The Ludic Gaze: A Critical Analysis of Militarism in Interactive Media

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1 Introduction

From ancient strategic games like Chess and Go, through the simulations of the Prussian Kriegsspiel [62], to modern grand strategy titles like Hearts of Iron IV [42], games have long served as tools for strategic planning and the cultural normalisation of war. This historical lineage of conflict modelled as a system of quantifiable rules and winnable objectives has been supercharged in the digital era. Today, its most potent incarnation is the military-entertainment complex (MEC): a dense, bi-directional network of influence where military institutions and entertainment industries co-produce technologies, ideologies, and public perceptions of war [10, 33]. This is not simply the result of shared aesthetics or incidental collaboration, but of a deep co-production [27] where military research and development informs the development of commercial game engines, and entertainment products in turn serve as powerful tools for recruitment and public relations [53].

This co-production has reached new levels of integration with the rise of spatial computing. As tech giants like Meta and Apple pour billions into developing extended reality (XR) platforms like the Quest and Vision Pro [7, 46] — marketed as the next frontier for interactive, immersive storytelling — their hardware is increasingly adopted as the foundation for next-generation military training and simulation. This is evident in systems like the US Army's Integrated Visual Augmentation System (IVAS) [30], originally based on Microsoft's augmented reality (AR) HoloLens headset, now under development by defence contractor Anduril (founded by the creator of Oculus) [54]. Software companies like Palantir further showcase this convergence, securing billion-dollar contracts for surveillance and intelligence software with highly visual and interactive interfaces for data analysis [25]. These parallel developments are underpinned by a shared sociotechnical imaginary [28]: a vision of the future in which technological mastery and military capability are intertwined, and where the individual's role is framed as an empowered, technologically augmented agent. This imaginary mirrors the design logics of commercial video games, which prioritise agency, mastery, and reward, while flattening the realities and devastation wrought by war.

This technological convergence produces a paradox. Military-themed games, with modern graphics, realistic sound design, and compelling narratives, achieve unparalleled player immersion, while simultaneously fostering a profound detachment from the realities of armed conflict. This dynamic produces a phenomenon that this project conceptualises as the "ludic gaze": a mode of perception and interaction shaped by the structural affordances of interactive media, that flattens the complexities of conflict to simplified, quantifiable objectives and individual agency. This gaze, deeply embedded in the design and mechanics of mainstream games, frequently normalises violence, sanitises its impact, and obscures the deep cost borne by civilian populations.

This gaze finds its strongest amplifier in virtual reality (VR), a medium often acclaimed for its potential to foster empathy. Works such as War Remains [18] and Project Syria [16] have demonstrated VR's potential to place users during historical events, often with the aim of fostering understanding or compassion. However, these projects often operate within conventional interaction frameworks, offering users a degree of control, agency, and narrative coherence that is fundamentally at odds with the lived experience of civilians in war — an experience defined by powerlessness, unpredictability, and trauma. This dissonance echoes the long-standing debate over whether there can be "such a thing as an anti-war film" [48], raising a critical question for our time: is it possible to create an anti-war interactive experience, particularly within the immersive medium of VR?

This literature review addresses this central question, synthesising literature from Marxist critical theory, Science and Technology Studies (STS), media and games studies, and Human-Computer Interaction (HCI). It aims to critically examine the relationship between power, technology, and interactive media in shaping perceptions of conflict, ultimately identifying a gap in the literature. This review then presents a plan for a research project aimed at addressing this gap within the medium of VR.

2 Literature Review

This literature review begins with a macro-level examination of the military-entertainment complex, exploring its political and economic drivers, and its ideological role in perpetuating cultural hegemony. It then dives into a dissection of the ludic gaze, a pervasive perceptual and interactional mode in interactive media, analysing its structural affordances and the problem of form on anti-war messaging. An investigation into the specific affordances of VR for presence and empathy is then conducted, while critically examining their current applications. Finally, a survey of existing anti-war works examines the design strategies employed and their limitations.

