

Ethotic Heuristics in Artificial Intelligence:
A Rhetorical Framework for Guiding Responsible Data Design Praxis
in
Healthcare and Surveillance

by

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Author's Declaration

This thesis consists of material all of which I authored or co-authored: see Statement of Contributions included in the thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

Statement of Contributions

This dissertation makes original contributions to the interdisciplinary study of artificial intelligence, rhetoric, and human-centered design. The candidate introduces the concept of algorithmic ethopoeia as a rhetorical framework for analyzing how AI systems perform moral characterization through data practices, design choices, and institutional logics. This framework extends existing scholarship on algorithmic bias and ethics by theorizing AI systems as rhetorical actors that construct and circulate character representations independent of the individuals from whom data are derived.

The dissertation further contributes a set of ethotic heuristics for AI-powered design, translating rhetorical theory and feminist data studies into an applied analytic framework. These heuristics identify ethical intervention points across the AI system lifecycle and address a gap between critical theory and design practice in AI and data-driven systems.

Through case-based rhetorical analysis, the candidate provides original insights into AI-driven human–computer interaction, women’s health technologies, and surveillance systems, with particular attention to issues of proxy representation, consent, and risk in post–Roe v. Wade contexts.

Portions of the theoretical framework draw on collaborative scholarship. “Sex After Technology” was co-authored with Dr. Randy Allen Harris, and the “Rhetoric of Surveillance” chapter was co-authored with Dr. Lai-Tze Fan. In both cases, the candidate was the primary contributor, responsible for conceptual development, theoretical framing, rhetorical analysis, and manuscript drafting. All arguments and interpretations presented in this dissertation reflect the candidate’s independent scholarly contribution and comply with the regulations

Abstract

This thesis investigates the convergence of artificial intelligence (AI), human-centered design, and rhetoric across three interconnected essays.

This dissertation centers on design heuristics as its primary analytic and unifying framework, drawing from traditions such as Data Feminism and rhetorical inquiry. It explores three interrelated domains: (1) AI-driven human-computer interaction (HCI) design; (2) the implications of AI-powered design for women’s health privacy, particularly in the post-*Roe v. Wade* U.S. context; and (3) critical discourse surrounding AI in surveillance technologies. Using a multi-method approach—including rhetorical analysis, Critical Discourse Analysis (CDA), case studies, and stakeholder perspectives—this research interrogates how AI systems construct algorithmic ethopoeic representations that commodify user data.

The first essay introduces a set of practical heuristics for HCI designers by integrating principles from Design Thinking, thereby fostering ethical dialogue, and strengthening human-centered approaches in the context of rapid AI development. The second essay employs rhetorical analysis to examine the construction of “algorithmic ethopoeia”—the process through which AI systems perform moral characterization through data practices, design choices, and institutional logics—within sensitive socio-technical domains. Algorithmic ethopoeia is a concept central to this dissertation and is defined in more detail on page 3 of this essay. By foregrounding this concept, the essay emphasizes the urgent need for robust protections surrounding personal data integrity and highlights how algorithmic systems actively participate in shaping judgments about identity, risk, and responsibility. This section, grounded in Data Feminism, empowers designers, activists, and policymakers to advocate for more secure and transparent AI applications, particularly in the domain of women’s

health privacy. The final essay employs CDA¹ to critique the discourse surrounding AI-driven surveillance, focusing on predictive policing and facial recognition technologies. Through the analysis of competing narratives and stakeholder perspectives, it reveals ethical dilemmas related to systemic biases and authoritarian practices, arguing for rigorous oversight and regulatory frameworks. Surveillance contextual heuristics are proposed to guide the responsible deployment of AI in public safety while safeguarding civil liberties.

Collectively, these investigations underscore the imperative for ethical, context-sensitive, and rigorously informed design heuristics to guide the responsible integration of AI across diverse domains. They advance the discourse on user privacy, regulatory compliance, and human-centered innovation, while simultaneously promoting the development of design practices that are both ethically sound and equitable.

¹ Critical Discourse Analysis (CDA) is a qualitative research approach examining how language, power, and ideology interact in social practices. For foundational discussions of CDA, see Fairclough (1989) *Language and Power* and Wodak & Meyer (2009) *Methods of Critical Discourse Analysis*.

