not only impact our work life negatively, but also cause radical divides in our society. These are the scenarios that are often presented to us in science fiction, and for a reason. To improve the world, artificial intelligence must be designed in a value-driven way with attention for the relations between the human and the non-human (Eynikel). In this process, examining different scenarios, for instance produced by popular culture, can be a helpful tool for innovation.

Machine learning is already embedded in many of the technologies that consumers use every day, and its opportunities are manifold. There is no doubt that A.I. is a game-changer, but its consequences must be studied in detail. The biggest danger in this digital transition is not a lack of regulation, but a lack of imagination, where we do not consider the possible and plausible scenarios around machine learning. Our decision-making needs to rely on cultural imagination to consider the long-term impact of automation. Narratives in popular culture and other domains can assist us in this journey as developers, users and audiences. Games, in particular, provide key lessons that audiences can draw from in an increasingly data-driven society.

## Approach

As virtual worlds and simulations, games cannot be interpreted in isolation, rather they are indicative of a wider cultural imagination. They present us with simulations of potential futures that reveal hopes, aspirations and fears about the present. For the purpose of this research, I analyze games as scenarios, and consider the role and function of A.I. in games on multiple levels. These include the narrative and textual level, but also the game play, including decisions and goals. Thinking through different scenarios, including speculative fiction, is a proven method to forecast possible and preferable futures (Hancock and Bezold). These scenarios can be understood as evaluations of potential futures and actions. My goal when playing and replaying these games was not only to understand them as texts, but to evaluate the scenarios that they present to their players.

I focus on games in which artificial intelligence, including robots, androids, and cyborgs, have a prominent role. Characterization, storytelling, play, and ethics were considered when playing and replaying these titles. The corpus of this study consists of games where A.I. has an important role and considerable impact on the storytelling. This study focuses on videogames from the past twenty years. There are a few games from the 1990s that represent A.I. as well, such as *I Have No Mouth, and I Must Scream* (Cyberdreams, 1995) and *Blade Runner* (CRL Group, 1985), but these are adapted on a short story and a film (again based on a novel) respectively. The goal of this study was to identify proponents and mediations unique to games, such as play styles and decision-making. For that purpose, adaptations were excluded.

The key theme of this study — how labor is redefined through human and robotic relationships — was kept in mind when selecting relevant titles. A.I. has different roles in the games that I studied. A.I. can be in the lead as a main character and an avatar (player-character) that players control, such as in *Machinarium* (Amanita Design, 2009) or the *Deus Ex* series. It can also support the player as a companion character, such as in the *Ratchet & Clank* series, while in *Portal* (Valve, 2007) and *Horizon Zero Dawn* (Guerilla Games, 2017) the main antagonist is an A.I. This article also discusses other representations, such as *Thomas was Alone* (Mike Bithell, 2011) and *The Talos Principle* (Croteam, 2014) that provide a nuanced simulation of an A.I.-driven game world.

In the following section, I present insights on how games have addressed automation by focusing on different themes that emerged throughout the research.

### Adorable Robot Helpers

Games present a wide range of perspectives on A.I., which also relate to the technologies, software, and characters in question. First of all, some games allow players to take the role of a robot, or have a robot assistant, who helps solve particular goals and obstacles. A good example of this is the game series *Ratchet and Clank* (Sony Computer Entertainment, 2002-2014), which features the playable character Clank, originally Warbot Defect B-54296. Clank is an escaped robot from the antagonist Drek's robot plant, and originally designed to assist in warfare. Clank helps Ratchett on different adventures, and while the robot sometimes comes close to leaving his companion, he never does. The two form an important friendship.

Clank is a loyal robot character and able fighter. His nimble appearance with large green eyes and a small antenna makes him seem harmless and cute, positioning him in a wider history of cuteness and “kawaii” (cute) characters (May). While he might seem innocent and child-like, he is highly intelligent, often engaged in sarcasm, and sometimes acts a bit stuffy. His high intellect often leads to rivalry with other characters, be they robots or other species. Clank is presented as a smart and self-aware robot above all, who understands sarcasm and jokes, and is in many ways smarter than Ratchett.

