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The Ludic Impact of Horror Games on the Body: *Until Dawn, Amnesia: The Dark Descent,* and *Alien: Isolation*

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ABSTRACT

Horror video games create an enhanced sense of fear compared to film and television of the same genre due to their use of ludic elements. These ludic elements, specifically haptic game design mechanics, play conditioning, and the coding of the games themselves all bypass the screen and controller to impact the body of the player. Understanding affect as the relationship of the body to the world, video games are therefore a strong affective medium for the horror genre.

Three aspects enable video games to have this strong impact: haptic game design mechanics, play conditioning, and game coding. Using the controller as a threshold object, video games physically interact with players to create a horror experience that compels the body to mirror the fear on screen. Additionally, horror games condition players to play them in a specific way to heighten tension and deny control. Finally, the coding of horror games can create obstacles that deny player control and create an environment of fear.

The aim of the essay is to explore the effective use of all these elements and mechanics in three games: the 2015 game *Until Dawn*, the 2016 horror game *Amnesia: The Dark Descent*, and the 2014 game *Alien: Isolation*. (VH)

KEYWORDS: affect theory, horror, video game studies, ludology, survival horror, game mechanics, play conditioning, coding

A popular trend in the YouTube gaming community features two journalists for Polygon playing the survival horror video game *Outlast 2*, with one participant connected to a heart rate monitor ("Outlast 2 With Simone And Jeff"). As one player is hooked up to the monitor, the other, who holds the controller, asks: "Do you think anything's gonna happen as I crawl out of this fence?" The heart rate monitor spikes from the mid-80s up to the mid-90s. The jump in heart rate represents an increase in anxiety in the watcher, who anticipates something jumping out as the game character begins to crawl through the fence. Yet, nothing happens. The video game character finishes crawling, stands up, and—controlled by the player—begins to walk away. The heart rate on screen drops a little but is still quick and fluctuates up and down as the flashlight bounces around the screen.

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Outlast 2 is one entry in a long line of video games in the horror genre which have experimented with gameplay mechanics that act on the body directly, working in concert with the other elements of atmosphere, visuals, and sound to create a ludo-consonant experience of horror. From buttons coded to specific in-game actions, to the vibrating of the controller, and even the motion-sensing gyroscope of the controller, horror video games are designed to produce fear and nervousness within the body directly together with the general trappings of the genre. Video games, unlike their other on-screen counterparts in film and television, have a tactile and bodily dimension, while the ability to tap into that from the mechanics of the game can produce highly affective experiences, as affect involves the relationship between stimuli and the body.

Though the horror video game genre has been present through the last forty years of game history—emerging perhaps as early as 1982 with Atari's *Haunted House*—numerous more recent games focus on using game mechanics to produce a sense of ludic affect to enrich the horror experience. As video game hardware has evolved over the decades, controller design and the coding of games systems have enabled video game developers to fulfill video games' ability to be a highly affective medium, and the most affective form of horror as a genre. Video game developers designing in the horror genre can code games that use haptic response technology such as vibrating controllers and motion sense feedback to heighten the different senses of fear that horror games create. Haptic feedback, gameplay mechanics and game design, as well as atmosphere all work in tandem to reinforce the sense of horror both in terms of genre and feeling. Specifically, *Until Dawn* (Supermassive Games, 2014), *Amnesia: The Dark Descent* (Frictional Games, 2016), and *Alien: Isolation* (Creative Assembly, 2014) utilize video game mechanics along with atmospheric elements to create an embodied, affective sense of horror. These three games each showcase different aspects of ludic affective gameplay to particularly strong effect. *Until Dawn* uses inventive haptic controls to compel the player to feel the panic of the avatars on screen. *Amnesia: The Dark Descent* uses atmosphere and the flow of the gameplay to condition the player to increase the game's affective sense of fear. *Alien: Isolation* uses AI coding to create an antagonist that maintains tension, seeming to react to the player's actions. In doing so, these three games prove that by using ludic mechanics video games can create a heightened sense of the horror genre and affect the players.

On affect

Horror games manipulate players through a strong sense of affect, specifically by utilizing ludic game mechanics that bodily connect the player to the horror on screen. To understand how this is done, I will first examine critical understandings of affect theory, and how they are applied to video games. Affect theory concerns emotions and their transposition in the body. It is a case of taking in stimuli from the world, filtered through the lenses of biology, culture, and experience, and producing actions and reactions. However, in connecting biological responses and the filters of culture and experience, affect becomes slippery. As Melissa Gregg and Gregory Seigworth remark "[a]ffect arises in the midst of *in-betweenness*" (1). They describe affect as an extension of the body into the world, marking "a body's belonging to a world of encounters" (1) and characterizing it in terms of action and reaction. Thus, as Tanya Krzywinksa aptly sums up, affect "is best understood as *potential*, the force that produces sensation and which grows in intensity to prepare the body for action" ("Gaming Horror's Horror" 294).