2.1 The Military-Entertainment Complex

The military-entertainment complex (MEC) adapts Dwight D. Eisenhower's [15] warning about the "military-industrial complex" to

describe the dense, bi-directional, interdependence between military institutions and entertainment industries. This term, which James Der Derian [10] popularised in his work, Virtuous War, describes what he calls the "military-industrial-media-entertainment network" (MIME-NET). Other scholars have looked at the long history of collaboration between the two industries, showing how they have consistently shared resources and expertise between the two sectors [33]. This relationship is not unidirectional; the military provides access to hardware and technical expertise, while entertainment products bolster recruitment, act as a public relations vehicle, and lend ideological legitimacy for military activity [53].

The MEC is influenced by political and economic factors that make the relationship mutually beneficial. Military research and development, with its deep budgets, often produces technologies like flight simulators and advanced graphics rendering techniques that later diffuse into the entertainment industry [33]. Conversely, entertainment companies, seeking authenticity and spectacle, gain access to military hardware and expertise in exchange for favourable portrayals of the military, as seen in films like the Pentagon-produced Top Gun [47]. This symbiosis extends globally, with the arms trade marketing military technologies as "battle-tested". As Antony Loewenstein [34] illustrates in The Palestine Laboratory, this euphemism belies the fact of their deployment on subjugated and marginalised populations. Israeli surveillance and weapons systems, for instance, are refined through their use on captive Palestinian populations in the Gaza Strip and West Bank, before being sold back to the imperial core as "battle-tested" solutions, creating a market for technologies of occupation and control.

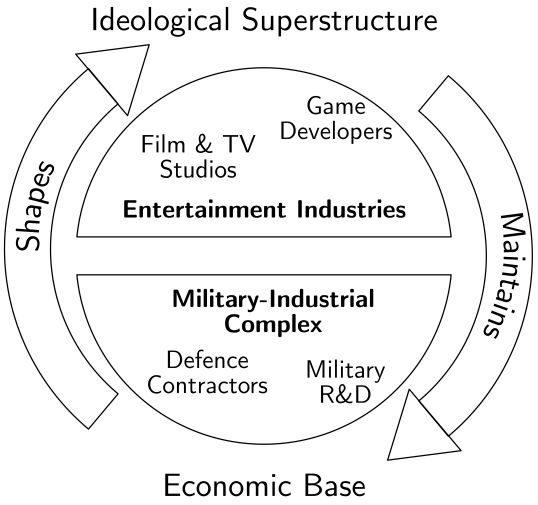


Figure 1: Base and Superstructure of the Military-Entertainment Complex

From a Marxist perspective of political economy, the MEC can be understood as a manifestation of the economic base and the ideological superstructure relationship as illustrated in Figure 1. The base refers to the material forces of production, such as the economy, industries, and technologies — while the superstructure encompasses the cultural, political, and legal institutions that develop from the base [35, 36]. In this model, the military-industrial complex, a core part of the economic base, accumulates capital through what Seymour Melman [38] described as a "permanent war economy". The entertainment industry functions as a key part of the ideological superstructure, producing cultural products that reflect and legitimise the ideology and values of the economic base. As Marx and Engels [36] argued, "the ideas of the ruling class are in every epoch the ruling ideas"; in this case, the entertainment superstructure normalises militarism as not only necessary, but even heroic and entertaining.

This legitimisation is achieved through Antonio Gramsci's concept of cultural hegemony [21]. Consent is manufactured not only through the overt coercion of state institutions, but also through cultural products which launder militarism, making it part of a shared societal "common sense". Louis Althusser [4] described such institutions as ideological state apparatuses, which reproduce the dominant ideology through "neutral" everyday activities like recreation and pop culture. In the MEC, films, games, and other media function as powerful ideological apparatuses that reproduce militarist values. Herman and Chomsky's Manufacturing Consent [22] is a contemporary account, detailing how media filters: ownership, sourcing, flak, and anti-communism, manufacture consent for military intervention and increased defence spending.