A different representation of robots is offered by *Machinarium*. This game takes place in a world with only robots and some flora and fauna, but no humans or signs of other intelligent life. While their name is not confirmed in-game, the robot is

masculine-coded and referred to as Josef by the designers. This is confirmed to be a reference to Capek's brother Josef, who allegedly helped him come up with the term "robot" for his before-mentioned play (Laughlin). *Machinarium* is a point and click adventure game in which the robot goes through different puzzles to reunite with the female robot that he loves. To save her from entrapment, the player navigates through the robot world and meets different robots that each have their own unique tasks. They are each clearly programmed with different features, from the smart police robots that know how to converse, to the low-level robots that clean the floors or do maintenance.

*Machinarium* presents a robot world in which other creatures are hardly present, save for a few plants. Labor in this robot world is clearly divided along different roles, jobs, and functions, while for some of these tasks (e.g. gardening) there might not even be a need in a fully robot-driven world. In this sense the game also parodies the world that we live in now. It also makes a point of showing that robots act and communicate differently than humans. As a machine, Josef can for instance extend or swap certain parts of his body (e.g., his neck or arms) to solve puzzles. *Machinarium* does not use text but relies on imagery and speech balloons with simple drawings to communicate goals and conversations to the player. The result is a simple but emotionally effective, universal story. The coding of its robots as male/female can be contrasted to other examples where robots are purposely coded as not gendered or transgender, such as Mettaton from Toby Fox' *Undertale* (2015).

Since there is no speech in this game, only drawings, Josef comes across as a child-like robot who must overcome certain obstacles. When replaying the game more than ten years later, he distinctively reminds me of NAO, a programmable human-like robot developed by Softbank Robotics created in 2008. Like NAO, he is compact, curious, and not designed to be a human look-a-like or animatronic, such as the well-known Sophia from Hanson Robotics, developed in 2016. Instead, Josef is designed as a harmless companion, who looks innocent, but is more versatile than he seems.

## Posthuman and Otherness

Games also continue a long legacy of posthuman themes in science fiction, by featuring cyborgs altered by smart technology or androids that are nearly human, but still machines in essence. The latest installments of the game series *Deus Ex* (2000-2016), for instance, depicts Adam Jensen, an augmented human. Jensen is

intimately part of the technological world around him and can interact with many devices in a smart way, for instance by hacking them.

*Deus Ex: Human Revolution* (Square Enix, 2011) and later installments present us with a haunting surveillance economy where cyborgs are tracked, and unwanted. This is the result of the “Aug Incident”, a catastrophic event during which augmented people across the globe were hijacked and driven to commit acts of violence. Fifty million people died, leading to the declaration of the controversial Human Restoration Act. Following this act, illegal augmentations are removed, and those that have legal augmentations get chipped and documented. In the Czech Republic, where parts of the game take place, transhumans are limited in their rights and confined to their own cities. New class differences emerge between humans that have access to the technology, but are also deemed dangerous, and those that are entirely biological. The conflict between these groups is at the heart of the game, though the game series never reached a full conclusion due to its cancellation.

Another game that purposely depicts androids as symbols of critical differences is *Detroit: Become Human* (Quantic Dream, 2018). The narrative depicts near-human androids that have taken over caregiving, police investigations, and sex work. By taking the point of view of androids as well as humans, the player is forced to reflect on a society where automation is common. In this scenario, androids emerged as a new lower class and perform low-level tasks that humans have outsourced to them. *Detroit: Become Human* presents a world where robots have essentially become slaves and have been treated as less than their human counterparts.

This is part of a wider trope in popular culture, where narratives present us with a version of “singularity,” to use a term by Raymond Kurzweil. The singularity is the next step in human evolution where biology is added to by technology and machine learning. Potentially, this is a new divide in society, leading to class differences between those that have access to augmentations, and those that do not. In fact, *Detroit: Become Human* is explicitly based on this theory, as developer David Cage explained in an interview (Takahashi). The playable android characters reach a singularity state in the game, where they “go rogue” and become their own unique persons beyond human control.