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I am deeply grateful to the many individuals and institutions that have supported me throughout the journey of writing this thesis. First, I extend my heartfelt thanks to my academic supervisors, Dr. Randy Harris and Dr. Lai-Tze Fan, whose invaluable guidance, constructive feedback, and unwavering encouragement have been instrumental in shaping this work. Their insights and support have profoundly enriched both the academic rigour as well as the creative direction of my research. I am also sincerely appreciative of my committee members, Dr. Marcel O’Gorman and Dr. Danielle Deveau, whose insightful comments and expertise guided the trajectory of this project, offering essential perspectives that have deepened and expanded my work. Further, to be given the opportunity to exercise my scholarship in their classrooms through teaching assistantships and guest lecturing was hugely beneficial.

I thank Dr. Robert W. Gehl, External Examiner, and Dr. Kim Hong Nguyen, Internal–External Examiner, for their careful engagement, insight, and scholarly contributions. I am grateful to the University of Waterloo for its financial support, to the English Department’s administrative staff for their guidance, and for the support made possible through teaching and research appointments and graduate awards. I also thank my program cohort and the Rhetoric Agraphia team—Dr. Kyle Gerber and Dr. Monique Kamphern—for their collegiality, friendship, and intellectual community.

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AI?’² This experience proved intellectually and experientially formative, deepening my understanding of the broader narratives shaping contemporary AI discourse and meaningfully informing the questions and concerns this research seeks to address.

I am grateful to those who supported and participated in the inaugural AI Global South Summit, including Mr. Fabien Anthony, Chairman of the Pan African Council; The Right Hon. Philip J. Pierre, Prime Minister of Saint Lucia; His Excellency Dr. Didacus Jules of the OECS; and academic peers and colleagues from UNESCO, iDERA, and global NGOs..

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– *Kem-Laurin Lubin*

² <https://youtu.be/7p4m1snWjOA?si=Ued1DKXIBoD6c8al>

Dedication

May this work contribute to thoughtful dialogue on artificial intelligence, policy, and governance—particularly for those who will inherit and shape the future. May its influence help advance equity and collective responsibility for all.

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List of Abbreviations

Below is the List of Abbreviations used in this dissertation.

AI - Artificial Intelligence

AI-HCI - Artificial Intelligence-Human Computer Interaction

CDA - Critical Discourse Analysis

CIA - Central Intelligence Agency

DF - Data Feminism

HCI - Human-Computer Interaction

IDA - Ideological State Apparatus

IP - Intellectual Property

MIT - Massachusetts Institute of Technology

OECS - Organization of Eastern Caribbean States

OGS - Ontario Graduate Scholarship

PGS - President's Graduate Scholarship

QEII-GSST - Queen Elizabeth II Graduate Scholarship in Science and Technology

RSQ - Rhetoric Society Quarterly

SCOTUS - Supreme Court of the United States

SIDS - Small Island Developing States

UNESCO - United Nations Educational, Scientific and Cultural Organization

UX - User Experience

DOGE – Department of Government Efficiency

iDERA – International Development Empowerment and Representation Agency

HCI – Human-Computer Interaction

HCII – Human-Computer Interaction International

MLA – Modern Language Association

ACLU – American Civil Liberties Union

APA – American Psychological Association

Chapter 1 Introduction

In 2017, the conservative governor of Salta Province in Argentina announced a groundbreaking but controversial initiative: leveraging artificial intelligence (AI) to predict teenage pregnancies.

Partnering with a major tech company, this program claimed it could forecast, years in advance, which young girls were “predestined” for teenage motherhood—revealing their names, addresses, and demographic profiles. Marketed as a tool for preventive health, the initiative instead raised deep concerns about surveillance, privacy, and data ethics, centered around the identification and singling out of specifically chosen demographics—in this case, young girls. Critics argued that this “Technological Platform for Social Intervention” was an invasive mechanism, designed to monitor and control the bodies of young girls, potentially reinforcing discriminatory biases under the guise of social intervention. Feminist scholars and activists (D’Ignazio & Klein, 2020) have questioned the implications of entrusting sensitive aggregated personal data to AI systems that are underpinned by biased assumptions and driven by opaque interests.