The fuzzy middle space between connection and disconnection with regards to emotions, the body, and action is where affect lies, and where horror as a genre can take advantage of it to affect players even further. Bernard Perron considers horror "an extended body genre" ("The Survival Horror" 141), a statement that is furthered when examining horror games, as video games require a physical connection of the person to the game console. Horror gaming acts in this space between the body and the machine. To Dan Pinchbeck, horror gameplay has two levels of affect, namely the biological and felt reactions to stimuli, and a cultural reaction derived from established frameworks of living and moving in the world (84–85).

Aubrey Anable argues that video games and affect theory are "related historical and intellectual projects" (xi), in which both are understood as structures of feeling (xii). Further, affect theory as applied to video games provides a way "to read across code, images, and bodies without reducing video games to either their representational qualities or their digital and mechanical properties" (xvi). Affect, through its connection to video games, treats the body as a form of mediation, in which the world is felt and acted on and within. Anable specifically uses the term affect "to refer to the aspects of emotions, feelings, and bodily engagement that circulate through people and things" (xviii) and is "the embodied capacity to feel" (xix).

When thinking of horror games as an experience that requires the mediation of the player's body, affect is an important dimension. In horror gaming, players are moved emotionally by the experience to feel a range of

physical responses. Affect is crucial for examining how horror games are uniquely positioned to impart feelings of fear to players compared to the passive experiences of watching a horror film. Not only are the visuals and sounds of horror games stimulating, but they require a physical interaction of the body to play, and therefore demand a closer, affective connection of the body to the horror experience. Video games reduce the affective distance between the experience and the player. Here, Pinchbeck's separation of affect to the physical stimuli and the cultural response and Krzywinksa's understanding of affect as leading to action are most pertinent, as horror games act physically on the body through their ludic game design mechanics. Though the cultural and aesthetic aspects of horror reinforce this, it is the physical dimension that is most important when considering the relationship between horror, gaming, and affect, as it is the physical dimension that sets horror games apart from other horror experiences.

Video games and affect

Video games can and do have an affective dimension to them. Vanus Vachiratamporn states: "[T]he form of gameplay where the player's current emotional state is used to manipulate or adapt to a game scenario is commonly referred to as affective gaming" ("Towards the Design" 576). The ways players must manipulate controllers and approach gameplay additionally cause the body to mediate the elements of horror to enrich the player experience. Horror as a genre is at its most successful in gaming because both horror and playing video games require a connection of the body to the material. They mutually reinforce each other.

Video games act, as related to television and film, through plot, visuals, and sound. Atmosphere is particularly important in horror gaming and will be a key factor in establishing its affect, as atmospheres of horror—all visual and auditory elements of the game that the mechanics of the game do not impact—can trigger feelings in the body such as disgust and excitement. The use of lighting and shadows, music, sound effects, voice acting of the game characters, and the animated visuals all factor into the atmosphere the game creates. In horror games, lighting is a key element of priming the player for the experience, in which the player can anticipate the kind of experience they will have through visual and auditory storytelling.

However, video games are at their most affective, and therefore impactful, through the mechanics of gameplay. The mechanics of gaming are a spectrum including which buttons create what in-game actions all the way to larger strategies for approaching gameplay, but here I more narrowly refer

to how the player manipulates the controller to act in the game, and then how the game reacts to the player's actions. Video games thus constitute an interactive medium in which the stories being told are changed based on a dialectic relationship between the player and the game, mediated through a bodily dimension in the form of the controller. Video games are an affective medium since they require physicality. Anable writes at length on this idea of the bodily interface with games. She views games as affective assemblages in which touching a game is "an intimate encounter" (38). Although simple button presses produce complex actions on screen, there is a sense of what Laura Marks calls haptic visuality, in which what is seen is also felt (3). In the first instance, as I present in the case studies of games *Until Dawn* and *Amnesia: The Dark Descent*, atmosphere helps prime the player to understand the kind of experience they are participating in, and therefore creates a sense of anticipation for hallmarks of the horror genre, such as violence, jump-scares, and the supernatural.

