The Ethics of First-Person Shooter Aesthetics

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Introduction

On 15 March 2019, a 28-year-old Australian man attacked two mosques in Christchurch, New Zealand. The terrorist live streamed his first shooting onto Facebook using a GoPro camera straddled to his helmet. This footage resulted in a rather surreal aesthetic – the first-person shooter (FPS) aesthetic that is. The FPS aesthetic aided the live stream to last seventeen minutes, at which point the terrorist already shot over forty worshippers at the Al Noor Mosque for the world to see. Despite Facebook's efforts to perfect their algorithms in detecting violence and terrorism among other problematic content, their artificial intelligence software struggled to recognise the gruesome reality of the shooter's live stream and its later re-uploads. According to the global studies and communication professor Tony Lemieux, these algorithms are not advanced and reliable enough, and could potentially confuse a first-person-shooter computer game with real-life violent footage (Perrigo). The reality of this error is, of course, more complicated than that as will be discussed later. Nevertheless, the obvious danger of the malfunction lies in the spread of hate and inspiration, as painfully proven by the Halle synagogue attack televised via Twitch on 9 October 2019. To rub salt into the wound, players of sand-box games like *Minecraft* or *Garry's Mod* have recreated the site of the Al Noor Mosque in order to re-enact the event. A modding project in *Counter-Strike: Global Offensive* has also been initiated not long after the attack to create careful model of the original site. Beyond 'playbour', a controversial game studio created a small first-person shooter game based on the Christchurch shooting, in which the gamer plays in the avatar body of the terrorist and massacres an entire town of unarmed civilians while live-streaming the entire act.

These circumstances set ground for fallacious statements such as: "We've always had guns, always had evil, but I see a video game industry that teaches young people to kill," given by Lieutenant Governor of Texas Dan Patrick following the El Paso shooting. So why even bother with this case study? Why add fuel to the fire of the long lasting controversy around the relationship of simulated violence and real life violence that seems to pop up after any mass shooting? Instead of perceiving the Christchurch mosque shooting as yet another threat to the computer game industry (or even the wearable camera industry), we could reframe it into an opportunity. Not an economic opportunity, nor necessarily a vindication opportunity, but a social opportunity.

So instead of trying to distance game studies from this event, I would like to investigate the aesthetic correlation between the Christchurch mosque shooting recording and FPS games, while inviting a third agent crucial in this specific equation - the GoPro camera. Should GoPro or FPS game designers be held accountable in one way or other? Does this event, this abuse of the FPS aesthetic, change how we perceive FPS games? Do games that provide players with the FPS aesthetic inherently glorifying or remind us of the event? In other words, is it still ethical in post-Christchurch-attack time to (re)create the FPS aesthetic and to consume media products that employ its formal qualities?

To grapple with these questions, we must first understand what went wrong within Facebook's content moderation procedures during the Christchurch shooting livestream. The firsts section thus focuses on the malfunction of Facebook's moderation in terms of user reports and artificial intelligence, as well as the industry and government response to this error. The following section expands on the flaw in Facebook's computer vision in relation to the first-person shooter aesthetic. Building up on Alexander Galloway's "Origins of the First-Person Shooter", I will explore the history, formal characteristics and criticism of the FPS aesthetic in dialogue with the GoPro camera. The last section addresses the ethical implications of playing FPS games in a post-Chirstchurch-shooting-livestream era by juxtaposing Allan Kirby's critique of 'super-subjectivity' connected to playing computer games as discussed in his book *Digimodernism: How New Technologies Dismantle the Postmodern and Reconfigure Our Culture* (2009) and Alexander Galloway's concept of 'social congruence' as outlined in his essay "Social Realism" (2006).