Such recent cultural examples exemplify the crux of this project: this dissertation explores the intersections of human data usage across critical sectors, including health monitoring, AI-powered surveillance, and digital privacy, revealing the risks posed by AI technologies when implemented without robust ethical safeguards. In domains such as reproductive health and public safety—the primary focus of this thesis, AI-driven applications often commodify aggregated personal data in ways that remain largely opaque to users. Consequently, these systems should prioritize “fairness, accountability, and transparency” to mitigate potential risks (D’Ignazio & Klein, 2020). This research employs case studies, including Argentina’s predictive policing platform and an analysis of the surveillance rhetoric surrounding predictive policing practices to demonstrate how AI, as deployed in data design systems, and often touted as a tool for social improvement or public security, not only

intensifies surveillance efforts targeting marginalized communities but also amplifies existing societal power imbalances.

AI, often framed as a tool for social progress and public security, paradoxically deepens surveillance infrastructures by disproportionately targeting marginalized communities through algorithmic bias, predictive policing, and data-driven discrimination. As Safiya Noble illustrates, search algorithms and AI-powered platforms are not neutral; instead, they reflect and reinforce systemic inequities by surveilling and categorizing marginalized groups in ways that perpetuate racial and gendered “oppression” (Noble, 2018). Similarly, Ruha Benjamin critiques the “New Jim Code,” wherein automated decision-making systems inherit and exacerbate historical patterns of discrimination, embedding racial biases into ostensibly objective technologies used in policing, social services, and border control (Benjamin, 2019).

These AI-driven surveillance mechanisms often operate under the guise of neutrality, yet they amplify pre-existing social hierarchies, subjecting historically marginalized populations to heightened scrutiny, exclusion, and control. Much of this marginalization is enabled using human data and commodified in what Shoshana Zuboff frames as a form of ‘surveillance capitalism’ implying that tech companies are always watching us (Zuboff, 2019). By examining the commodification and manipulation of personal data within these technologies, this study emphasizes the critical need for ethical frameworks and strong regulatory oversight to protect privacy and uphold individual agency in an increasingly data-driven world. In this context, “critical” transcends its conventional meaning to signal both the urgent call for intervention and the deployment of rigorous methodologies that interrogate entrenched power structures.

It interrogates dominant techno-deterministic narratives as they circulate within critical media studies and subsequently become animated through marketing discourse in service of prevailing

policy frameworks, while advocating for a transformative reimagining of AI governance grounded in equity, transparency, and accountability.

Before engaging with the central arguments of this thesis, it is essential to contextualize the transformative and multifaceted nature of AI, which forms the foundation of this research.³ This framing aims to facilitate cross-disciplinary comprehension. Through this thesis, I will explore AI and demonstrate its impact in two focal areas, healthcare and surveillance, keeping an eye always on its dangers as well as its potentials. By doing so, I aim to provide a nuanced understanding of AI's multifaceted nature and its implications for society.

Like many scholars in this emergent field of inquiry, I must acknowledge that at the inception of my academic journey, I did not fully comprehend the profound impact and scale of AI-powered technologies, particularly in terms of their impact on human identity and characterization, or what I have termed algorithmic ethopoeia⁴ – “the mathematizing of human data for the purpose of digital representation and characterization, through the processes of data collection, sorting, and targeting, with subsequent subjugation to algorithmic procedures and decision-making protocols.” For instance, health monitoring apps increasingly serve as instruments of reproductive surveillance, raising concerns about data privacy and state control (Lubin and Harris 252).

While one dimension of this phenomenon entails the mathematical encoding of language (through vectors that represent words and their relations), my central focus here concerns the broader framing of algorithmic systems—often presented as ‘understanding’ and ‘anticipating’ our needs rather than constraining them, selling them for profit, or enabling ideological actors to exert control.

³ This framing follows my presentation at an MIT Lightning Talk, themed “Forging the Future of Business with AI,” held on April 18, 2024.

⁴ See Appendix A for visual and tabular frameworks illustrating algorithmic ethopoeia. These materials are adapted from figures developed for the oral defence presentation and are included here to clarify the operational mechanics of the framework.)

This scholarly journey has evolved into an exploration of emergent concepts at the intersection of technology and some of our most fundamental societal practices. At the heart of this investigation are two guiding concerns: the shifting question of what AI is and the broader implications of what AI does—or more precisely, the new possibilities and social transformations it enables. These concerns frame the research rather than define questions it seeks to answer directly.

