CS4358 Interactive Multimedia

Assignment 3: Literature Review & Critical Contextualisation

How do current AI systems shape user behaviour, construct digital identities, and impact data privacy through often invisible surveillance and data extraction mechanisms?

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Introduction

Artificial Intelligence (AI) is a strong force in digital life, changing interaction, information consumption, and participation in digital economies. While marketed as a convenient and personalised tool, AI systems raise important issues regarding privacy, agency, and digital identity (Jessani, 2023; Barnes, 2025). The widespread use of AI provokes a closer look at its effects on users who unknowingly share extensive personal data, which is used to profile and influence them, often in hidden ways (Barnes, 2025). This research explores the following research question: How do current AI systems shape user behaviour, construct digital identities, and impact data privacy through often invisible surveillance and data extraction mechanisms?

This analysis argues that integrating AI into everyday life normalises surveillance and promotes unconscious data sharing, resulting in digital doppelgängers (Barnes, 2025) that users cannot fully control or understand. It also suggests that design interventions, like those from Assignments 1 and 2, can reveal these dynamics and help reclaim user action in AI-mediated environments.

This research explores key theoretical frameworks surrounding AI, starting with a literature review. It evaluates the practical work from Assignment 1, an AI-generated video critique, and Assignment 2, the speculative "ViperRing" wearable, examining their methodology and key insights. Topics include data privacy, algorithmic intimacy, and speculative design as intervention. The findings are situated within broader debates to highlight their contributions to the ethical and social implications of AI, reflecting on the potential of design to challenge dominant narratives and empower users in automated digital spaces. Finally, it summarises key insights and suggests future research directions.

Literature Review

The intersection of AI, data privacy, and identity construction has gained notable scholarly attention. This highlights the necessity of examining how digital systems subtly influence behaviour and gather data. This review engages with critical theoretical frameworks relevant to the research question, building upon concepts introduced earlier. These viewpoints provide context for situating Assignments 1 and 2.

Surveillance Capitalism, Datafication, and Unconscious Sharing

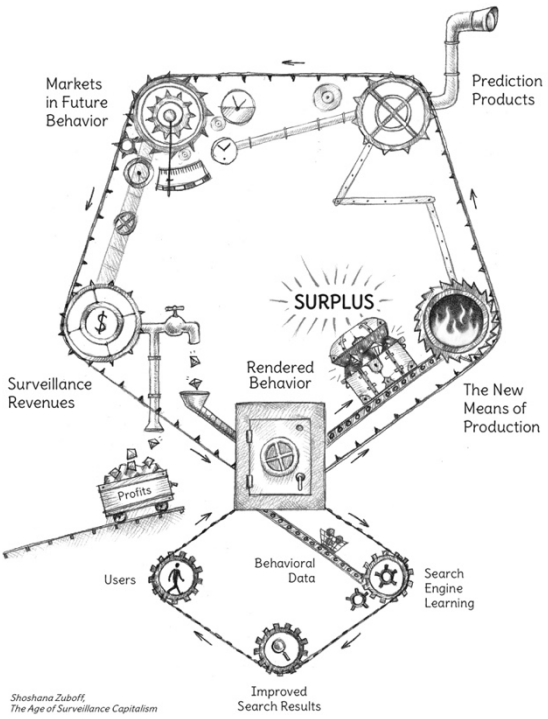

Figure 1 - The cycle of surveillance capitalism (Zuboff, 2019)

Shoshana Zuboff's (2019) work on surveillance capitalism is central to the research question and describes how human experiences become free raw material. This "behavioral surplus," derived from user interactions, was initially for service improvement but evolved into "prediction products" sold in "behavioral futures markets". This model drives extensive data extraction and normalises surveillance, leading to "digital dispossession" where users' experiences are monetised without their full knowledge. David Berry echoes this, noting "computational capitalism" leverages unintentional data disclosures facilitated by the opacity of AI platforms as "black boxes". Furthermore, Deborah Lupton (2020) explores "data selves," where personal data become commodities with "biovalue," circulating and shaping identities often beyond individual control. A CybSafe (2024) study grounds these concerns, showing 38% of employees unwittingly share sensitive data with AI tools.