The Gap in Content Moderation

As Kevin Roose's headline "A Mass Murder of, and for, the Internet" in *The New York Times* insinuates, the significance of the Christchurch terrorist attack lies in its immense online reach catered by Facebook's inability to detect and block the livestream in time. According to the official announcement published by Facebook few days after the event, the live broadcast was watched fewer than 200 times and no user reported the video during that time. The "Update on New Zealand" further states: "Including the views during the live broadcast, the video was viewed about 4000 times in total before being removed from Facebook. The first user report on the original video came in 29 minutes after the video started, and 12 minutes after the live broadcast ended." (Sonderby 2019) In order to adhere to their community standards and moderate all visual and textual forms of content uploaded onto the platform by over two billion active users, Facebook must heavily rely on artificial intelligence (AI) as well as user reports. If the AI identifies content as objectionable with a high level of certainty, the system automatically removes it. In case the level of certainty is not as high, the content is re-examined by reviewers employed by Facebook. The same procedure occurs with user reports. Hence, in the case of the Christchurch livestream these two main channels of content moderation failed; the AI failed completely and the first user report came only after the video was viewed 4000 times and backed up for further dissemination. So why didn't any of the viewers of the live broadcast report the stream? And how could the AI even miss the visual testimony of the macabre crime?

In order to answer the first question, we must take into account that the terrorist announced his attack on 8chan, providing the links to the livestream and his manifesto. The followers of the 8chan/pol (standing for politics or politically incorrect) thread ensured the terrorist had a like minded audience eagerly expecting his livestream. One of these 8chan users preemptively created a copy of the video and posted a link to its location on a file-sharing website (Sonderby 2019). If one would want to speculate, we could also ponder whether the surreal FPS aesthetic of the the livestream abstracted the viewers from the brutal reality of the footage. Even one of the first 8chan users responding to the shooter's post felt the need to stress the non-fictional nature of the video: "not larp [live action role play], actually happening." (Evans 2019) Nonetheless, the primary factor in the lack of user reports, which could otherwise help moderate the content much earlier, was that the initial audience supported the terrorist; in other words, they did not find the content objectionable.

To answer the second question, it is necessary to understand how Facebook actually employs AI to moderate content. Facebook primarily uses computer vision in conjunction with hashing to

moderate images and videos; computer vision is thus an integral part of Facebook's AI research. The technology tries to emulate human vision by teaching machines to 'see' – to make meaning of pixels. The AI systems require large quantities of training data on which they can establish patterns and detect objects with increasing certainty. To enlarge their dataset and thereby chances of 'catching' objectionable content faster, Facebook partnered up with other tech companies. In 2017, Facebook, Microsoft, Twitter and Youtube founded a privately governed initiative called the Global Internet Forum to Counter Terrorism (GIFCT) in order to join forces in defending their services from terrorist exploitation. When one of the member companies detects and removes terrorist content from its site, a hash of the image – a code version of a unique 'fingerprint' – is created and stored in the GIFCT database. If the same or similar content is uploaded onto another member platform, the shared hash assists the particular AI system in detecting the terrorist content.

Yet, in their "A Further Update on New Zealand Terrorist Attack" Facebook admits the Christchurch shooting livestream slipped through a hole in this net: "this particular video did not trigger our automatic detection systems. To achieve that we will need to provide our systems with large volumes of data of this specific kind of content, something which is difficult as these events are thankfully rare." (Rosen 2019) This system failure seems to have been a wake up call to platform providers and policy makers alike as "The Christchurch Call" initiative indicates: "The Call outlines collective, voluntary commitments from Governments and online service providers intended to address the issue of terrorist and violent extremist content online and to prevent the abuse of the internet as occurred in and after the Christchurch attacks." (Christchurchcall.com) The Call requires governments and service providers to make several commitments; for example the former promises to counter drivers of terrorism, ensure effective enforcement of applicable laws, encourage media outlets to apply ethical standards, while the latter ought to take transparent measures of moderating extremist content, review the operation of algorithms and other processes or collaborate and coordinate cross-industry efforts. (ibid) As of 23 September 2019, The Call is supported by over fifty countries and eight international service providers: Amazon, Daily Motion, Facebook, Google, Microsoft, Quant, Twitter and Youtube. In response to the Christchurch Call as well as criticism regarding lack of transparency, civil oversight, and inadequacy, GIFCT moved from being an industry led initiative to an "independent organization capable of sustaining and deepening industry collaboration and capacity, while incorporating the advice of key civil society and government stakeholders." (Giftct.org) Clearly, tech companies and policy makers have somewhat eaten their humble pie by standing up and facing their blind spots in reaction to the Christchurch terrorist attack.