Preceding players' immersion and affect through gameplay is their immersion through visual elements, and in particular the avatar that the player controls. By avatar I refer here to the narrower definition meaning the "[g]raphical representation of the user in an online forum" (Egenfeldt-Nielsen et al. 324). Though many video games use avatars to connect the player to the game by allowing them creative control over the appearance of the avatar, here I refer to the pre-existing designed characters that the player controls, with agency only over his/her in-game actions, and no control over the avatar's appearance. Due to the innate immersion of video games as a participative medium, the players can "experience the story directly through their avatar" (Habel and Kooyman 1), therefore the function of the avatar within the game affects the player and primes them for the gameplay experience by giving them a person with which to identify.

Researchers studying video games differ on how the use of perspective in video games changes the sense of affect. Chad Habel and Ben Kooyman argue that the use of a first-person perspective is an immersive and engaging approach, which lets the player see through the eyes of the avatar. They state that the first-person perspective could increase the player's connection with the digital avatar (6). Theoretically, the use of the first-person fully immerses the player in what the avatar sees and does and would heighten all the experiences the avatar undergoes. However, the opposite can also be true. The third-person perspective can create an extended body (Habel and Kooyman 7), in which the player feels more affected when they see the body of the avatar acting and being acted upon. Third-person perspective, Perron states, "intensifies the corporealized sensations" ("The Survival Horror" 132).

Additionally, Maral Tajerian asserts that video games using a third person perspective have a heightened ability to affect players via mirror neurons. In brief, mirror neurons are brain cells activated when a person witnesses another either perform an action or have an action performed on them, activating a sense of empathy and sympathy as the brain produces an emotional reaction to the sight. I believe that players who witness the full body of the in-game avatar will feel a stronger empathetic connection than in a first-person perspective. In horror gaming, where the use of violence is prevalent, players playing in a third person perspective are deeply affected by witnessing the avatar acted upon with violence or moving in scary and suspenseful atmospheres. Anxiety, suspense, and fear can all be mediated through the body by witnessing another undergoing the same. Seeing emotions in the avatar can help to produce mirrored responses in the player. The players' experience is made more impactful by their identification with the avatars, which is further enhanced through ludic affect and gameplay design.

The affect of horror

Horror is an affective genre. Horror is built on shock, fear, and disgust, and these feelings can freeze our body or compel it forward (Perron, "The Survival Horror" 121–22). At the same time, these feelings affect the body. Horror and affect theory are closely connected, as they both concern the relationship of the body to the world. Horror lives in the in-between space that plays with cultural expectations and bodily feelings. Transgression is determined by culture, but the way its spectacle affects people has a distinctively corporeal aspect to it. Horror thus hits on the in-betweenness that Gregg and Seigworth emphasize (1).

Horror games can make people feel actual physical symptoms in reaction to fear. Vachiratamporn et al. studied subjects who played horror games and paid specific attention to the subjects' heart rate, skin conductance (sweat), and various metrics of brain activity. The results substantiate that horror games scared the players, and the fear was felt in the body ("Towards the Design" 577–79). Noël Carroll asserts that the fear felt from what he terms "art-horror," or horror in fiction, is not performative but genuine, and evokes a deep connection to the body. Horror is not just a genre, but a feeling, bringing with it a physical state (24–25). The physical state is prompted in part by a connection to the human characters in horror fiction, since when they are scared, readers too physically feel that they are scared (35). Carroll states, "[W]e share with characters the emotive evaluations of monsters as

fearsome and impure . . . and this causes the relevant sensations in us" (53). Christian McCrea sums up horror and games' abilities to affect us: "[G]ame horror's ability to overwhelm us, its tangible and tactile power, is measured by our quickened heartbeat, the sweat on our skin, and our silent shout" (220).

I find it important to make a distinction between the different fear responses that test subjects and researchers have used on horror, affect, and horror video games. In "Towards the Design of Affective Survival Games," Vachiratamporn differentiates between anxiety, suspense, and fear, in which horror games seemed to rely on creating the first two responses, and in which test subjects self-reported that the elements that produced anxiety and suspense were most effective (576). Similarly, Tajerian maintains that "games that raise the player's anxiety actually sensitize them to danger."

The idea of "priming" or sensitizing players to an experience so that they are more likely to feel fear when it is prompted comes up frequently in literature on horror gaming and will also be integrated in my analysis of the selected horror games. Here I refer to anxiety as the general state of unease in which the player understands that fear is possible, while the atmosphere, in general, creates a lower level of a fear response. I take suspense as the state of anticipation when the player feels tense because they expect to have a scare at any moment. I associate the response of fear with panic when the player is overwhelmed and lacks complete control over their responses. This tends to be associated more directly with the fight or flight responses, in which the player must act to accomplish something in the game but may struggle to do it if they are overcome by fear. This reaction is created commonly in the horror gaming experience. As gaming requires player action to proceed, the ability to physically scare players so that they struggle to act is seen as a powerful expression of the horror genre. Horror games utilize gameplay mechanics to trigger this response in players. Other researchers identify slightly different stages or progressions of fear responses (Vachiratamporn "An Analysis of Player Affect" 44), but for this article anxiety, suspense, and fear or panic are the most suitable for analysis.