By posing these foundational questions, it becomes evident that language, in all its forms, is central to the conceptualization of AI, serving as a crucial medium for understanding both its essence and its capabilities within the context of human characterization. This insight is encapsulated in the phrase, “you have to name it to frame it,” underscoring the notion that language not only captures but also actively shapes the trajectory of AI’s evolution. To effectively interrogate and analyze AI, language thus becomes the essential tool that allows us to envision, define, and articulate AI’s potential and its varied applications across domains. The opening chapter, informed by my professional background as a technology designer, “Conversations Towards Practiced AI – HCI Heuristics,” establishes a crucial foundation by presenting a strategic approach to critically engage with the AI-driven systems examined in the two latter chapters. Drawing on both some academic research and direct professional experience in technology design, “Conversations” offers a systems designer’s perspective⁵ on applying theoretical frameworks in real-world scenarios to address the dynamic landscape of AI.

Chapters 3 and 4 provide a detailed exploration of AI technologies and their significant societal impacts. Chapter 3, titled “Sex After Technology: The Rhetoric of Health Monitoring Apps and the Reversal of Roe vs. Wade” (Lubin and Harris), critically examines AI’s complex role in healthcare, focusing on issues of personal identity, autonomy, and the ethical implications of health monitoring

⁵ Of relevance is my professional background as a design leader and researcher at several multinational corporations—among them Research in Motion, Siemens AG, and Autodesk. This industry-based perspective, homed in diverse commercial contexts, informs my scholarly approach and underlines the practical dimensions of design research

technologies. In contrast, Chapter 4, titled “Rethinking the Rhetoric of Surveillance in Public Safety: A Critical Discourse Analysis”, employs Critical Discourse Analysis (CDA) to investigate the ethical dimensions of AI-driven surveillance. It critically examines conflicting narratives of technological advancement and privacy protection, highlighting the tensions between industry self-regulation and the necessity for government oversight. This chapter emphasizes the ethical stakes of AI-powered surveillance, assessing its capacity to increase authoritarian control, reinforce systemic biases, and enable abuses of power, especially within law enforcement and population management. Together, these chapters engage with the guiding question, *“How might we critically examine the textual infrastructures that shape these technologies?”*

Through this exploration, they shed light on the profound impacts of AI powered design systems (healthcare apps or facial recognition systems, for example) on identity, privacy, and societal governance, presenting a thorough critique of the power dynamics embedded within AI’s influence across both public and private domains. This inquiry returns to the foundational question: What is AI, and what does it truly embody in our contemporary world?

1.1 From Kitchen to Code: Bridging Metaphors, Rhetoric, Computation, & AI Design

Imagine, for a moment, being abducted by aliens and transported to a planet that vaguely resembles Earth. On this strange world, you are suddenly assigned the role of head chef for a high-stakes event—akin to a major tech product launch. You are promised a handsome payment, but there is a catch: you must create a recipe using unfamiliar ingredients from an alien garden, with spices and tools from a kitchen entirely foreign to you. This recipe, in a sense, mirrors the challenge of building AI models. The stakes are high, and any mistake could have dire consequences. On Earth, you may not be a Cordon Bleu chef, but you know your way around a kitchen. You are familiar with basic

ingredients like carrots, onions, and garlic, with the essential spices of salt and pepper, and you know the difference between an oven and a sink, a pot, and a pan. However, in this alien kitchen—an analogy to the digital realm, everything is deceptively familiar yet fundamentally different.

Vegetables here are distorted in colour and shape, utensils are oddly shaped, dials are misplaced and unresponsive, and the cooking plates spin of their own accord. Resources are scarce, compelling you to scavenge, pilfering ingredients from neighboring kitchens, purchasing items on the illegal market, and rummaging through bedrooms and bathrooms for anything that might add substance or flavour to your dish. This relentless quest for more ingredients mirrors the constant pursuit of accumulating data to inform and enhance desirable intellectual property (IP).

The outcome of this meal is crucial. Serve the wrong thing, and your diners—who represent society—might descend into chaos, in the form of panic, aggression, or despair. The event could spiral into anarchy, at worse. But the money is irresistibly good, so you pull together what you can, take a deep breath, and ring the dinner bell.