The question remains whether the computer game industry, and perhaps even the action camera industry, ought to take part in the discussion in some form or other. Interestingly enough, Facebook's explanation of their failure also mentions computer games as an element their researchers consider when designing their AI systems:

Another challenge is to automatically discern this content from visually similar, innocuous content – for example if thousands of videos from live-streamed video games are flagged by our systems, our reviewers could miss the important real-world videos where we could alert first responders to get help on the ground. (Rosen 2019)

What this essentially insinuates is in alignment with Tony Lemieux's conjecture that the computer vision was unable to discern the terrorist's footage from a first-person shooter game. If the simulated violence of computer games impedes or even inhibits the AI systems in detecting images

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or videos of real life violence, shouldn't the gaming industry that increasingly leverages streaming and Let's Play videos for marketing pull its weight in this struggle and partake in finding solutions? In order to further investigate the AI's mistake, the following section will explore the so called FPS aesthetic as a visual link between the Christchurch shooting livestream, computer games and the GoPro action cameras.

The FPS Aesthetic

Although it cannot be said with complete certainty that the shooter employed the FPS aesthetic strategically, his video is an egregious addition to the history of the first person shooter and GoPro camera use. In his 2006 essay "Origins of the First-Person Shooter," Alexander Galloway identifies two key visual elements of the FPS aesthetic: the subjective camera perspective coupled with a weapon in the foreground (Galloway 2006a: 57). Galloway thereby traces the roots of the FPS aesthetic in Alfred Hitchcock's *Spellbound* (1945) and other cinematic examples of the so called 'subjective shot' that tries to mimic the vision of a specific character. According to Galloway, the subjective shot fails in film, since it inhibits audience identification (Galloway 2006a: 48). In contrast, this effect has been welcomed by computer games, which require players' active participation. FPS games became popular in the 1990s with the development of *Wolfenstein 3D* (1992) and *Doom* (1993). Since the FPS aesthetic was primarily popularised and refined by computer games, I will further ground my formal analysis in reference to that medium.

While the FPS gaming genre was dominated by *Counter-Strike: Source* in 2004, a young wealthy surfer developed the waterproof GoPro HERO 35mm camera that could be strapped to the user's wrist. Four years later GoPro developed a greater variety of mounts, including the head/helmet strap and the action cameras spread from surfing to other sports like skiing, mountain biking or airsoft. The Russian film director Ilya Naishuller employed GoPro cameras to create *Hardcore Henry* (2015), an action film inspired by FPS games and shot entirely from the first-person perspective. In retrospect, we could position *Hardcore Henry* as a techno-cultural precursor to the Christchurch shooting; a kind of transition point from FPS games to a mass shooting recorded by an action camera. Nevertheless, the fictional character of films, games or airsoft matches that make the FPS aesthetic innocently entertaining comes in stern contrast to the reality of the Christchurch shooting.

The aesthetic of the Christchurch shooting livestream and its technological medium foreground the significant overlaps in the visual characteristics of GoPro videos and FPS games. The GoPro head and helmet mounts produce a perspective approximate to that of the shooter. The positioning allows the terrorist's weapon to be visible in the foreground comparably to FPS games. Additionally, the Christchurch terrorist was right-handed, so his gun was visible in the lower right corner as is prevalent in FPS games. A signature feature of GoPro videos is its fisheye perspective, which captures a wider yet curved image. Similarly, FPS games like *Titanfall 2* (2016) allow players to increase their field of vision (FOV) settings in order to produce the same effect. Professional gamers and streamers often take advantage of the FOV versatility, as it allows them to spot their opponents earlier. The larger FOV of GoPro videos and FPS games helps create a more visually immersive experience for its audience, which is the goal of both computer game and GoPro camera designers. GoPro and FPS game videos are both marked by action: usually fast movement across three dimensional space, which generally involves endangerment (either simulated or real) and requires skill of the GoPro user or FPS gamer. In the case of the head-mounted GoPro camera and the FPS game, the camera movements are dependent on the subject of action. Hence, the visual qualities of GoPro footage coupled with a gun in the right foreground mimicked the simulated violence of FPS game streams and Let's Play videos.