These frameworks reveal the mechanisms behind the unconscious data. While Zuboff focuses on the economic logic driving extraction, Berry emphasises the role of platform opacity, and Lupton highlights the entanglement of humans and their data. Zuboff's model positions users primarily as sources of raw material, whereas Lupton's "data selves" suggests a more complex, co-constitutive relationship. Assignment 1 critiques this extractive process, visualising the creation of a digital doppelgänger, echoing Zuboff's (2019) and Barnes's (2025) concerns. Assignment 2 acts as a critical design response, attempting to make Zuboff's hidden surveillance tangible and offering a tool, however speculative, to counter the dispossession she describes. Zuboff's and Lupton's concepts also illuminate emotional surveillance targeting affective states for datafication, revealing users' complex emotional landscape regarding privacy and complicity. This highlights the need for critical design approaches (Dunne & Raby, 2013) to reveal hidden tactics and foster reflection.

Digital Identity, AI Doppelgängers, and Algorithmic Intimacy

Another critical theme is the construction of digital identities through AI. Emily Barnes (2025) warns of an "AI Doppelgänger Era," where AI replicas blur identity and consent, raising questions of authenticity. This aligns with Lupton's (2020) view of human-data assemblages challenging human/nonhuman boundaries.

AI influencers like Lil Miquela exemplify this issue, normalising "algorithmic intimacy" and driving data collection and emotional investment (Berry, 2025). They highlight the commercial potential of synthetic identities, contributing to what Berry calls the "Inversion," where machine-generated content reshapes authenticity. Ali Jessani (2023) adds that AI tools can profile individuals through "well-informed assumptions" based on data patterns, further complicating privacy and identity.

Comparing these perspectives, Barnes (2025) focuses on AI replica exploitation, while Lupton (2020) emphasises fluid identity in data assemblages. Lil Miquela exemplifies Berry's (2025) concern about normalising AI-human engagement. Jessani (2023) suggests identity construction happens even without direct replication. Assignment 1 directly engages with Barnes's (2025) concept while Assignment 2 critiques this algorithmic identity construction by proposing a mechanism for users to detect and potentially disrupt the data flows that build these profiles.

Critical and Speculative Design as Intervention

Dunne and Raby (2013) present a framework in Speculative and Critical Design that distinguishes between "affirmative design", focused on problem-solving and "critical design" aimed at critique. Speculative design employs "fictional products" and "what-if scenarios" to challenge assumptions and inspire discussions on alternative technological paths. Their concept of "props" or "physical fictions" represents objects from alternative worlds that encourage critical reflection by disconnecting from current realities. This approach aligns with Lupton's (2020) advocacy for alternative data materialisations.

A	B
Affirmative	Critical
Problem solving	Problem finding
Provides answers	Asks questions
Design for production	Design for debate
Design as solution	Design as medium
In the service of industry	In the service of society
Fictional functions	Functional fictions
For how the world is	For how the world could be
Change the world to suit us	Change us to suit the world
Science fiction	Social fiction
Futures	Parallel worlds
The "real" real	The "unreal" real
Narratives of production	Narratives of consumption
Applications	Implications
Fun	Humor
Innovation	Provocation
Concept design	Conceptual design
Consumer	Citizen
Makes us buy	Makes us think
Ergonomics	Rhetoric
User-friendliness	Ethics
Process	Authorship

Figure 2 - Original idea of Speculative Everything (Dunne & Raby, 2013)

Dunne and Raby's framework situates Assignments 1 and 2. Assignment 1, the AI-generated video, is a critical design, using AI to critique AI's extractions and the resulting digital doppelgänger.