Complementing this analysis, a Science and Technology Studies (STS) lens details the MEC as a site of co-production, a framework that Sheila Jasanoff [27] describes as the mutual shaping of science, technology, and the social order. Under this framework, the military and entertainment industries do not simply interact; they co-produce technology and the social framing around them. This can be seen through the flow of tech, personnel, and design ethos between the military and entertainment industries. Military simulations diffuse into commercial games; commercial games migrate back into military training systems [33]. The design influence of fictional interfaces in popular media has directly shaped real-world military systems; for instance, David Kirby [31] describes how the gestural interfaces in the film Minority Report later inspired a contract with defence contractor Raytheon for US military technology. These mutual developments constitute a specific sociotechnical imaginary [28]: a collectively held vision of the future in which technological mastery and military capability are intertwined, and where individuals are framed as empowered combatants.

The MEC, as a system, operates at the political-economic, ideological, and sociotechnical levels, performing three interconnected, mutually reinforcing functions. It drives capital accumulation through a permanent war economy, while manufacturing consent for militarism through cultural hegemony. Critically, it constructs a militarised sociotechnical imaginary through its co-production mechanisms, envisioning a future where technological determinism and military power are normalised. This positions the MEC as a system that not only produces military hardware and entertainment, but also a perceptual and behavioural mode that frames war as a controllable, quantifiable, and ultimately winnable challenge.

2.2 The Problem of Form and the Ludic Gaze

Marshall McLuhan's dictum that "the medium is the message" [37] provides a starting point in analysing the persistence of militarism in interactive media. McLuhan argues that the structural form of a medium shapes our perception more than the content itself. For interactive media, this includes player agency, which Tynan Sylvester [55] defines as "the ability to make decisions and take meaningful actions that affect the game world," allowing the player to act as the causal force in the simulated world. This agency is channelled and directed through feedback loops that drive the pursuit of mastery, rewarding players who improve their skills over the game's systems [56]. All actions and outcomes within these systems are mediated through quantification, as games translate these events into algorithmic and measurable data like scores, resources, and progress bars [20]. These affordances operationalise what Ian Bogost [5] terms procedural rhetoric: the rules and constraints of a system communicate and translate values beyond narrative. Bogost's point is that games don't just tell stories, they also model them through their systems, leading players to experience and internalise their underlying ideologies through action. Jesper Juul [29] further elaborates that games exist in a "half-real" state between rules and fiction, where the rules-based system often dominates how the player experiences the fictional world. This structural bias means that interactive media, through its very design, supercharges these issues in developing experiences around control, mastery, and quantifiable outcomes.

This bias compounds what is known as the "anti-war" film problem. Filmmaker François Truffaut famously remarked that "there is no such thing as an anti-war film" [48]; while a director's intent may be critical, the cinematic spectacle of war produces excitement and exhilaration. Steven Spielberg's war epic Saving Private Ryan [52], while traumatic, still reaffirms heroism and valour in service. Conversely, the Soviet Come and See [32] abandons spectacle by focusing on civilian trauma and disempowerment. In interactive media, this problem is significantly amplified by the medium's inherent properties. Player agency means the user is active and involved, not passively observing; mastery mechanics reward player skill, framing war as a challenge to be won; quantification flattens the cost of war into abstract metrics; and replayability turns death and its consequences into a temporary setback.

These structural affordances are central to what Matthew Payne [43] conceptualises as ludic war, which he defines as "the activity of playing war or military-themed video games alone or with others." Payne's thesis is that consuming military-themed media produces a distinct mode of user engagement. Building on Payne's concept of ludic war as the core activity, this project proposes the term "ludic gaze" in naming the specific perceptual and interactional mode that structures user engagement within such play. This gaze, which draws from Paul Virilio's technologically mediated military gaze [63] and Alexander Galloway's [20] concept of algorithmic culture, is mediated through digital systems that define what is actionable and perceivable, shaping the user's interaction with the presented reality.