In regard to the Christchurch shooting, it is also noteworthy to consider the rhetoric of GoPro's self-presentation and advertisement. Phrases like "Be a hero", "Relive your victories", "Heroes never stop", "Prove you did what they said you couldn't" acquire a bitter taste in the context of the Christchurch shooting. Additionally, their recent website update that promises accessories "to nail the shot" and compatibility "so you can get social" seem utterly ignorant of the purposes their technology has been employed for (GoPro.com 2019). While sketching their concept of "the tremendous image" – one that uses its rich sharpness and resolution to dominate the competitive media hierarchy, Lee Rodney and Adam Lauder criticise the oppressive gaze produced by the GoPro camera:

"[The GoPro camera] has defined a subset of participatory observation in the extreme sports and remote adventure communities. The camera became increasingly popular with these consumer groups as an affordable prosumer device that serves to document and legitimise the user's exploits: a $500 selfie stick that provides the promise of instant fame.
Rather than producing new or different perspectives, as the company claims, the proliferation and circulation of this material tends towards the reproduction of familiar tropes from the cinematic lexicon of gazes and their attendant forms of power and objectification. From the early modern god's-eye view of the panopticon to the colonial and masculinist fetishisation of control, the perspectival promise of the GoPro brand reproduces the familiar trope of the singular, masculine, controlling visual subject of Western history." (Lauder et al. 2018: 80-1)

Rodney and Lauder's commentary on the specific aesthetic generated by GoPro cameras highly resonates with the 'heroic' motivation of the Christchurch terrorist, who despite choosing the first-person perspective of his recording did not forget to show his face to the audience. The authors also remind us that the terrorist's GoPro recording represents the white man's effectuation of self-determined biopolitics, as his mission is, according to the terrorist's manifesto, to decrease the number of non-white bodies and their birthrates in New Zealand. Rodney and Lauder's critique of the specific perspective catered by the GoPro camera as a reproduction of the singular, masculine, controlling subject runs parallel with the way the FPS aesthetic has been theorised.

In FPS games, the biopolitics or thanatopolitics establishing the unwanted bodies within the particular game space are encoded into the gameplay by the designers. Serjoscha Wiemer in her essay "Playing on the Plane of Immanence" explains how interfaces predefine the forms – the subject positions – the players are invited to fill via first-person shooters:

…the space is presented with linear perspective in a manner that puts the focus on the player as the 'origin' of space by enhancing the power of the gaze as a key element of the spatial structure. […] At the same time it defines a typical subject position. Stephan Günzel (2009:342) described first-person shooters from a phenomenological perspective as a formal representation of an ego, 'I' or "Ich-Origo", others have argued that the first-person-view in games could be interpreted as the return of a transcendental, 'Cartesianesque' subject and the "myth of the autonomous self" (Shinkle 2003). There were also attempts to 'deconstruct' this formation as the embodiment of a colonialist-phallic gaze (Scholl 1997)." (Wiemer 2010: 169)

Hence, it is the gun of the FPS aesthetic that determines how the player interprets her relationship to the game space and the bodies within it; the gun inherently shapes this relationship as one of opposition, paranoia, kill or be killed. Although the player is in physical control of her movement

within the game space through her tactile connection with the keyboard/mouse/controller, it is the weapon the player follows as Rune Klevjer put it in his article "The Way of the Gun: The aesthetic of the single-player First Person Shooter" (2006). Klevjer stresses the inseparable nature of the weapon and the camera: "The first-person camera of the FPS is not really just a camera, but a camera-and-gun joined in the same virtual apparatus, a camera-gun. This basic set-up does not allow the gun to be moved independently of the camera, which is mounted in a similarly fixed way on the largely invisible body of the player-avatar." (Klevjer 2006: 2) Klevjer thereby highlights that the FPS aesthetic merges vision, control and destruction, as to see, is to target and thus to control through the life-or-death determining power of the gun.