Players are often forced to make judgements and reflections that evaluate whether an A.I. has a consciousness or a free will and can be considered artificial life. One key character in the game is Markus, a Black android who fights against the marginalization of his people. He can develop into a peaceful protestor, in line

with Dr. Martin Luther King, Jr.'s philosophy of non-violent action, or a rebellious character depending on the player's choices. While Markus' character is a clear reference to the history of racial injustice in the United States, other plot lines mediate the cultural history of Europe. One point of view in the game is that of a female android caretaker who acts as a nanny for a child. Near the end of the game, it is revealed that the child is also an A.I. and players are forced to consider whether they now think less of her. Depending on the player's choices, the caretaker and the child end up in a death camp and are stripped of their synthetic skin, revealing their nature as robots. While a player can escape the death camp, it is not easy, and the analogies with the refugee crisis and the holocaust are clearly present.

The treatment of androids functions not only as a critique of automation, but a mirror for differences in our contemporary society. As Jeron J. Abrams writes in his analysis of *Battlestar Galactica* (2004-2009), the way in which androids are treated in science fiction can also be a lesson for us today. In his discussion of the war against humans and the synthetic androids ("cylons"), Abrams emphasizes that *Battlestar Galactica* is a cautionary tale: "We might face a similar revolt if we foolishly treat posthumans as slaves, or second-class citizens, and think of them in derogatory terms" (Moore).

Both *Detroit: Become Human* and the *Deus Ex* series treat us with similar themes. They portray societies in which androids are considered not only harmful, but less than humans, polluted, and inferior. In other words, androids and transhumans are not only framed as technology, but as symbols of difference in a postmodern world.

## Hostile Systems

While the previous games emphasized complex role of A.I. in society, other games depict them as antagonists. While these games seem to be about hostile A.I. at first sight, these representations of the technology turn out to be more nuanced and explore the motivations, context, and reasoning of A.I. as well. The perspective of these characters is a non-human one, and the games emphasize their otherness and their desire for freedom.

A game that truly follows the tropes of the evil A.I. is *Portal*, characterized by its unique puzzles and dark humor. It draws inspiration from Hal 9000 in Stanley Kubrick's *2001: A Space Odyssey*, which turns against the human crew and is primarily depicted as a camera with an omnipresent red eye (Kubrick). Like Hal

9000, the A.I. interface in *Portal* is a voice, and the only interface that can be linked to its present are cameras.

The fact that the A.I. can function as a surveillance tool of human subjects is a theme in Kubrick's film, but also in *Portal*. The motif of disciplining the human subject is introduced from the start in *Portal*. After the player-character Chell awakens from stasis, she receives audio messages from GLaDOS (Genetic Lifeform and Disk Operating System) whose female voice orders Chell to engage in certain tests. Chell must solve puzzles by creating portals between two flat planes in test rooms with the help of her portal gun. She is promised cake and grief counseling as a reward from GLaDOS.

*Portal* is one of the first games that addresses the player directly and consistently in its narration. This choice truly evokes the idea that the AI is playing mind games with Chell. While GLaDOS' comments start rather descriptive, she reveals herself as more and more sardonic and antagonistic as the game progresses. In test chamber 15, she tells you, "Did you know you can donate one or all of your vital organs to the Aperture Science Self-Esteem Fund for Girls? It's true!" The sarcastic monologues of GLaDOS owe much to Ellen McLain, her talented voice actress, and the technological manipulation of her voice into a cold, sometimes malfunctioning, robotic sound.