Figure 2 demonstrates this ludic gaze in action: it is not merely about looking, but about doing in a system of rules that prioritises instrumental action over ethical reflection. The gaze centres

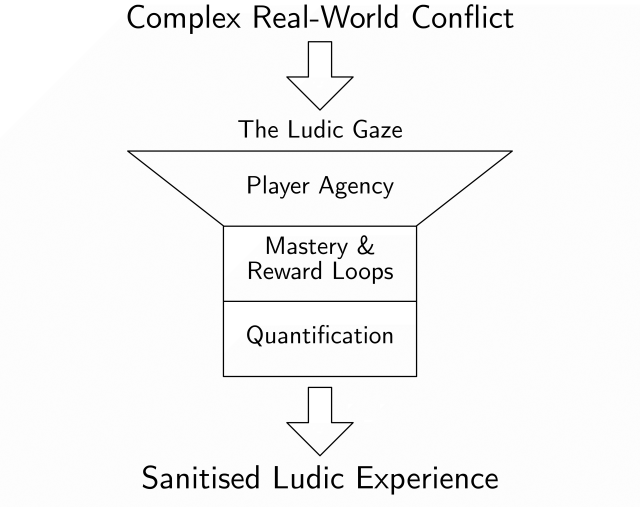


Figure 2: The Ludic Gaze as Perceptual Filter

player agency, positioning the player as the causal force in their environment. Second, it is structured around mastery, rewarding skill, efficiency, and progression through positive feedback loops that create a sense of competence. Thirdly, quantification abstracts complex events into measurable data such as scores, kill counts, and objectives, which simplifies moral ambiguity into clear metrics of success and failure. Finally, these elements combined produce an affective detachment: the player is emotionally distanced from their actions in framing them as moves in a game rather than events with a human cost.

Military shooters are prime examples for the ludic gaze in action. Battlefield 1 [11], for instance, opens with a sequence where the player takes control of various soldiers in World War I, each introduced by their name and date of birth, and quickly dies, with their date of death displayed. This potent anti-war message is quickly subsumed by the game's core mechanics: the player is resurrected, equipped with new weapons, and thrust into an endless cycle of respawn and combat, where the reality of war is overshadowed by the spectacle of gunfire and explosions. Call of Duty: Modern Warfare 2's [26] "No Russian" level has the player participate in a mass shooting of civilians, yet still frames the act within a gameplay objective, creating a deep ethical vacuum. Similarly, Call of Duty: Black Ops Cold War [57] presents gameplay sequences that direct players to aim their weapons at civilians to "de-escalate the situation", and perpetuates US Cold War-era propaganda, while erasing US covert operations like Project Gladio. The series' long history of, and frequent use of torture as a gameplay mechanic further reinforces this idea of player detachment. These actions are often required to progress the story, while neglecting to mention both torture's dubious efficacy and its deep moral culpability.

This historical revisionism and ethical whitewashing are functions of the ludic gaze, and are similarly present in authentic military simulators or "milsims" such as Arma 3 [6], recruitment tools like America's Army [58], and the controversial Six Days in Fallujah [24]. Across these titles, the ludic gaze suppresses civilian suffering, reduces complex geopolitics to a binary good versus evil

narrative, and prioritises heroic action over its tragic consequences. As Judith Butler [8] argues, certain lives are rendered "ungrievable" by dominant media narratives, a dehumanisation through game mechanics that erases or abstracts the civilian experience, turning entire populations into set dressing, or otherwise obstacles to objectives.

A crucial paradox at the heart of the ludic gaze is its capacity to enhance sensory immersion, while simultaneously fostering an affective detachment from real-world consequences. Modern graphics, realistic sound design, and player-driven narratives can create a deep and profound sense of presence within a virtual environment. However, when paired with the medium's structural affordances for agency and mastery, this immersion only draws the player more deeply into the game's logic, rather than encouraging reflection on its real-world implications. The player becomes immersed in the pursuit of objectives and the satisfaction of mastery, with the emotional and ethical weight of the depicted events subordinated to the game's procedural framework. This paradox means that increased realism can, counterintuitively, increase detachment by making the game's constructed reality feel more compelling and internally coherent.

The ludic gaze is therefore a pervasive output of the MEC; it co-produces a militarised society by normalising militarism, legitimising military operations, and implicitly deterring criticism of its actions and consequences. Its continued presence in interactive media stems from the structural affordances of the medium itself: agency, mastery, and quantification inherently frame conflict as a controllable and winnable challenge. This structural bias is further amplified by the immersion-detachment paradox, where heightened fidelity deepens engagement with the game's reality, leading to detachment from actual consequence. In subverting this gaze then, it is not simply a challenge in rewriting narratives, but instead, in fundamentally altering the medium's underlying logics.