Does this life-or-death power connected to the gun as an essential component of the FPS aesthetic acquire a new dimension after seeing a real life mass shooting through the lens of a GoPro camera? A gamer on Reddit confessed he "can't play shooter games anymore after the terror attack in Christchurch": "I'm an avid gamer and used to enjoy shooter games like COD, Halo, GTA and the like and ever since watching that video playing those sorts of games and even thought of them makes me sick to stomach, they are permanently deleted from console probably won't ever touch them again." Does this mean we inherently re-enact or glorify the Christchurch shooting by playing an FPS game?

In-Game Re-Enactment
It is of course very easy to look at the ways various players or game designers have exploited the medium of computer games, and the FPS mode in specific, to virtually perform the Christchurch shooting, in order to dismiss such computer games as simple means of reliving the attack from the perspective of control and destruction. For example, a player of *Garry's Mod* (GMod) was well aware of the FPS aesthetic of the original video and took advantage of the first-person perspective enabled by the game to recreate the terrorist's video. The re-enactment highlights the act of violence rather than creating a truthful copy of the referent; the model of the mosque was only primitively sketched in the game, while the details of the killing adhere closely to the original video. A similar re-enactment of the event has been created in *Minecraft*, wherein the focus of the creators was on faithfully recreating a pixelated version of the Al Noor Mosque. This endeavour to simulate the terrorist's experience in an immersive FPS game seems to be the main objective of the "Al Noor Mosque Map Project" in which modders of *Counter Strike: Global Offensive* try to create a map based on the original site of the Christchurch shooting. In the 4chan thread discussing this project, users discuss using images from Google Maps, Google Street View, news reports and the original terrorist's video in order to incorporate as many details into the game design as possible. Apart from player originated endeavours, a highly controversial and meme-saturated third-person shooter game also updated their avatar and mission supply following the event of the Christchurch shooting. Players can use a cheat code to become the shooter and go through a mission in which one must defeat Islamic terrorists, who have taken over New Zealand. The same game studio also produced a simpler game solely based around the character as a more obvious tribute to the Christchurch terrorist. The objective of this game is to shoot every citizen in a town without guns or police. The third-person perspective of the previous game is of course switched up to the first-person, in addition to being presented as a livestream, notifying the player on the number of subscribers and live viewers. These cases show that the first-person perspective in shooter games acquires a new referent for some players and game designers, as they employ it to allude to the Christchurch shooting video and the event as such.

FPS games could thus be easily condemned via Marshall McLuhan's conception of the medium as an extension of the body. Writing well before the invention of FPS games or computer games as

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such, McLuhan wrote in his 1964 book *Understanding Media: The Extensions of Man* "Games, like institutions, are extensions of social man and of the body politic, as technologies are extensions of the animal organism." (McLuhan, 1964: 208–209) We could thus say that the hand holding the gun within the FPS aesthetic is of course an extension of our body and in effect, the mind of the FPS gamer is not so different from that of the Christchurch terrorist. Although Aram Bartholl's project *First Person Shooter* (2006) project builds on McLuhan's ideas to some extent, the artist challenges the relation between the virtual hand within the game space and the player's body within the user space. *First Person Shooter* consists of downloadable, paper cut-out glasses that transpose the FPS aesthetic into real life by fixing a gun in the wearer's field of vision. The wearers of the glasses in Bartholl's exhibition of the project could look at themselves in a mirror and thereby see the virtual hand holding the weapon is not connected to their body. Despite wearing the FPS glasses, we cannot harm anyone. The FPS aesthetic might frame us as a subject or even a killer, yet it is the design of the interface and the space it connects us to that predetermines our actions.