In this metaphor, you are the algorithm. The ingredients are data, often aggregated, the utensils are pre-trained pattern-recognition routines, the oven is a massive array of GPUs, and your diners are society. Your meal is a vast network of user models, a serving of *algorithmic ethopoeia*—an intricate dish crafted from a haphazard blend of inputs, assembled with immense care yet fraught with risk. Algorithmic ethopoeia describes the process of converting human data into digital representations, which are then subjected to computational processing—often resulting in unintended, unfavorable outcomes such as bias.⁶ This metaphor of cooking with unfamiliar, even dangerous ingredients captures the essence of my engagement with AI’s complexities at the intersection of rhetoric,

⁶ See Appendix A for visual materials developed for the oral defence and added post-defence, including the Algorithmic Ethopoeia framework (Table A) and Figures 1–2.

computation, and design. By likening AI development to a chef experimenting with unknown ingredients, I aim to make the abstract concept of AI's operational intricacies more accessible and evocative.

This metaphor reveals the subtleties of digitally representing human traits. Here, AI acts as a perpetually learning chef, with data as the ingredients. Mistakes in data handling, akin to mistaking a toxic “alien” plant for a trusted vegetable, can lead to harmful outcomes, just as biases emerge from mismanaged or misrepresented data. These biases frequently originate from obscured processes, reflecting the opacity of proprietary AI models that often hide behind claims of IP. This “black box” nature breeds public mistrust in AI, as the concealed mechanisms limit scrutiny and accountability. Moreover, these models frequently rely on vast repositories of personal information – aggregate data, gathered through ethically dubious agreements that pressure users into surrendering data or face restricted access to essential products or experiences. In some cases, personal data are even obtained unlawfully. Such practices underscore critical concerns around privacy and security, spotlighting the ethical and legal dimensions of AI's pervasive reach into private lives.

The parallels between earthly (analogue) and alien (digital) experiences form a compelling, extensible metaphor, highlighting both their convergences and stark contrasts. This metaphor underscores the critical importance of examining our approach to data, the biases embedded within it, and the real-world consequences of AI-driven decisions - whether in healthcare, surveillance, or beyond. Throughout this research, I encountered a persistent focus on the well-known ethical triad of *bias*, *transparency*, and *privacy* - challenges that consistently dominate discussions on AI. This repetition prompted me to reflect on why these themes are so pervasive in AI discourse.

These concerns are not abstract or peripheral; they are foundational to the responsible development and deployment of AI technologies. Furthermore, they intersect with ideological stances that shape corporate strategies, influencing the nature and objectives of the tools these companies create. This

dynamic suggests an implicit politics embedded within AI-powered systems - a theme central to Chapter 4 of this thesis. The ideological currents that inform AI-powered systems design reveal the broader social implications of these technologies, particularly in surveillance, thereby making the ethical dimensions of AI both unavoidable and deeply consequential.

1.2 Chapter Overviews

This integrated thesis⁷ presents a comprehensive examination of the societal and ethical dimensions of AI technologies, exploring their implications for human identity, autonomy, and social justice. Beginning with the chapter that started off my dissertation journey, “Conversations Towards Practiced AI – HCI Heuristics,” (hereafter “Conversations”), published in the 24th International Conference on Human-Computer Interaction. This chapter introduces heuristics for AI design as strategies to mitigate potential harms ethically and inclusively. Following this, the collaborative essay “Sex After Technology: The Rhetoric of Health Monitoring Apps and the Reversal of Roe vs. Wade” (hereafter, “Sex After Technology”), co-authored with Dr. Randy Allen Harris, a rhetorician and professor in the Department of English Language and Literature, and published in *Rhetoric Society Quarterly*, examines the intersection of AI and reproductive rights, revealing the complex ways in which health monitoring apps interact with issues of autonomy and identity. The fourth chapter, and third essay of this integrated thesis, “Rethinking the Rhetoric of Surveillance in Public Safety: A Critical Discourse Analysis” (hereafter, “Rhetoric of Surveillance”), co-authored with Dr. Lai-Tze Fan from the Department of Sociology and Legal Studies and published in the *8th Future of*

⁷ Given that this is an integrated thesis incorporating previously published work, minor revisions have been made to the published texts to enhance clarity and coherence within the overall dissertation. Citation convention varies by journals.

Information and Communication Conference Proceedings, critically analyzes the rhetorical frameworks supporting AI surveillance technologies.⁸

The following overview provides a detailed examination of each essay that, together, forms an integrated thesis. Although these essays originally appeared in venues with diverse audiences and distinct formats, they have been unified under a traditional research presentation to systematically delineate key aspects, including the methodology employed. The discussion also critically addresses the study's limitations, thereby offering additional insight into the evolution of this research. Overall, this thesis situates itself within the expansive interdisciplinary domain of computational rhetoric, where computational methods converge with classical rhetorical theory to advance our understanding of persuasive communication. This work traces a trajectory from ancient rhetorical practices - exemplified by ethopoeia, the artful construction of character -to the modern era of algorithmic ethopoeia, wherein computational methods now reimagine and reconstruct persuasive ethos in digital communication.