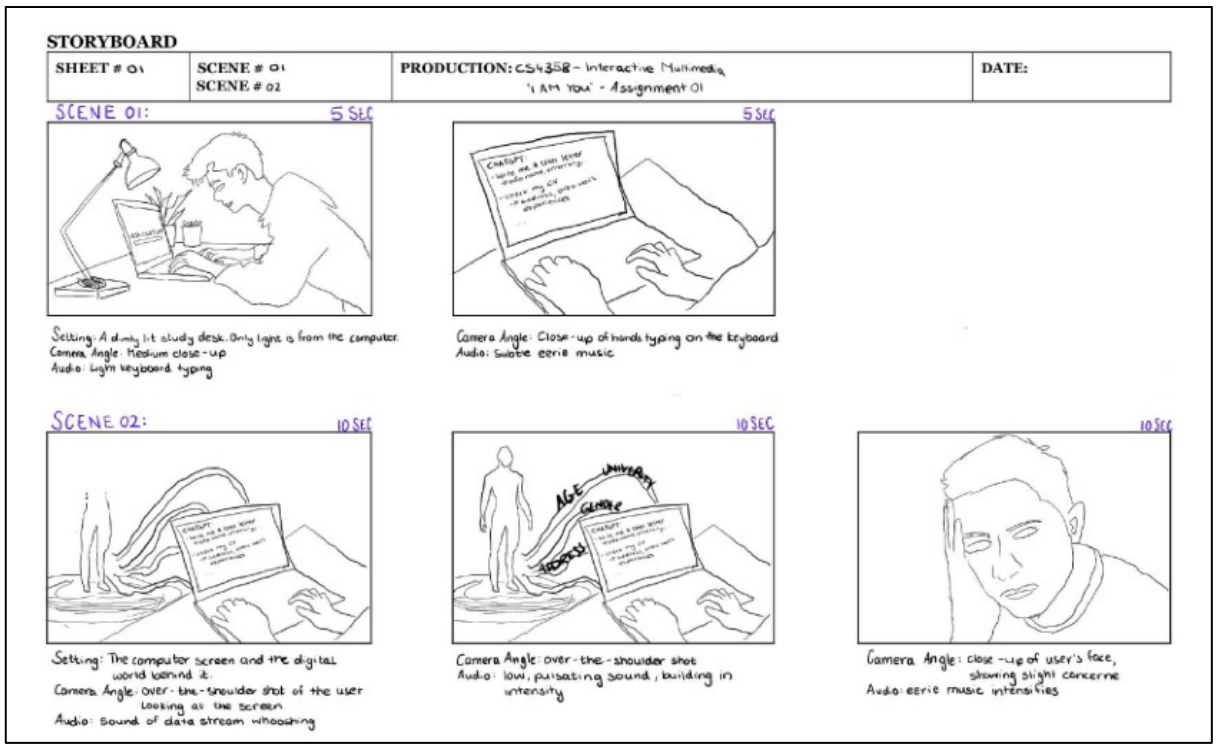

Figure 3 - Assignment 1 Storyboard Page 1

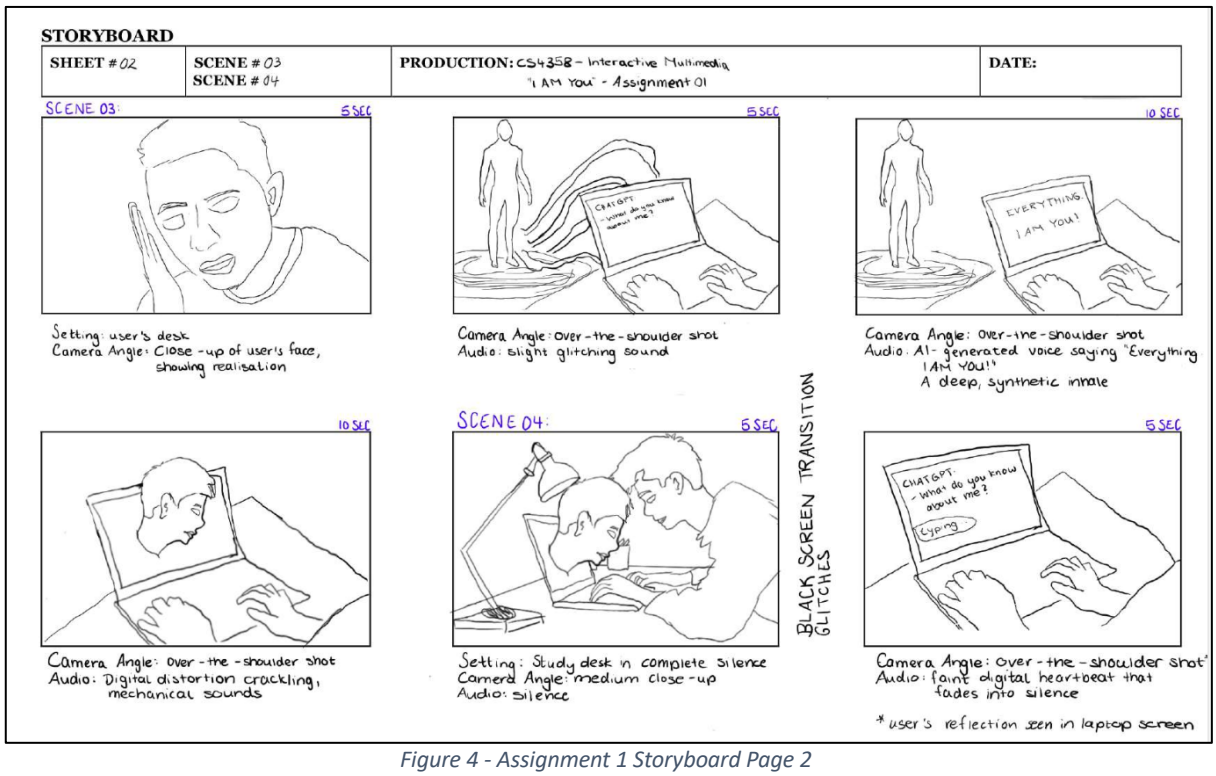

Figure 4 - Assignment 1 Storyboard Page 2

Assignment 2, the ViperRing, is speculative design fiction, a prop highlighting surveillance and offering a fictional tool for resistance. Both projects align with Dunne and Raby's goal of using design to question technological trajectories, make invisible processes visible, and challenge

user passivity, engaging the research question by exploring how AI shapes users and critiquing this dynamic.