2.3 VR and Empathy

Virtual reality is at the forefront of interactive immersion technologies today; it is a medium unique in its ability to shape perception through its ability to simulate physical presence. This is understood through immersion, a system's objective properties that engage the senses, and presence, the subjective, psychological feeling of "being there" in a virtual environment [51]. Immersion can be delineated into sensory immersion (audiovisuals), challenge-based immersion (interactivity using motor and mental skills), and the imaginative illusion ("in which one becomes absorbed with the stories and the world") [17]. Presence can be further split into the "place" and "plausibility" illusions: place referring to the sense of physically being in a space, and plausibility that the events in the space are actually occurring [49]. This sensory and psychological engagement is enhanced by bodily incorporation, where the virtual avatar or virtual body (VB) feels like an extension of the user. Slater and Usoh [50] highlight that self-identification is strengthened with the VB when the user's sense of position and movement (proprioception) matches the virtual environment's sensory inputs.

These affordances have led to claims that VR can function as the "ultimate empathy machine" [39]. The argument is that by allowing users to embody another's perspective, VR can foster a deeper understanding of their experience and build a common understanding. While some studies demonstrate VR can enhance empathy [3, 23], the premise of the claim itself is contested. Lisa Nakamura [40] critiques VR as a form of "identity tourism", noting that VR can produce "false" and "toxic" feelings of empathy, which is counterproductive. Others have similarly critiqued VR on the grounds of "improper distance" [41], a concept first articulated by Lilie Chouliaraki [9], where narcissistic truths about ourselves are elevated above the experience of others, leading to the user's own emotional experience becoming the prime response, rather than empathy and understanding of the other's situation.

Within the MEC, VR's affordances for presence and immersion are primarily leveraged to amplify the ludic gaze. Militaries utilise VR and AR in training simulations, like the US Army's Integrated Visual Augmentation System (IVAS) system [30], while commercial VR titles like Onward [12] and Pavlov [61] replicate mechanics seen in traditional military shooters, using VR's affordances to create an even more immersive power fantasy. The paradox of immersion is even more pronounced in VR: sensory realism only immerses the player more deeply into the game's logic, further detaching them from the ethical and human consequences of their actions.

This is not an inherent limitation of the medium itself. Valve's Half-Life: Alyx [60] is a masterclass in subverting player agency, with the "Jeff" chapter placing the player in a confined space with a blind, but hearing-sensitive creature. The chapter forces upon the player an extreme and deliberate caution, limited movement, and resource management in loud breakable objects (vodka bottles), generating an intense vulnerability and suspense without combat or power fantasy. This chapter demonstrates that VR's affordances can be used to provoke profound helplessness and discomfort, rather than just empowerment.

For VR to truly convey the civilian experience of conflict, it must go beyond placing users in virtual environments and instead embrace vulnerability and constrained agency. Michael Richardson's [45] concept of nonhuman witnessing is a key theoretical framework here, arguing that objects, environments, and even data itself can "bear witness" to events — complementing or contrasting human testimony. VR's ability to render highly detailed, interactive environments, bringing the remnants of conflict to life, such as shelled buildings, scattered personal belongings, or silent, desolate spaces can embody this nonhuman testimony. Following a critical design method [13], can instill a sense of "present powerlessness" and force the user to witness the systemic dehumanisation where certain lives are rendered "ungrievable" [8] through the material reality of the environment itself. To achieve this, empathy is developed not by empowering the player, but by confronting them with vulnerability and the aftermath of conflict, showcased through the nonhuman elements of the scene.

VR's affordances for immersion and presence are a double-edged sword. While currently utilised by the MEC to amplify the ludic gaze and its associated detachment from consequence, these same technologies also possess the potential for subversion. In designing for vulnerability, constrained agency, and in utilising nonhuman testimony, VR can challenge dominant militarised imaginaries and develop a deeper, anti-militarist empathy.

2.4 Anti-War Interactive Media

In understanding the potential for creating anti-war interactive media, it is essential to survey existing works that have attempted to challenge, or otherwise subvert hegemonic militarised narratives. These examples, which cover a range of traditional mouse and keyboard titles and VR experiences, showcase a range of design strategies, each with their own successes and limitations, which offer lessons for the design of new and novel critical media.