1.2.1 Chapter 2 Overview Developing AI–HCI Heuristics for Inclusive and Ethical Human-Computer Interaction

“Conversations” explores AI as a dominant force within contemporary techno culture and, consequently, as a critical component of user-facing technologies that mediate human interactions with digital systems. Drawing from my professional immersion in this field, I argue that Experience Designers (XDs) often lack both a comprehensive understanding of AI and actionable principles to guide their daily design practices. Positioned within the Design Thinking framework, this chapter

⁸ My contribution constitutes much of the conceptualization, analysis, and drafting (approximately 60%), with remaining contributions (approximately 40%) provided by co-authors through collaborative development and revision. This statement is provided for clarity regarding authorship and contribution.

highlights the necessity of establishing a structured knowledge pathway that intersects with AI technology, with the goal of developing practical and contextual⁹ design heuristics. Given that heuristics are an established tool in design practice, this approach builds upon familiar methodologies to provide a logical foundation for advancing work in this area.

These heuristics are intended to empower designers to navigate and comply with evolving AI regulations while upholding human-centered design principles that prioritize user needs over technical capabilities. Additionally, the chapter demonstrates how heuristics can enable designers to participate meaningfully in AI design discussions, equipping them with the expertise to address the challenges of this rapidly advancing field. However, before I continue to provide a deeper preview of this essay, I want to also discuss some of the challenges surrounding its production and why I have included it as part of this integrated thesis.

1.2.1.1 Acknowledging the Chapter's Limitations

“Conversations” represents an important early stage in my scholarly development and reflects the formative phase of my apprenticeship as a researcher working at the intersection of rhetoric, design, and emerging technologies. As the earliest of the three chapters, it captures a moment of conceptual exploration in which core questions, commitments, and methodological orientations were first being articulated, rather than the fully consolidated frameworks that characterize my later works on this journey.

Coming into doctoral study from an extensive background in professional practice, this chapter reflects a transitional moment in my writing and thinking, as I worked to translate practitioner knowledge into academic argumentation. The chapter, therefore, bears traces of an emerging

⁹ In design practice, heuristics are understood as context-responsive rather than universal; what constitutes “harm,” for example, varies significantly across cultural, institutional, and technological contexts.

scholarly voice—one still negotiating disciplinary conventions, refining argumentative structure, and clarifying analytical focus. Rather than viewing this as a deficit, I position the chapter as a necessary learning artifact that makes visible the process through which scholarly growth and expertise are developed.

Importantly, “Conversation,” also, marks a foundational step that meaningfully informed the more rigorous and theoretically integrated works that follow. Subsequent publications, most notably the co-authored “Sex After Technology” and “The Rhetoric of Surveillance” which both benefited from sustained editorial engagement, collaborative dialogue, and iterative revisions. These works reflect a maturing scholarly practice shaped through an academic apprenticeship model in which feedback, mentorship, and co-authorship played a central role. This same model is further evidenced in the successful publication of my monograph, *Design Heuristics for Emerging Technologies: AI, Data, & Human-Centered Futures – Considerations for the Rights of Women* (hereafter, *Design Heuristics for Emerging Technologies*), which demonstrates the consolidation of my theoretical framework, methodological clarity, and rhetorical voice. Taken together, these outcomes underscore the effectiveness of an apprenticeship-based approach to my scholarly development, one that values process, iteration, and guided refinement over premature polish.

“Conversations,” therefore, belongs in this integrated dissertation not as an isolated or anomalous piece, but as a record of intellectual emergence. To me, it documents the early formation of questions and concerns that later become more fully realized, offering transparency into the developmental arc of the research. In this sense, the chapter contributes to my dissertation’s overall narrative by illustrating how scholarly insight is built over time through practice, reflection, and sustained engagement with mentors, collaborators, and the field. Moreover, the integrated thesis model itself has proven invaluable throughout my academic journey. Borrowed from the STEM disciplines and newly embraced in the humanities, this model provided me with the opportunity for mentorship and a

coherent, definitive framework that guided me through the drafting and editorial processes over time. Despite the challenges encountered during the proposal and exam process, when my enthusiasm was difficult to channel into a realistic, systematic project, the collaborative effort with my supervisors allowed the individual essays to coalesce into a unified, compelling narrative. Following this, the successes of securing a book contract and organizing conferences underscore the potential of the integrated thesis model, and I strongly endorse it as a means of cultivating rigorous, innovative scholarship in the humanities.