In his 2009 book *Digimodernism: How New Technologies Dismantle the Postmodern and Reconfigure Our Culture*, Allan Kirby expands the scope of player's subject position through through his concept of super-subjectivity. Kirby argues that games make classic subjectivity encountered in cinema, literature or other narrative media literal through the ludic *act* of play. Yet, computer games further expand this experience through multiplicity of avatars or controllable characters and (unrealistic) extremity of mediated experiences: "By super-subjectivity, you play through your gaming self or selves: you play, then, as yourself (it's you whose game ends when all your lives have gone) but vastly inflated." (Kirby 2009: 170) Experiencing own death and resurrection multiple times, unscrupulous killing or driving cars at life threatening speed are enabled by the game often without subjecting the player to sense of fear or consideration of consequences. Kirby is, however, critical of this "heroic, mythical, legendary" subjectivity: "knowing no shame or guilt, no psychological attachment to the past or the external world, it has the pathology of the psychopath." (ibid) Kirby concludes his scepticism of the computer game catered super-subjectivity in its production of indifference towards "them": "An extended, expanded, overfurnished, hyperequipped "I" will struggle of necessity to convey compassion for "us," to express pity for the human condition, because both pronouns occupy the domain of the first person: they are incommensurable within the same logical-grammatical space." (Kirby 2009: 171) Kirby's concept of super-subjectivity suggests the design logic of computer games nurtures an egoistic, close-minded, incompassionate society, yet his examples of the experiences computer games can mediate is extremely narrow and oriented only towards stereotypical examples of masculine gameplay. What Kirby also ignores is the ability of players to critically differentiate the actions and their consequences within a game environment from those in real life.

To disentangle the ambiguity of play – the relationship between our physical body and the FPS hand holding a gun, innocuous play and glorification of terrorism, simulated violence and real life violence – we must understand how a game actually becomes *realistic*. In his essay "Social Realism" (2006), Alexander Galloway stresses that video games are a medium that compels players to perform acts and its realism must thus reside in *action*. Since "the primary phenomenological reality of games is that of action […] it follows in a structural sense that the player has a more intimate relationship with the apparatus itself, and therefore with the deployment of realism." (Galloway 2006b: 83) This does not mean that the game "exerts 'realistic' effects" onto the player, but rather that the game becomes an extension of player's own social life. (Galloway 2006b: 78) Galloway argues that realism in video games requires "a special congruence between the social reality depicted in the game and the social reality known and lived by the player." (Galloway

2006b: 83) In other words, if the events in the game relate to some real life experiences of the player, then it can be said that the player can perceive the game as realistic.

To come back to the gamer who confessed on Reddit he can no longer play FPS games after watching the Christchurch terrorist's video, it is because the aesthetic and the action of the two 'congrued' in the players mind. The same applies to the the players of the controversial game: people who want to virtually experience the terrorist's act of opening fire into un-armed civilians while livestreaming the crime will take advantage of that game, since the intentions of the designers will correspond to the needs of the players. This cannot be said of other FPS games and players who did not even watch the terrorist's video. Simply put, the ethical implications of playing a FPS game are different for a player, who just wants to play a game, than those of a player, who wants to feel like the Christchurch terrorist did. Comparably, the ethics of game designers, who want to create an engaging FPS game with elaborate levels designs, suspenseful narrative or masterful game art differ immensely from those that capitalise on mass shootings by simulating an actual event and designing genocidal gameplay.

Conclusion
The Christchurch mosque shooting, recorded through a helmet-mounted GoPro camera that framed the resulting video in accordance to the first-person shooter aesthetic and live-streamed onto Facebook in order to receive world-wide attention, became a crucial wake-up call for social media platforms and governments alike to review their procedures, standards and policies. Facebook acknowledged the challenges their research and engineering teams face when designing their AI moderating systems and training their computer vision. I have shown that the visual properties of GoPro recordings overlap with FPS games; this likeness seems to have played an important role in the AI's failure to discern graphic violence from the abundantly streamed non-objectionable content. The gaming industry, whose products are often marketed via streaming or Let's Play videos on platforms like Facebook, Youtube and Twitch, should thus take ethical responsibility for the aesthetics of their simulated violence by helping such platforms create better solutions for distinguishing simulated and real violence.

Since the Christchurch shooting video creates a new referent for the FPS aesthetic, it is important to re-evaluate the ethicality of producing and playing FPS games. Alexander Galloway's concept of social congruence helped us make an ethical distinction between types of play and types of game design in relation to the Christchurch shooting. The FPS gaming genre cannot thereby be dismissed all together, as the majority of designers won't aim to simulate the terrorist's act and concurrently many gamers won't want to interpret their gaming experience as a re-enactment of the Christchurch shooting. In contrast, a FPS game that makes clear references to the Christchurch shooting or simplifies its gameplay into genocide of unarmed civilians clearly tries to glorify the terrorist attack and expand players' social reality.