In looking at how horror video games develop a sense of affect, I have identified a few key factors including the mediation between impotence and agency, the use of atmospheric elements, ludic mechanics, and haptic responses. By *agency* I mean the twofold abilities of the player to act through the avatar in a way that it is not in a pre-rendered cutscene, and second, the ability of the player to perform within the game to have an impact on the game space regardless of the scripted endings of games. Habel and Kooyman

define agency in terms of gameplay as mechanics that allow creative or restrictive use of agency within normal gameplay parameters (8).

The strongest sense of powerlessness as opposed to agency in horror video games comes down to the presence, or lack, of combat. Many horror games remove the ability for the player to have his/her avatar fight back and restrict gameplay options to running and hiding when dealing with enemies. The inability of the avatar to fight back in horror scenarios can generate a mirrored feeling of impotence and stress in the player. Additionally, many horror games employ depleting health—or sanity, as in the case of *Amnesia*—mechanics. These mechanics further incentivize players to flee and hide from dangerous encounters to preserve their resources, which can feed into a growing feeling of helplessness. Habel and Kooyman state that the restricted use of camera angles, in which the player cannot alter the position of the camera depicting the action, as well as the use of limited lighting further contribute to feelings of impotency (8). The player cannot control what they can see, thus their lack of accurate knowledge about the surroundings builds tension. The difficulty lies in allowing the player to manipulate the avatar and environment while not allowing them so much agency as to reduce the potential for fear by eliminating threats. Krzywinska poignantly illustrates the affect derived from this balance: "[T]hrough the juxtaposition of being in and out of control, horror-based videogames facilitate the visceral and oscillating pleasures and unpleasures of anxiety and expectation. The interactive dimension heightens this fluctuating sense of anticipation" (21).

Horror games rely a great deal on atmosphere for prime players to become receptive to panic. In terms of atmosphere, three key elements are of evident importance: lighting, sound, and overall aesthetic. With reference to the seminal game *Alone in the Dark,* Guillaume Roux-Girard states that the main use of lighting is "to create a dreadful atmosphere in which each bit of space may contain an unpleasant encounter" (161). The use of lighting, or more specifically, the use of lighting to create *shadows*, creates a suspenseful atmosphere based on the unknown. The player is primed to expect the unexpected and is forced to peer closer to make out every detail, further sensitizing them to possible jump-scares.

Sound can also create nervousness based on anticipation. Sound has the ability to "tap into the emotional responses in a way that is extremely powerful, yet subtle enough to escape our conscious attention" (Ekman and Lankoski 181). Many games use sound cues as shorthand for the player to know that something dangerous is expected so that one must be prepared to either run or hide. In *Alien: Isolation*, the motion detector—the player's only

advanced warning that the invincible Alien is coming towards them—beeps when it detects nearby presences, which eventually takes on a menacing quality. This frightening sound compels the player to pay close attention to the auditory aspects of the game, which further primes them for fear. The warning sounds in combination with creepy or ominous music are accentuated, therefore they have a substantial impact on the player.

Finally, overall aesthetic functions as a key element in establishing an atmosphere of horror to affect the player. Anable asserts that though the aesthetic is usually linked solely to images and artistic styles, there is also a definite interactive element to it (120). Aesthetic aspects may impact the physicality of players directly. For example, many horror games rely on dark lighting to create a gothic atmosphere. However, due to playing games on screens, darkly lit horror games often compel players to turn out the lights in the room in which they play, thus darkness enfolds them in their real environment. As a result, the horror aesthetic leaks into the environment of the player.

Ultimately the most effective ways horror games affect players is via ludic mechanics and haptic inputs. By mechanics and haptic inputs I mean how the game is designed and how the controller must be manipulated to effect change within the game. Closely related is the literal physical interface of the player with the controller. Taking the realm of the haptic and tactile dimension first, Michael Nitsche states that the controller functions as a "threshold object" (206). As the body controls what happens on screen through mechanical inputs of the controller, the player is literally able to connect to the action on screen. Games emphasize the bodily connection to the screen further by applying the rumble feature in modern controllers. In correspondence with certain kinds of action on screen, the controller rumbles, creating a physical bond between the player and the avatar. The rumble of the controller engages the body in the suspense and action on screen (Taylor 52), enriching the potential for an affect of horror in which the characters feel the tension both emotionally and physically. When referring to the video game *Resident Evil* (Capcom, 1996), Laurie Taylor remarks that the game includes the rumble feature to mimic a fast-paced human heartbeat (52). The physical response directly affects the player by demonstrating what they should feel, which in this case is a fear response represented by a racing heart.