1.2.1.2 Foundational Contributions of This Chapter

This chapter establishes an important foundation for the arguments developed more fully in the chapters that follow. Several of the core ideas introduced here were subsequently refined and extended in later work, where the concept of *ethotic heuristics* is more explicitly theorized and applied across distinct contexts of use—most notably in healthcare data design (“Sex After Technology”) and in surveillance systems design (“Rhetoric of Surveillance”). Through this academic growth trajectory, two key concepts emerge: *algorithmic ethopoeia*, and most importantly, the, *ethotic heuristics*, marking a growth from the generic heuristics I discuss in “Conversations.” Algorithmic ethopoeia is articulated more explicitly in the essay “Sex After Technology,” where my co-author and I define it as “the mathematizing of human data for the purpose of digital representation and characterization, through processes of sorting and targeting, with subsequent subjugation to algorithmic procedures and decision-making protocols.” This concept aligns with my professional engagement in AI design and rhetoric, alongside the development of heuristics as critical interventions to algorithmic ethopoeia. Ethotic heuristics, therefore, emerged from the rhetorical dimension of my scholarship, but also informed by my professional work in Design, to which

“Conversations” belongs. It is where I first introduced the six categorical heuristics for the implementation of design strategies aimed at addressing *algorithmic ethopoeia*.

These categorical heuristics¹⁰ are *human factors and ergonomics*, *accessibility*, *user consent*, *privacy*, *user controls and affordances*, and *transparency*. However, at this early stage, these heuristics remained only theoretical constructions, lacking the depth of applied case study analysis necessary to demonstrate their real-world application as well as implications. Lastly, it is within “Conversations” that my understanding of rhetoric as design praxis begins to take shape through lived engagement rather than formal theory—emerging from an increasing awareness that design decisions, metaphors, and technical framings (a simple thing as “data farms”) are themselves rhetorical acts.

This perspective finds partial resonance in the earlier work of Kaufer and Butler, *Rhetoric and the Arts of Design* (1996), who characterize rhetoric as a form of design practice. They view the design of buildings and machines, as well as software and interfaces, as forms of “knowledge and performance” that are structured, modular, and systematic. Importantly, this framing anticipates my own concern with algorithmic ethopoeia, in which computational systems do not merely represent character but actively perform and produce moral and civic identities through patterned, procedural acts. Kaufer and Butler further advocate for a “civic art of public discourse” to stand in opposition to a technocratic, specialized discourse that has increasingly disenfranchised the ordinary citizen. While their account predates both contemporary AI systems and my own conceptual framework, it offers a useful reference point within a broader constellation of influences shaping this research.

¹⁰ These heuristics are termed *categorical* insofar as they identify stable domains of ethical and design concern; however, their practical meaning and application are context-dependent and must be re-specified within each sociotechnical setting, as demonstrated in the essays “Sex after Technology” and “Rhetoric of Surveillance,” respectively.

1.2.2 Building on the Legacy of Heuristics in Contemporary Design Practice

The foundation of this work was necessarily built upon the limited prior research on heuristics, particularly the germinal contributions of Jakob Nielsen and Rolf Molich, widely recognized figures in the field of User-Centered Design (Molich and Nielsen, 1990). In 2020, Nielsen solely revisited and expanded upon these heuristics¹¹, incorporating additional explanations and examples. However, his revisions do not address the pressing issue of how to integrate the emergent challenges posed by AI. A significant gap remained in accounting for AI-driven systems that leverage human data in high-stakes decision-making processes - ranging from loan eligibility and university admissions to healthcare decisions, where outcomes can mean the difference between life and death. Even more concerning are the legal ramifications of AI's unchecked influence, as seen in cases where algorithmic decisions have led to wrongful incarceration. Particularly alarming real-world example populates the post-*Roe v. Wade* legal landscape in the U.S— a focus in “Sex after Technology”—where women in states with newly imposed abortion bans face prosecution based on data collected from mobile applications. Following the reversal of *Roe v. Wade*, for example, multiple cases have demonstrated how digital data, including information derived from mobile applications, text messages, and location data, has been used by law enforcement to investigate and prosecute individuals seeking or assisting with abortion care in states with newly imposed abortion restrictions.