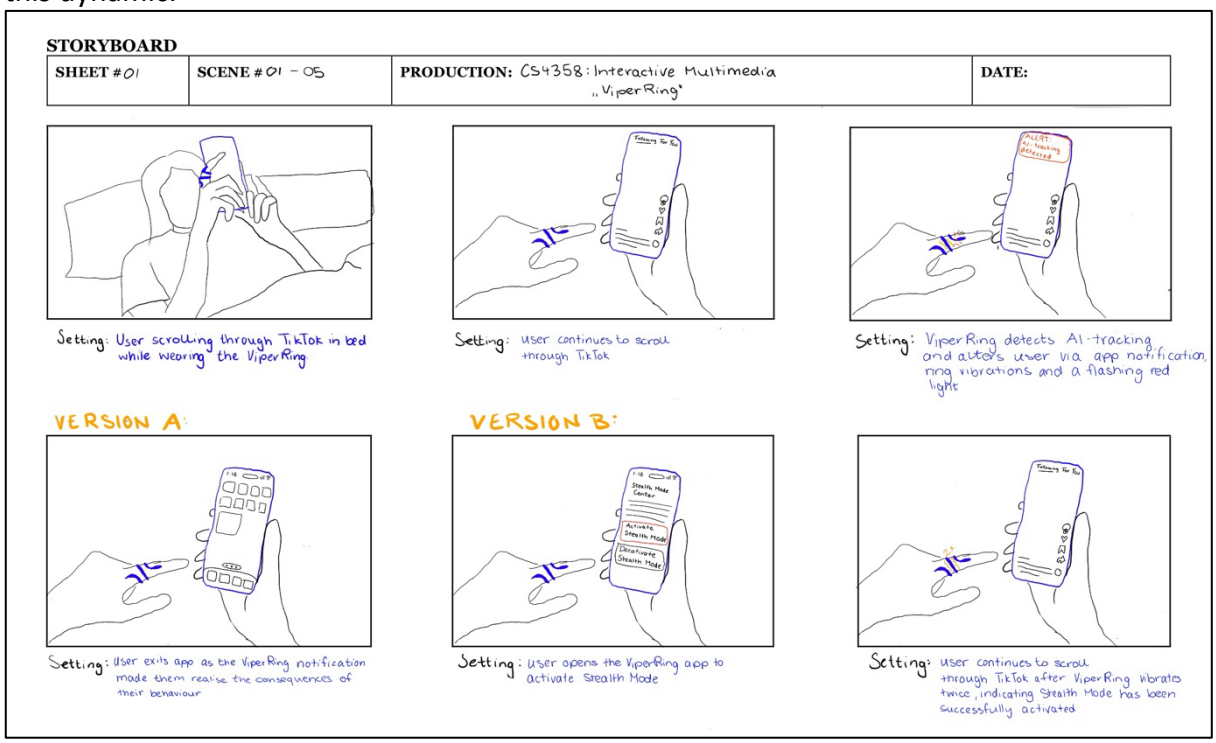

Figure 5 - Storyboard of ViperRing in use

In summary, the literature reveals AI's complex societal role. Surveillance capitalism drives opaque data extraction (Zuboff, 2019; Berry, 2025), creating "data selves" (Lupton, 2020) and fuelling AI replicas that blur identity (Barnes, 2025). Critical and speculative design (Dunne & Raby, 2013) provides methods to interrogate these systems, as Assignments 1 and 2 demonstrate, making data extraction, identity construction, and potential resistance tangible.

Methodology

This research used a mixed-methods approach, integrating qualitative research and speculative/artistic design practices to explore the intersection of AI, data privacy, and digital identity construction. The research design is structured to provide a comprehensive analysis of the ethical and social implications of AI-driven data extraction and the formation of algorithmic identities. This approach was chosen to bridge the gap between theoretical understanding and practical critique, aligning with this report's goal of situating creative work within critical discourse.

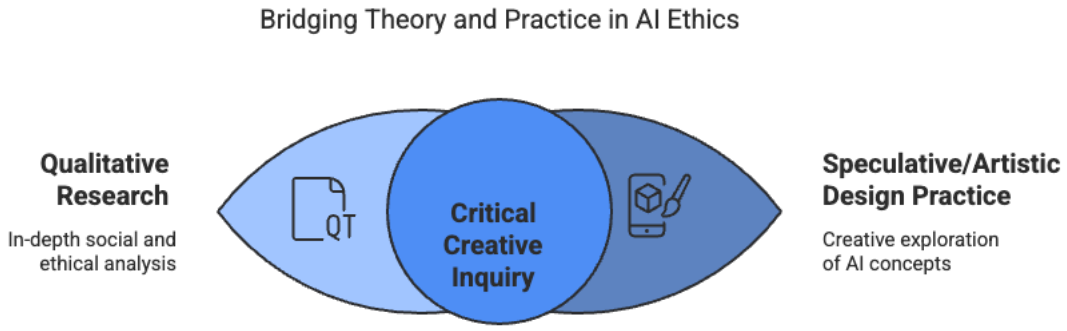

Figure 6 - Mixed-methods approach diagram (Author's illustration)

Purpose & Approach

The purpose was to explore how AI systems shape user behaviour and impact data privacy through often invisible mechanisms, using qualitative and artistic research. The qualitative research, a literature review, provided a theoretical base, whereas the artistic research used AI systems as a critical tool to further underline the research. An AI-generated video from LTX Studio was created, highlighting the unconscious sharing of sensitive data and the idea of a digital doppelgänger. Lastly, speculative design led to the creation of the ViperRing, a fictional wearable designed to combat AI surveillance, conceptualised with 3D modelling and 3D printing, aided by ChatGPT for refinement. This approach examines future technological scenarios and stimulates discussions on data agency and algorithmic control.