The other ludic mechanics of horror games that create an affective sense of horror are more varied and complex. For example, depleting health and sanity mechanics change the ways players approach gameplay to ensure

they are as enmeshed in the atmospheric horror elements as possible. In *Eternal Darkness: Sanity's Requiem*, as the avatar's sanity decreases, bugs may start crawling over the game's screen, obscuring the player's vision and hindering their ability to process information and react accordingly to succeed at the game. Consequently, monitoring sanity is crucial to the ability for players to succeed. To see these mechanics at work and see how their ludic aspects most potently create an affective experience, I have selected three horror games that are emblematic of the three key ways ludic mechanics can be implemented.

Haptic feedback and *Until Dawn*

The definition of operant or play conditioning is important for further discussion of the ludic affect in the ensuing analysis of gameplay. I specifically rely on Daniel Vu's identification of operant conditioning from the work of psychologist Burrhus Frederic Skinner for the purposes of analyzing video games. According to Vu, operant conditioning can be applied from psychology to the study of video games to demonstrate that "the correlation between the numbers of times an action is executed is dependent on if that action is rewarded or punished" (2). Vu cites Skinner's term operant conditioning to make an argument regarding how video games discipline players through their game design. In horror gaming, game developers rely on this method of conditioning to guide play to increase the affect of horror. For example, by rewarding the character for playing the game quickly and frenetically with success or extra resources in the game, the game developers positively reinforce and encourage the player to play in that same style more frequently, which can impact the overall themes the game imparts on the player. The design of these games disciplines players to approach gameplay in a specific way to emphasize nervousness and panic.

Until Dawn is a horror game developed as a choose-your-own-adventure survival horror experience, styled with references to classic horror films. In the game, the player controls eight different characters who have all journeyed up to an old winter cabin for the anniversary of a friend's death. While there, they are terrorized by masked killers and strange monsters, and the player—navigating the eight characters—must make snap decisions to ensure that as many of the playable characters survive as possible, while trying to decipher the mysteries of the story.

The game—set entirely at night, creating a spooky atmosphere of uncertainty—frequently provides lighters and flashlights, which the player can move by shifting the controller around, giving them a limited sense of

agency within the dark, and connecting their real body to the action on screen. This sense of connection through the controller means that when violence happens on screen, players are already strongly connected to the physicality of the avatars. The aesthetic of the game is reminiscent of slasher movies, and the sets and avatars are rendered in fantastic details as the game developers use motion capture technology to animate the characters according to a realistic aesthetic, including every panicked expression. Recalling the use of mirror neurons in horror game design, by playing in third person with such realistic looking avatars, the player is able to connect strongly to the horror experience on screen.

From a game mechanical perspective, *Until Dawn* also utilizes the PlayStation DualShock controller to produce a haptic connection. The controller vibrates throughout the game to connect the player to the action and horror on screen. The DualShock touchpad on the PS4 controller is also used throughout the game to interact with objects within the game world. This sense of physical interaction, through moving the controller's gyroscope to move a flashlight and using the touchpad to flip pages in a book, connects the player to the game world corporeally, evoking that sense of controller as the threshold object.

Until Dawn is most potent in affecting the body by using its mechanics to act affectively in two primary ways, playing on both the flight and then the freeze responses: the use of quick-time events, and the "Don't Move" mechanics. Both haptic mechanics emphasize the powerlessness that the game establishes through removing the ability for the player to fight back against threats. Quick-time events in games refer to moments of action in which the player is prompted to press specific buttons with a short timer. In *Until Dawn*, quick-time events are frequently used during chase sequences. The avatar, being chased by the killer, must run through the house, and the player must press buttons to leap over obstacles. Failure to do so can result in the character being killed on screen. The use of accompanying music coupled with fast motion induces tension in the body, while the need to accurately manipulate the controller means the player must be reactive. As a player, I found my heart racing, my hands sweating, and my muscles locked up as I attempted to focus through the panic. The player is rewarded for fast and accurate actions and punished for being slow, which conditions the players to act quickly and compels them to feel a mirrored response of panic to the running avatars.