Several works have attempted to subvert the ludic gaze in cultivating anti-war narratives from within their own genre conventions. Military cover shooter Spec Ops: The Line [64] is one example, starting as a conventional shooter before questioning the player's sense of heroism and moral righteousness. The player is complicit in several war crimes, including the infamous white phosphorus scene, where the player fires white phosphorus munitions on a refugee camp, forcing the player to confront the horrific consequences of their actions. While powerful, the title still remains constrained by its shooter mechanics, allowing players to disengage from its critique by focusing on mastering its gameplay.

Undertale [19] takes a different approach, with the RPG serving as a metacritique of player violence. Traditional tropes are subverted in allowing for, and even subtly nudging the player towards a pacifist playthrough, which provides an arguably richer and more rewarding narrative than the neutral or "genocide" routes. Undertale's procedural rhetoric directly questions the player's desire to win through combat, which demonstrates that a game can challenge the premise of violent agency. However, this critique remains largely self-contained in its fantasy setting, with its cast of pixelated, anthropomorphic monsters a poor substitute for human casualties. The depth of its critique also relies on the player engaging with its meta-narrative in willingly progressing down the pacifist route, and it therefore primarily functions as a critique of game violence, rather than any real-world conflict.

Other games have shifted focus onto the civilian experience of war and conflict. This War of Mine [2] centres on the survival of citizens in a war-torn city, with the mechanics focusing on scarcity and morality. The document simulator Papers, Please [44] is another title that explores bureaucratic complicity, where the player is placed as an immigration officer in a fictionalised Eastern-Bloc country, enforcing oppressive rules. These two games highlight the underlying violence in conflict, but their underlying gamified systems (resource gathering and rule-following in This War of Mine and Papers Please respectively) still abstracts away and emotionally distances the player from their real world horrors, which can inadvertently normalise the context of war through player engagement.

In the realm of VR titles, Project Syria [16], War Remains [18], The Last Goodbye [59], and Witness: Auschwitz [1] all utilise VR's immersive properties to place users in historical and contemporary scenarios, often using direct testimony and locations. These works have strengths in allowing users to be direct observers to conflict, with high presence and sensory engagement. While they aim to build empathy, they still suffer from design limitations that prevent them from fully subverting the ludic gaze. Limited interactivity is one such limitation, often reducing the player to a passive observer, preventing deeper engagement with difficult moral choices and its outcomes. These titles also rely on structured narratives and guided experiences; while ensuring coherence, this can unintentionally reintroduce a sense of control and predictability, which fails to convey the disorientating unpredictability of civilian vulnerability. Users are placed within a scene, but are rarely confronted with an irresolvable problem, or a crushing lack of agency that is central to the civilian experience.

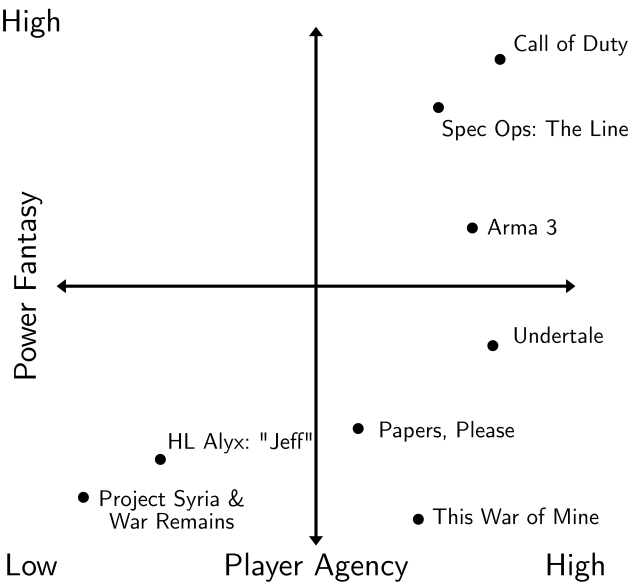


Figure 3: Map of Interactive Experiences: Agency and the Power Fantasy

The diverse approaches found in these projects display a wide variety of approaches in challenging the ludic gaze. To visually summarise these strategies, Figure 3 maps a select few titles across the bounds of player agency and power fantasy. As shown, these works are found at different points along these axes, but as a whole, they highlight the challenges in removing interactivity from the power fantasy inherent in the ludic gaze, particularly when aiming to depict civilian vulnerability.