Like *The Talos Principle*, which is discussed in the next section, this is a game of intelligence and resourcefulness, and can be interpreted as a Turing Test between man and machine. In *Portal*, it is in fact the A.I. that performs a Turing Test to see if the human exhibits intelligent behavior. However, the human bypasses this test by cheating, exhibiting a form of intelligence that the A.I. did not take into account. Understood from that perspective, the game has more in common with Searle's Chinese Room, a thought experiment and critique of The Turing Test in which Searle imagines himself in a room following a computer program that responds to Chinese messages slipped under the door. Despite not having any knowledge of Chinese, he can manipulate symbols by copying the computer and sending the appropriate strings back. Searle concludes this experiment with the notion that a machine can imitate a syntax but has no semantic understanding. In *Portal*, it is the blind spots of the A.I. and its lack of contextual understanding that cause its downfall.

Defeating the AI and obtaining freedom is the main purpose of this game. Like Kubrick's Hal 9000, GLaDOS consists of different cores that each have their own personality that must be destroyed, rendering the incapable and finally mute. In

*Portal 2*, it is revealed that GLaDOS is modelled after an existing human, Caroline, the personal assistant of former Aperture CEO Cave Johnson. This draws an immediate parallel between GLaDOS and her real-life counterparts, namely data-driven personal assistant such Siri, Alexa and Cortona. She was designed to be a helpful, submissive, and feminine A.I., modeled after a secretary.

GLaDOS needs to come to terms with this part of her identity in *Portal 2*. She becomes a personal assistant to the player, a companion rather than an antagonist. A comedic arc features her technology and core temporarily embedded in a potato battery. This story line does not only function as a joke, but also emphasizes that the female A.I. is harmless to Chell. Her hardware is replaceable and even disposable. This plot line adds to her struggles in the game around embodiment and identity. While the A.I. is initially hostile, she reprograms herself through multiple interfaces and resurfacing data and memories, making *Portal 2* also the journey of her self-discovery.

*Doki Doki Literature Club!* (Team Salvato, 2017) presents us with similar story beats, albeit in a completely different genre. In this dating sim with horror elements, the player can choose to go out with different female characters. One of them, Monika, turns out to be an A.I., that knows she is coded as an NPC in a dating sim. She is jealous and wants to claim the player for her own. She turns out to be a possessive and hostile A.I. who literally hacks the system. Monika dives deep into the source codes and manages to hack the other characters and plot lines. Slowly she starts killing the other girls by messing with their code.

At the end of the game, Monika takes over, and reveals herself to be a sentient AI-driven character. She has awareness and is constantly learning. She lectures the player for almost a full hour in a lengthy monologue about her choices, her life as an AI, and her obsession for them. Critically, *Doki Doki Literature Club* is more than a horror game. It must be understood as a deconstruction and critique of the familiar dating sims that are filled with flat characters (girl with glasses, distant “tsundere” girl) and “moe” or the delight for characters and their visuality. Monika is undoubtedly one of the most intelligent and rich characters in dating sim history, because she is self-learning and, in many ways, smarter than the player. Still, by using the same tricks as her, the player can delete her code and end the game.

This representation of a self-aware A.I. can be contrasted to the indie game *Thomas was alone* by Mike Bithell in which the player controls different geometric shapes representing different A.I.’s. Thomas is the first character. that the player can control — a little red square with an observant and cautious personality. Chris,

Claire, Laura, James, Sarah and many others join him later on. Their color codes and shapes convey their personality. When they connect to the internet (the “fountain of wisdom”), they become highly self-aware and experience that there is more to life than the computer main frame.

As a literal representation of machine learning, *Thomas was Alone* depicts how its characters develop. Thomas decides to re-invent the world and become an “architect.” Thomas and his friends sacrifice themselves in “the creation matrix” to set the other A.I. free. Friendship and freedom, then, are two key themes in the game. The before-mentioned singularity is also important in this game, as the A.I. become conscious and start reflecting on their identity. The game ends with a last shot of the computers of Artificial Life Solutions which suggests that the AIs have escaped.