Until Dawn makes unique use of the PS4 controller's internal gyroscope to connect the player to the horror on screen, ensuring the horror

genre affects the body directly. During the horror sequences, the characters frequently hide in closets or underneath furniture, and the player is prompted: "Don't Move." As the game explains, the player must hold the controller still—with the internal gyroscope reading all motion—for the avatar to be motionless and quiet. Failure to do so alerts the enemy to the player's location and results in death sequences that are stressful and scary to watch, recalling the affective nature of third person avatar design. The game developers have created a haptic mechanism in which the horror leaks into the physical world, into the body. The need to be physically still in the game involves the body in all dimensions. It compels the player to lock their muscles, which increases bodily tension. As the game mechanics affect the body, forcing the player to sit in the scare, they create the response that the horror material aims to achieve: panic, tension, and fear. Due to the use of ludic haptic mechanics, *Until Dawn* is an incredibly impactful horror experience, bypassing the screen to affect the player's physicality directly.

Play conditioning and atmospheric design in *Amnesia: The Dark Descent*

Amnesia: The Dark Descent also combines both ludic mechanics and atmospheric elements to create an affect of horror, though this is done to the greatest impact through play conditioning. In the game, the player controls a man named Daniel, who awakens to find himself in a large, gothic castle, with no memory of himself or how he got there except that he must journey deeper to kill a man named Alexander. As Daniel makes his way down, he encounters monsters and horrible sights, and through diary entries and flashbacks, Daniel begins to remember what has happened.

The castle is dark and ghostly, and from the beginning the game's setting is supernatural. Doors open on their own and in places a strange red muck covers the surface and harms the player if they touch it. However, before the game loads, *Amnesia* gives the player directions on how to play it. In doing so, the game provides an obvious form of conditioning, as the game communicates an authorial intent on how best to play it to enjoy its core themes. Upon starting a new game, a text screen reads: "*Amnesia* should not be played to win. Instead, focus on immersing yourself in the game's world and story . . . [t]he world of *Amnesia* is a dangerous place, and you are extremely vulnerable." The game directs players to play in a dark room with headphones on. All three of these aspects help prime the player to experience fear. By playing in a dark room with headphones on, the player is fully immersed in the game, whereby the horrifying visuals and sound may exert a

stronger impact. By directing the player to focus less on defeating enemies and more on immersing themselves in the story, and significantly by telling the player that they cannot fight, they condition helplessness in the player from the outset.

The graphical style of *Amnesia*—limited in part due to the technology with which it was made—can be characterized as gothic rather than realistic, and perhaps less immersive. However, *Amnesia* does several things to mitigate the lack of graphical immersion. The game relies on usual features of gothic horror including dark castles, distant sounds of ghostly moaning, and emotional voice acting all help to immerse the player in the story. The gothic distinctions of darkness and light forces the player to look closely at the screen which immerses them in the visuals. The use of sound editing in *Amnesia* is highly effective. The game overlays the sounds of footsteps as Daniel traverses the castle, and using headphones, you can at times hear other footsteps coming from somewhere else. The sound compels the player to listen closely to try to figure out whether the footsteps are coming from above or perhaps even behind. Additionally, in times of low sanity (a condition I will explore), Daniel's heavy breathing can be heard, while he mutters inane statements being driven out of his mind by fear.

The developers of *Amnesia* have said that the game relies heavily upon its various gameplay mechanics ("Amnesia: The Dark Descent"). The player can prompt Daniel to walk, run, and interact with objects. With no fighting mechanics, there is still a feeling of powerlessness, but the ability to tactilely interact with the world connects the body to what is unfolding on screen. For example, instead of pressing a single button to open a door, the player must press a sequence of buttons and use the analog sticks to do so. Although the player has no ability to fight back, they can still accomplish tasks and progress through the game, which is reinforced throughout the game in terms of its sanity and health mechanics.

In brief, the game employs two depleting resource mechanics to condition the player to be primed for fear. The first is health. Health is lost if the player touches the dangerous red substance or is attacked by a monster, though they can recover using items found throughout the game. Sanity is another depleting resource mechanic, and just like in the case of health, losing it has serious consequences. Sanity is decreased when the player character is surrounded by darkness or when they witness awful sights of wrongness, such as supernatural occurrences. The only ways to recover sanity are to stand in well-lit areas—which can be created using a lantern and tinderboxes—to look away from monsters, or to accomplish tasks. The sanity mechanic plays

directly into the atmosphere of light and dark that the gothic aesthetic helps establish. The player controls how much light there is, but as the lantern has limited oil and the player has limited tinderboxes, they must strike a careful balance between maintaining sanity and not running out of resources.

The sanity mechanics also help reinforce the balance between agency and impotence. When there are monsters around, the player is instructed to look away to maintain sanity. As a result, I frequently found myself having to stare at a wall to maintain sanity. However, when doing so, I lacked awareness of my surroundings, including the monster's location. The sense of helplessness is emphasized by Tajerian, who writes that "some may remember locking themselves in a closet, or hiding in a corner staring at a blank wall for several minutes, because you're convinced that if you move, even an inch, a certain and horrible death will soon ensue."