The limited number of critical works demonstrates the inherent tension between critique and the market logic of entertainment products. Commercial viability favours power fantasies, escapism, and established player engagement loops over discomfort, vulnerability, and moral ambiguity. As Dyer-Witheford and De Peuter argue [14], the global games industry, subject to capitalist pressures, prioritises profitability through mass appeal, often aligning with the perpetuation of existing militarised imaginaries. Titles that deliberately provoke a sense of unease or that restrict agency are often niche, and struggle with the high development costs and player expectations prevalent in the games, and particularly VR industries. These economic headwinds in developing critical works form a significant barrier to the success of genuinely anti-war interactive media.

While existing anti-war games and critical games more broadly show promise in subverting militarised narratives, none fully escape the structural affordances of interactivity that reinforce the ludic gaze. These works highlight that a truly anti-war experience,

particularly one in VR, would require a radically different design. To dismantle the ludic gaze and foster anti-militarist empathy, a work must consciously: (i) radically limit or constrain player agency; (ii) centre vulnerability and powerlessness; (iii) avoid traditional reward structures; (iv) leverage nonhuman testimony for environmental storytelling; and (v) prioritise reflection over immediate action. This will necessitate a design methodology that actively challenges the very core of interactive engagement.

3 Summary of the State of the Art

STS and critical theory have established the MEC as a powerful system of co-production and cultural hegemony. The literature demonstrates how the military and entertainment sectors mutually shape not only technology and public discourse, but also a broader sociotechnical imaginary that normalises militarism as a "common sense". Complementing this analysis, games and media studies have identified how a ludic gaze arises from the form of interactivity itself. Theorists like McLuhan and Bogost have demonstrated how the medium's affordances for agency, mastery, and quantification alienates players from the ethical consequences of their actions, making constructing critical interactive experiences difficult. At the same time, HCI and VR research has defined the technical and psychological dimensions of presence and immersion, positioning the medium as unique in its ability to influence our perception, while a contested discourse critiques claims of VR as an "empathy machine".

Despite the depth of these individual fields, a significant gap exists at their intersection. The existing research exists in one of two areas: critical analysis, or design and development, with few projects bridging the two. This disconnect means that while critical theorists are well-positioned to diagnose the ludic gaze, proposed solutions are often lacking. Even acclaimed critical games such as Spec Ops: The Line and This War of Mine remain constrained by their ludic mechanics, the FPS and survival-strategy genre, respectively. Their critiques, while strong, are still bound by traditional gameplay loops that reward mastery and systems-based thinking. Similarly, examples of vulnerability in VR, such as the "Jeff" chapter in Half-Life Alyx, remain as isolated moments of powerlessness in a broader narrative of player agency and heroism. These examples demonstrate the potential for subversion in design, but are an incomplete model. Consequently, no existing methodology or design framework exists for translating the criticisms of STS and critical media theory into VR experiences that deliberately aim to subvert the ludic gaze to foster an anti-militarist, civilian-centred empathy.

4 Research Project Plan

This research project directly addresses the gap identified in the literature review: the absence of design-led research that uses VR to dismantle the ludic gaze by highlighting civilian vulnerability. The primary aim is the design, development, and evaluation of a VR prototype that functions as a form of counter co-production against the dominant militarised imaginary. This will be achieved by creating a "vertical slice" of an anti-war immersive experience that operationalises a set of anti-ludic design principles derived from the literature.

In addressing the gap identified in Section 3, the central question is: how can the design of a VR experience, by subverting the gamified power fantasy, foster anti-war, empathetic civilian perspective of conflict? This project will seek to deliver not only a novel VR artefact, but also a conceptual "Anti-Ludic" design framework: a set of transferable principles for developing critical, anti-war interactive media.