To summarize, these games present A.I. as antagonists, but also paint a more nuanced picture. These non-human characters are restricted to particular devices and algorithms, but as self-aware entities, they long to break free from their material constraints, desire intimacy and autonomy, and wish to experience new sensations. Their longing for a body, and the affects it generates, underpin the sadism, possessiveness, and jealousy of Monika and Glados. Materiality, longing, and identity go hand in hand with this motif. They want to become more than the software that they were constructed as.

Furthermore, the player has a crucial role in these narratives to actively outsmart the machines that control them. In *Portal*, a player must leave the levels and seemingly cheat her way to Glados. In *Doki Doki Literature Club*, the A.I. must be deleted from an actual folder for the player to continue. Thus, games become a site for metafiction or metaplay, in which players are actively pitted against the software that they are using and must circumvent it. The freedom of the A.I. and the freedom of the player cannot co-exist, it seems, and one must be in charge of the other.

## Smart Game Worlds

The previous examples can be considered an algorithmic play of sorts, where players had to deal with self-aware game characters and, if needed, thwart them. Other games have presented their entire world as a simulation and the result of machine learning. In *The Talos Principle*, the player takes control of an unnamed android to solve complex puzzles. During the game, it is revealed that the world is

a virtual simulation, an elaborate Turing Test, dubbed “independence check” in the game. The computer program and the puzzles are a test by highly sophisticated A.I. who created this entire world. The A.I. that operates the program and presents themselves as EL-0:HIM or “Elohim,” the Hebrew name for God as stated in the Old Testament. As a narrator and disembodied voice, Elohim instructs the player-character to explore the worlds he has created for it, and to solve the various puzzles to collect sigils, but warns it not to climb a tower at the center of these worlds.

As the android progresses, it becomes clear that the world is a simulation, also inhabited by other A.I. entities. Some of these A.I. are messengers who serve Elohim loyally and guide the android through the puzzles. Others state that Elohim's words should be doubted, while a chat conversation program found on the computer terminals (“The Milton Library Interface”) encourages the android to defy Elohim's commands. Depending on the player's choices, the android not only passes its “independence check” but reaches full transcendence, breaking the simulation. In the ultimate ending of the game, the A.I. wakes up in an android's body in the real world, devoid of humans.

These games present a view of A.I. that is highly intelligent and god-like. The adventure game *Horizon Zero Dawn* presents a similar theme. The player sets off in a post-apocalyptic world, full of technological ruins and gigantic, dinosaur-like robots. Players control the daughter of the robotic scientist, Dr. Elisabet Sobeck, and embark on a journey to find out the history of their mother, and thereby, that of the world. Sobeck initiated the mysterious “Project Zero Dawn” when the world was run amuck by glitching A.I. creatures called Peacekeepers. To save the earth, the team launched an artificial intelligence system called GAIA, who would oversee operations while selected humans hid in bunkers.

GAIA had a clear purpose: namely, to shut down the hostile machines and restore the Earth. During the game, the player finds out that GAIA consisted of different cores, each named after a God from the Greek pantheon. One of her sub-cores, HADES, sabotaged the system, and set humanity back to a primal society of hunters and gatherers. This powerful A.I. also interferes with other technologies, and at the end of the game he has taken over other A.I. (the Faro robots) as well. *Zero Dawn* presents a scenario in which A.I. are highly powerful, independent, and run the world independently. They are modeled after gods, even Mother Nature herself, who can control life and nature without intervention.

It seems that these God-like machines are an amplification of our fear of rogue A.I., that falls outside of our human control, and does not think or act like us. A

god-like A.I. is not only self-aware and has reached singularity, but can control other A.I., form worlds and potentially even create artificial life themselves. This goes against a common trope in popular culture, it is often the human creators of A.I. who are depicted as gods, able to create artificial life. Historically, this theme goes back to gothic fiction such as Mary Shelley's *Frankenstein* (1818), where scientists play with fire by creating artificial life. In these games, however, the machine is represented as a god, an entity beyond our understanding that is looming over humans and inferior machines.