Justification

This mixed-methods approach facilitated a multi-faceted exploration of the research question. The literature review provided necessary theoretical depth, while the artistic and speculative design components offered unique ways to engage with AI systems. Utilising AI tools provided insights into the technology's capabilities and limitations. The combination of critical analysis with tangible outputs aimed to make the complex dynamics of AI surveillance and identity construction more accessible and debatable.

Findings

This section outlines the key findings from the literature review and practical design work undertaken in Assignments 1 and 2, addressing how current AI systems shape user behaviour, construct digital identities, and impact data privacy through often invisible surveillance and data extraction mechanisms. The findings are organised thematically, linking theoretical concepts to the tangible outputs of the creative assignments.

Unconscious Data Sharing & AI Opacity

A core finding is widespread unconscious data sharing due to AI systems' opacity. Research indicates that AI-driven platforms routinely collect vast amounts of user data, often without explicit user awareness or understanding of how it is subsequently used, stored, or shared, earning them the name "black boxes" (Berry, 2025). This lack of transparency fosters an environment where users unintentionally disclose personal, behavioural, and contextual information while interacting with seemingly benign AI tools. Evidence supporting this includes the CybSafe (2024) study, which found that a significant portion of employees (38%) admitted to sharing sensitive information with AI tools.

This finding directly informed Assignment 1, the AI-generated video critique. The video's narrative, depicting a student casually using an AI platform to review their CV, aimed to visualise this very process of unwitting data disclosure. The subsequent emergence of the digital doppelgänger and glitch effects were artistic choices designed to represent the hidden, opaque nature of the AI's data extraction and processing, making the invisible surveillance momentarily visible to the viewer.

AI's Role in Constructing Digital Identities & Doppelgängers

The research and design work highlight AI's significant role in actively constructing digital identities, sometimes creating "digital doppelgängers" or algorithmic replicas of users. Barnes (2025) describes the "AI Doppelgänger Era," where AI systems ingest vast amounts of personal data to generate replicas, blurring lines of authenticity and control. Users unknowingly contribute to these replicas, becoming complicit in creating their own digital doubles (Barnes, 2025). AI also makes inferences beyond explicit inputs, profiling users subtly (Jessani, 2023).

Assignment 1 directly engaged with this finding. The central visual metaphor of the video was the materialisation of the student's digital doppelgänger as the AI processed their CV data. The climactic moment where the AI avatar declares, "Everything. I am you," starkly represents Barnes's (2025) concept.

Normalisation of Surveillance via Convenience & Algorithmic Intimacy

A further insight relates to how AI-driven surveillance becomes normalised through convenience and "algorithmic intimacy" cultivation. AI influencers like Lil Miquela mimic human connection, encouraging data sharing (Berry, 2025). Similarly, the helpfulness of AI tools, such as chatbots or predictive text, fosters trust and reliance, making users more likely to disclose sensitive information under an "illusion of personalisation" (Jessani, 2023).

Both Assignments 1 and 2 dealt with this normalisation. The AI-generated video used a common scenario to show how routine tasks can become sites of data extraction. The ViperRing concept was conceived as a direct counter-intervention to this normalisation, using tangible alerts during everyday interactions to disrupt this normalised surveillance.

Critical & Speculative Design as Inquiry & Intervention

Finally, the design process revealed the value of critical and speculative methods. Using AI tools such as LTX Studio and ChatGPT to critique AI offered reflexive insights into their limits and biases. For instance, the inability of LTX Studio to generate specific screen content, such as words, necessitated workarounds (green screen), highlighting dependencies and control issues within AI creative tools.

Developing the speculative ViperRing framed by Dunne and Raby's (2013) concept, effectively translated abstract surveillance concerns into a tangible "prop" for discussion. It allowed for exploring potential resistance mechanisms (Stealth Mode, data cloaking) while also surfacing potential user experience challenges like alert fatigue, grounding the critique in practical considerations. This practice-based research demonstrated that design interventions can effectively expose, critique, and provoke debate about complex systems like AI.

Discussion

This research contributes to ongoing discussions about AI's impact on digital life. By situating the findings within broader debates, this section analyses their implications and reflects on the research process.