4.1 Research Methodology

This project will employ a Research through Design (RtD) approach [65], framed as a form of Critical Design [13]. This framework has been selected as the VR prototype is not designed to "solve" empathy, or to create a more "effective" anti-war experience. Rather, it functions as a provocative object within a design fiction — a material critique of the dominant sociotechnical imaginary produced by the military-entertainment complex. The VR experience therefore functions as a "critical prototype," inverting ludic design principles to develop a civilian-focused empathy. Success will not be measured through conventional metrics such as user satisfaction, but by its capacity for provoking critical reflections on interactive media, games, and the representation of conflict. Following development of the artefact, a small-scale qualitative evaluation will be conducted to gather and analyse user reflections on their experience.

4.2 Design and Pre-Production

The initial Design and Pre-Production phase focuses on translating insights gleaned from the literature review into a concrete design framework for the VR prototype. This begins with synthesising an "Anti-Ludic Design Framework", a set of principles derived from the literature. Its core principles will consist of constrained agency, to counter the dominant power fantasy; embodied vulnerability, using VR's affordances to evoke helplessness; nonhuman witnessing, utilising the environment to convey narrative and for emotional resonance [45]; absence of rewards, resisting the quantification of experience; and a focus on consequence over action.

These principles will inform the design of a short scenario for the prototyping phase, which will place the user as a civilian during an armed conflict, focusing on the sensory experience rather than action. The technical pipeline for this project will be established with the Unity 6 game engine, and the Meta Quest 3 headset, owing to their accessibility, widespread adoption, and reputation as robust VR development platforms. A detailed asset list will also be created, focusing on a small, but detailed environment to ensure feasibility within the allotted time.

4.3 Vertical Slice Prototyping

Building on the design foundation, the prototyping phase involves the development of a "vertical slice": a short (5–10 minutes), tightly polished, proof-of-concept that showcases the core goals of the VR experience. This phase will involve the creation of a believable environment that tells a story through its environmental design. Key to this will be the implementation of "anti-ludic" mechanics, such as limited movement options, simple item interactions, and morally ambiguous decision making. Of considerable importance is sound design, crafting a soundscape that conveys the conflict without traditional narrative exposition. This development will be

iterative, with regular prototype builds testing for alignment with the design framework and performance.

4.4 User Evaluation

The final evaluation phase will involve a small qualitative user study to gather data on the prototype's effectiveness in subverting the ludic gaze and in embodying a civilian-centred perspective. A study of 5–10 participants with prior VR experience will be conducted. Each participant will experience the prototype before participating in a semi-structured interview, designed to ask for their interpretations of the experience, their feelings about agency and vulnerability, and their emotional responses. This data will be used to critically evaluate the initial set of design principles and to inform the final iteration of the Anti-Ludic design framework, which will be a key outcome of this research.

4.5 Ethics and Data Privacy

As this project involves human participants and a potentially distressing subject in war and armed conflict, ethics approval will be sought through the Monash University Human Research Ethics Committee (MUHREC) prior to data collection. The primary ethics risk is psychological distress, which will be mitigated through an informed consent model. Participants will receive a plain language statement of the project, its aims, and the nature of the experience. All participants' written consent will be required before participation. During evaluation, participants will be informed of their right to withdraw from the study at any time, for any reason. All raw data, including interview recordings and transcripts, will be anonymised to protect participants and deleted following transcription and analysis.

5 Conclusion

This report has analysed how the form of interactive media in its structural affordances perpetuates a "ludic gaze" that systematically detaches players from the human cost of war. The literature review has traced the origins of this gaze to the political, economic, and cultural co-production mechanisms of the military-entertainment complex, showcasing how militarised sociotechnical imaginaries are embedded in technology and popular culture. This report's analysis of media form and existing anti-war works has identified that while virtual reality can amplify user detachment, its unique affordances for presence and immersion are yet underexplored, and have the potential for subversion. The proposed research project, utilising a Research through Design methodology, aims to create and evaluate a "critical prototype," addressing not only the gap in the literature, but will also develop a transferable "Anti-Ludic" design framework. Ultimately, this project will aim to explore immersive technology not as a tool for escapism, but as a medium for critical reflection on the representation of conflict, and the ethics of interactive engagement.

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