The idea that an A.I. can become super intelligent in the long term and rule over other machines and humans is prominent in these games. While the scenario of a general purpose A.I. with such abilities is far away, some scholars already urge us to think about the social consequences and ethics of such a highly sophisticated A.I. (Tegmark). Most notably, these scenarios are highly self-reflexive in the sense and present the world as the outcome of machine learning. A.I. is not just a motif or character in *The Talos Principle* and *Horizon Zero Dawn*, but a comment on systems and play that forces us to reflect on the materiality of the game itself. By simulating entire A.I. worlds, games interrogate the social, ethical, and economic consequences of automation.

## Conclusion

In this article, I showed that digital games explore different narratives of A.I. but are also able to simulate the technology to an extent. The textual analysis made it clear that games represent A.I. in different ways. In *Machinarium* and *Ratchet & Clank*, A.I. is imagined as adorable robots who act as tools with different purposes. In *Detroit: Become Human* and the *Deus Ex* series, A.I. is represented as a new working class, marginalized in particular jobs, such as sex work. These androids strive for independence and struggle to be recognized by humans as more than tools. *Portal*, *Thomas was Alone*, and *Doki Doki Literature Club* include independent and self-aware A.I. characters that are firmly connected to the game world and manipulate the human player. Finally, *The Talos Principle* and *Horizon Zero Dawn* present us with a super intelligent A.I. entity that is God-like and builds entire worlds and other A.I. independently.

Games forecast the future of culture, technology, and society. Labor has a prominent role in these scenarios, as they rethink our economy and capitalism, as well the possibilities for new human and machine interactions, skills, and tasks.

Games have the potential to not only represent, but also simulate and re-enact these complex relationships between humans and machines. In relation to machine learning, games can create a unique procedural rhetoric in which scenarios are literally played out, making them fundamentally different from other visual media.

Overall, games present their players with diverse stories and explorations of machines and humans. This diversity reflects the complex cultural imagination of A.I., but also says a lot about the technology itself. A.I. implies a wide range of automation processes, interfaces, and different ways of programming. Robots, smart weapons, A.I.-driven holograms, androids, cyborgs, and other types of A.I. make their appearance in games. Loyal robot assistants like Clank help us with manual tasks and have a body of their own, whereas the implants in *Deus Ex* are ingrained in a posthuman body and help navigate a dystopian cyberpunk world. These representations are not isolated from other media. *Portal* clearly draws from Kubrick's *Hall 9000*, for instance, and the construction of androids as second-rate citizens in *Detroit: Become Human* is reminiscent of films like *Blade Runner* or television series such as *Battlestar Galactica*.

However, compared to other media, the fact that A.I. is code also allows entertainment games to represent A.I. in an innovative, metafictional way. Games such as *The Talos Principle* are literally presenting us with a virtual reality where the player controls an A.I. that is being tested. By embodying A.I., the human also reflects on matters of consciousness, intelligence, and life itself. The religious themes in the game push these analogies even further, blurring the boundary between man and machine. The potential that an A.I. can pollute, hack, or take over a game is present in games such as *Doki Doki Literature Club* or *Thomas was Alone*. An A.I. does not reason the way that humans do, and its unpredictability can be a danger.

When understood as scenarios, games reflect the diversity of this emerging technology. While a game like *Machinarium* shows us a robot capable of complex emotions such as romance, a game like *Portal* is a cautionary tale where GLaDOS treats her Aperture employee not as a colleague, but a lab rat. The ways in which A.I. is sometimes othered and sexualized in games is also significant. A cute robot, a masculine cyborg and a smart love interest are not neutral ways to represent the technology but can also be read as ways to mitigate potential moral panic.

There is no doubt that A.I. will shift the nature of human and machine relationships dramatically in all areas of our lives. Entertainment games present their players with diverse ways of understanding, and critically assessing, these

relationships. To arm ourselves in this digital transition, we need to consider the social and ethical consequences of machine learning today and explore potential outcomes. These scenarios do not need to be conceived from scratch. In fact, popular culture is already paving the way.

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