Clearly, to establish the ethics of first-person shooter aesthetics does not equate to 'to let FPS aesthetics be or to denounce them altogether.' We must not let a sociopath corrupt the FPS gaming genre, yet we must also avoid being ignorant to the mournful signification it may now have for some players. Hence, this paper is hopefully a prompt to review ethical standards in game design, play and (especially in terms of streaming or Let's Play videos) commentary.

Games

COUNTER-STRIKE. Valve Corporation, PC, 2000.

GARRY'S MOD. Valve Corporation, PC, 2004.

MINECRAFT. Mojang, PC 2011.

I have also mentioned two other games, yet I do not wish to further popularise them or their producers by explicitly referencing them.

References

"Christchurch Call: to eliminate terrorist and violent extremist content online." *Christchurchcall.com,* The Ministry of Foreign Affairs and Trade of New Zealand, 2019.

Evans, Robert, 'Shitposting, Inspirational Terrorism, and the Christchurch Mosque Massacre', *Bellingcat*, 15 March 2019, https://www.bellingcat.com/news/rest-of- world/2019/03/15/shitposting-inspirational-terrorism-and-the-christchurch-mosque- massacre/.

Galloway, Alexander. "The Origins of the First-Person Shooter." *Gaming: Essays on Algorithmic Culture*, University of Minnesota Press, 2006a, pp. 39-69.

Galloway, Alexander. "Social Realism." *Gaming: Essays on Algorithmic Culture*, University of Minnesota Press, 2006b, pp. 70-84.

"The Global Internet Forum to Counter Terrorism." *Gifct.org*, GIFCT.

"GoPro." *Gopro.com*, GoPro.

 "I can't play shooter games anymore after the terror attack in Christchurch." *Reddit*, Reddit, 17 March 2019, https://www.reddit.com/r/confessions/comments/b230sq/i_cant_play_shooter_games_anymore_after_the/.

Kirby, Alan. *Digimodernism: How New Technologies Dismantle the Postmodern and Reconfigure Our Culture*, Continuum, 2009.

Klevjer, Rune. "La via della pistola. L'estetica dei first person shooter in single player." In M. Bittanti & S. Morris (Eds.), *Doom. Giocare in prima persona,* Costa & Nolan, 2006. English version: "The Way of the Gun: The Aesthetic of the Single-Player First Person Shooter" https://folk.uib.no/smkrk/docs/wayofthegun.pdf.

Lauder, Adam and Lee Rodney. "The Tremendous Image: Viceland TV's Abandoned Series and the Persistence of Ruin Porn." In Karen Engle and Yoke-Sum Wong (eds.), *Feelings of Structure: Explorations in Affect*, McGill-Queens University Press, 2018, pp. 76-85.

McLuhan, Marchall. *Understanding Media: The Extensions of Man,* McGraw-Hill Education, 1964.

Perrigo, Bill. "'A Game of Whack-a-Mole.' Why Facebook and Others Are Struggling to Delete Footage of the New Zealand Shooting." *TIME*, TIME USA, 10 March 2019, https://time.com/5552367/new-zealand-shooting-video-facebook-youtube-twitter/.

Rosen, Guy. "A Further Update on New Zealand Terrorist Attack." *Facebook Newsroom*, Facebook, 20 March 2019, https://newsroom.fb.com/news/2019/03/technical-update-on-new-zealand/.

Sonderby, Chris. "Update on New Zealand." *Facebook Newsroom*, Facebook, 18 March 2019, https://newsroom.fb.com/news/2019/03/update-on-new-zealand/.

Timm, Jane C. "Fact check: Trump suggests video games to blame for mass shootings." *NBC News*, 6 August 2019, https://www.nbcnews.com/politics/donald-trump/fact-check-trump-suggests-video-games-blame-mass-shootings-n1039411.

Wiemer, Serjoscha. "Playing on the Plane of Immanence. Notes on the Resonance between Body and Image in Music Video Games." In Stephan Günzel, Michael Liebe, and Dieter Mersch (Eds.), *Logic and Structure of the Computer Game*, Potsdam University Press, 2010.