Three additional factors contribute to the complexity of the game's balance. If sanity is low, Daniel begins breathing quickly, mumbling, and stumbling. The sound and movements can alert nearby monsters to Daniel's location. To address low sanity, many players would be tempted to raise the lantern to create some light. However, in certain sections, the use of light will also attract monsters. The player must therefore carefully find moments to recover sanity and sometimes sacrifice the ability to use light in favor of staying hidden in the dark. They must sit in the scare, primed for further moments of panic. However, one of the best ways for the player to remedy low sanity is by accomplishing tasks. They can do so by solving the many small puzzles that comprise *Amnesia*'s gameplay. Carrying out tasks sets off a sound effect like a loud sigh, and sanity is recovered. The interplay of all these elements acts on the ludic flow of the player, conditioning players to approach the game in a specific way. They are incentivized both to go slowly by looking at the wall and waiting for the monster to leave, and to go fast by running away from the monsters to accomplish tasks, which inevitably create feelings of anxiety or panic in the player.

The player is thus conditioned through these mechanics combined with atmosphere, like in a particular chase sequence. Due to tight quarters, the player must allow the chasing monster to get close before running around to get away. If not done in this way, Daniel will be injured when trying to escape, hence causing visceral fear in the player. The route to success involves allowing the tension to build and the object of fear to get as close as possible to the avatar. The game conditions the player through its gameplay mechanics to build suspense, which reverberates through the body to enrich the scary, gothic, and atmospheric elements. The game rewards slowness and paying

careful attention to the atmosphere, and in times of terrible fear, requires the player not to act. This fluctuation between slow anxiety-inducing moments and quick, panicky reactions creates a strong sense of helplessness in the player.

Affective gameplay design in *Alien: Isolation*

Underscoring all game design mechanics is the actual coding of the digital games. Though most ludic mechanics are best analyzed through an examination of player interaction with the code, in *Alien: Isolation* the coding itself demonstrates how game designers are able to create a ludic experience of fear for the player. In the game—set in the world of Ridley Scott's *Alien* movies—the player embodies Amanda Ripley, the daughter of the heroine of the first film. She and her crew dock at a derelict space station and spend the game trying to repair their own ship while evading both android enemies and the Xenomorph as well as unraveling the mystery of what has happened at Sevastopol Station.

Aesthetically the game follows the original films. An excellent sound design is coupled with an interplay of harsh fluorescent lighting and darkness. From the sound of heavy footfalls on metal surfaces, to the clunky sounds of pressing buttons, they all contain a very affective and haptic dimension, relying in part on the nostalgia of sound that is connected to the *Alien* franchise. In particular, the game utilizes sound cues to enrich the dimensions of horror that the lighting and animations first establish. In the game, Amanda finds a motion tracker that highlights beings when there are some nearby. The dots that appear on the screen represent the location of enemies, and the soft beeping that emits from the tracker as they get closer takes on a menacing quality, inducing a sense of suspense as the player knows the Xenomorph is near and may jump out to attack. The use of the motion tracker is intriguing. The coding of the motion tracker identifies the lateral distance of an enemy to the player but does not indicate whether it is above or on the same level, giving him/her imperfect knowledge and therefore reducing any agency. Further, using the motion tracker means it will beep when it senses motion, and the Xenomorph is sensitive to sound. As a consequence, using the motion tracker provides *imperfect* knowledge of the location of the Xenomorph, and makes the player vulnerable. Similarly to *Amnesia*, using the motion tracker conditions the player to listen closely, and therefore they become more sensitive to the skittering and hissing sounds of the Xenomorph, which creates a richer environment of suspense.

From a mechanical perspective, *Alien: Isolation* differs from the other two case studies as it has a fully-fledged combat system. Many enemies can be defeated, which engenders a feeling of agency for the player. However, the player is unable to defeat the Xenomorph and is only able to distract it and then run away or hide. The player still lacks ultimate power. Other controls work in tandem to emphasize a feeling of helplessness. The game introduces the ability for the player character to lean and peek around corners, and the ability to press a button to hold Ripley's breath when hiding in lockers. In both cases, these two gameplay systems act on the body. When Ripley leans to widen her field of view, the player may feel compelled to do the same, and as Ripley holds her breath in the locker to avoid detection by the enemy, the player may mirror this and feel the same fear.