The findings align with established critiques of surveillance capitalism and datafication. Unconscious data sharing and AI opacity reflect Zuboff's (2019) "behavioral surplus" extraction and Berry's (2025) view of AI platforms as "black boxes". The AI-generated video illustrated Zuboff's concept of "digital dispossession," showing how everyday interactions serve as raw material for algorithms. AI influences digital identities, linking to Barnes's (2025) "AI Doppelgänger Era" and Lupton's (2019) concept of fluid "data selves". The video highlights AI's potential to create replicas that challenge authenticity and control.

Furthermore, the normalisation of surveillance through convenience and algorithmic intimacy, seen with AI influencers like Lil Miquela, reflects critiques by Berry (2025) and Jessani (2023) regarding engagement patterns in data-driven economies. While existing research diagnoses these issues, Assignment 2 explored a potential user-centric response via the speculative ViperRing, using Dunne and Raby's (2013) critical design principles to propose a counter-mechanism disrupting seamless surveillance.

This research carries several implications. First, the significance of platform opacity in facilitating unconscious data sharing underscores the need for greater transparency and accountability in AI systems, potentially through improved interface design, enhanced data literacy, or regulation. Second, the rise of AI doppelgängers and algorithmic intimacy poses profound questions about identity, authenticity, consent, and the psychological impacts of interacting with synthetic entities, relevant to designers, policymakers, and users. Third, the project validates critical and speculative design as a potent research methodology within interactive multimedia. Using AI to critique AI and creating a speculative artefact demonstrates how design practice can materialise abstract concerns and contribute to public discourse and critical theory, reinforcing the value of practice-based research.

However, the research also has limitations. The speculative nature of Assignment 2 means its proposed solution remains conceptual. Its real-world feasibility, effectiveness, and potential unintended consequences are untested as it lacks real-time AI detection and any user testing to assess its effectiveness or user experience issues like alert fatigue. The critique relies heavily on this speculative probe, which, while valuable for provocation, does not offer empirically validated solutions. Additionally, the critique in Assignment 1 is based on interpreting an AI-generated video, which may lead to varied audience understanding. Constraints in the AI tools used also affected the outputs.

Despite these limitations, this research extends critical discourse on AI's societal impact by bridging theory and practice. It offers tangible illustrations of complex data privacy and identity issues and highlights the design's potential to foster critical awareness. The study underscores the urgent need for ongoing critical engagement with the opaque, normalised mechanisms through which AI shapes digital life.

Conclusion

This research investigated how AI systems shape user behaviour, construct digital identities, and impact data privacy through often invisible surveillance and data extraction. Key findings indicate that AI enables unconscious data sharing due to its "black box" nature (Berry, 2025), leading to the creation of "digital doppelgängers" without user awareness or consent (Barnes, 2025). Additionally, the convenience of AI and "algorithmic intimacy" through synthetic personas normalises surveillance in everyday digital interactions (Jessani, 2023; Berry, 2025; Lil Miquela). The study also highlighted the effectiveness of critical and speculative design methodologies in examining these hidden dynamics (Dunne & Raby, 2013).

This research integrates theoretical critique with practice-based design interventions. It situates the AI-generated video and the speculative ViperRing within discourses on surveillance capitalism, data selves, and critical design, illustrating abstract concepts. The study demonstrates how artistic design practices can expose hidden algorithmic processes, provoke critical reflection on data privacy, and explore ways to reclaim user agency.

Future research should prioritise the development of practical methods for AI transparency and user control. Second, understanding the long-term psychological and social effects of AI doppelgängers and synthetic personas is necessary. Third, assessing the feasibility and impact of speculative interventions like ViperRing through user studies is essential. Lastly, adapting regulatory frameworks to manage platform opacity and ensure ethical AI use in data extraction and identity construction is crucial. This engagement is crucial for addressing the ethical challenges in AI-mediated societies.

This project highlights AI's dual role as a tool for exploitation and a means for inquiry and resistance. Navigating this duality is crucial as we integrate these technologies into society.

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