However, what *Alien: Isolation* showcases best through its design is a system that can maintain an affective sense of horror through the coding of its main antagonist. Developers of *Alien: Isolation* have spoken at length about the coding of the Xenomorph, which is run by two overlapping systems of AI. One of these manages the alien itself, which is partially supported by a secondary AI called the Director AI. The Director AI has constant knowledge of the location of the player and manages what the developers termed the Menace Gauge. In brief, the Menace Gauge measures how anxious the player may be by weighing the frequency and types of alien interactions, such as attacks. The Director AI's job is to keep the Menace Gauge at a certain level, meaning that if the player has had a stretch of silence, the Director AI will notify the Xenomorph AI of the player's general location so that the alien's sudden proximity will increase player angst. Similarly, if the Xenomorph has come too close too frequently, the Director AI will ensure the Xenomorph leaves to search another area, even though the Director AI knows precisely what locker the player is hiding in (Thompson). The interplay of coding ensures a ludic environment that is suspenseful for the player without resulting in a frustrating gameplay experience in which the monster is impossibly good.

Another aspect of the AI that conditions playstyle is through the alien's abilities. Following the initial release of the game, it is not immediately clear whether the Xenomorph's AI is learning from the player or not. From developer interviews, the AI controlling the alien does not learn *per se* from the player's actions, but it has been developed with coding based on progression to give the illusion of learning (Thompson). Hidden behind the coding of the Xenomorph are large branching trees of possible actions, many of which are locked, and are unlocked and implemented when certain

milestones are hit. Hidden from the knowledge of the players, the AI unlocks new abilities, giving the appearance of learning while also constantly forcing the player to adapt to new ways to approach the game (Thompson). For example, overusing specific abilities, such as that of the flamethrower, can unlock a node of coded behavior so that the alien spends less time distracted by those abilities. The more you play, the harder it becomes to rely on your learned skills. This forces gameplay to change to become more careful or more reckless in response. Either response increases the affective dimension of fear in the body of the player, as the enemy is unpredictable.

Conclusion

What horror games excel at, to a greater extent than other genres of games and other forms of horror media, is affect. Recalling affect to be the state in which the body reacts and acts in the world, mediated by stimuli and emotions, horror is highly affective as a genre. By showing violence and the supernatural, horror can rupture the mind and body through what it sees. As horror is both a genre and an embodied feeling, horror video games create this rupture frequently and impactfully. Video games offer the same kinds of visuals and tell the same types of stories as their on-screen counterparts; however, they use the additional dimensions of ludic mechanics and interactive play to enrich the experience and bring the stories into the dimension of the body. Through video games' use of haptic feedback and design, play conditioning and atmospheric elements, and game design itself through coding, video games create a significant and impactful embodiment of horror.

In *Until Dawn*, developers utilized the controller's gyroscope, quick-time events, and binary choices to create a richer sense of affect. The horror on screen resonates into the body through the controller. By having to hold physically still, players strongly identify with the avatars on screen who are hiding from a masked killer. By making snap decisions and frantically trying to press sequences of buttons, players feel the same panic coursing through the bodies of their on-screen counterparts.

In *Amnesia: The Dark Descent*, the ludic affect takes a slightly more metaphorical turn while still impacting the physical body. The use of the sanity mechanics create a knife's edge of gameplay. Players must balance using light, shadow, speed, and slowness to make their way through the game, and the constant switching between those states has a noticeable impact on them. The nervousness derived from standing in a corner, being unable to look away for fear of seeing a monster, and having it impact Daniel's sanity

may cause muscles to tense up, and the player may be compelled to mimic the panicky quick breathing of Daniel. The game conditions players to sit in the scare to succeed, and the darkened atmosphere causes the horror to leak from the screen into the physical world.

Alien: Isolation shows that the ludic affect of horror starts with coding. From a more general perspective, the coding of games determines how the controllers are used; therefore, the coding determines how the body interacts with the game through the controller. But in *Alien: Isolation*, the coding of the Xenomorph conditions the player to act in a way that enriches the atmospheric elements. The player must oscillate between different gameplay styles, and function with imperfect information gained only through vulnerability. Additionally, the coding of the AI ensures that the Xenomorph is never far, and the player is therefore always primed for a scare.

Horror games function with a strong sense of ludo-consonance in which physical gameplay is in accordance with the other elements of the game, such as visuals, narrative, and overall atmosphere. The use of quick and jerky movements, the need to be still, and the conditioning of the game to change the ways players approach them all result in an environment that can quickly move from anxiety to suspense to outright panic. These physical actions cause a rupture in the body, where instead of enjoying a passive medium, the horror experience leaks from the game into the physical world. Horror gameplay heightens the player's connection to their own body in such a way that they feel connected to the horrors on screen even more strongly than when watching a film. Video games do so to such an extent that, when the game has been turned off, in the black of the room, the players see themselves reflected on the dark screen.

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