Notably, in Nebraska, law enforcement obtained private Facebook messages and digital records in a prosecution related to self-managed abortion, highlighting the legal vulnerability of reproductive health data collected through digital platforms (see Hill, 2022; Singer, 2022). Scholars and digital rights organizations have since warned that data from period-tracking and other health-related mobile applications may similarly be subject to subpoena or disclosure, particularly in jurisdictions enforcing

¹¹ For an overview of Nielsen's foundational usability heuristics, see Jakob Nielsen, “Ten Usability Heuristics for User Interface Design,” Nielsen Norman Group, <https://www.nngroup.com/articles/ten-usability-heuristics/>

abortion bans (Electronic Frontier Foundation, 2022). Much of this discovery is because data collected can single out users of these apps because their data was not anonymized. Further, AI-powered computational techniques extend prosecutorial discovery by enabling the speed of discovery in large-scale pattern recognition, cross-platform data aggregation, and inferential analysis across otherwise disparate digital traces.

In these reported instances, non-anonymized health data has been mobilized as legal evidence, effectively transforming personal digital records into instruments of surveillance and criminalization. This shift exposes a critical limitation in the classical usability heuristics that continue to structure contemporary design practice. Of note, I address this concern in greater detail in my book, *Design Heuristics for Emerging Technology*, which functions both as a theoretical intervention and a practitioner-oriented guide. The text translates ethical and rhetorical analysis into actionable design guidance, particularly for developers and system designers working in high-risk domains. For example, the book offers explicit heuristics for data anonymization aimed at protecting women using fertility and reproductive health applications, including the following principles: removing or obscuring personal identifiers when data are used for research or analytics; and employing techniques such as pseudonymization, data masking, or generalization to reduce the risk of re-identification (Lubin, 2025).

These categorical usability heuristics have long been regarded as foundational to user-centred design, and were conceived to optimize usability, efficiency, and learnability at the interface level. Over time, they have become proceduralized within standardized design frameworks and embedded into what might be described as a global “design commons.” Principles such as visibility of system status and error prevention are now systematically incorporated into dominant platforms like Google’s Material Design and Apple’s Human Interface Guidelines, rendering them implicit

components of everyday design workflows rather than explicitly interrogated design choices. There are few designers of note who do not know these heuristics from memory.

While the integration of these heuristics has undoubtedly advanced product usability, it has also narrowed the ethical scope of heuristic application. Nielsen and Molich's framework, for example, does not account for downstream harms arising from data extraction, aggregation, and repurposing—particularly when user data becomes legible to state, corporate, or juridical systems. This limitation marks a critical distinction between user interface design and what may be more accurately described as data design, and, by extension, systems design. It is within this latter domain that scholars such as Shoshana Zuboff, Ruha Benjamin, Joy Buolamwini, and Cathy O'Neil have demonstrated how the commodification of human data and the operation of algorithmic systems have profoundly reshaped the ethical terrain of design, producing new forms of vulnerability, bias, and surveillance (Zuboff, 2019; Benjamin, 2019; Buolamwini and Gebru, 2018; O'Neil, 2016). This shift in the space of design calls for a reframing and maturation of what it means to apply heuristics to the process of system design. For example, the Nielsen heuristic "*match between system and the real world*," the second of his ten heuristics, encourages designers to rely on familiar metaphors and conventions to enhance usability—such as the use of a trash-bin icon to signify deletion. Yet, in data-intensive and AI-mediated systems, such metaphors can obscure complex backend processes, including data retention, inference, and secondary use. As these heuristics became embedded within off-the-shelf design tools, they transitioned from reflective guiding principles into default industry practices, often applied without sustained critical attention to their ethical implications or their capacity to produce human harm. Notably they are also a mainstay of design education in Western institutions of higher education and learning.

It is precisely within this gap—between interface-level usability and system-level consequences—that the ethotic heuristics developed in this dissertation intervene. In advocating what I have described

elsewhere as “*breaking the GUI glass*,” this framework calls for a shift beyond surface-level user interface considerations toward the computational logics, data practices, and decision-making architectures that operate beneath the interface. By extending classical design heuristics in this direction, the framework explicitly accounts for questions of dignity, consent, power, and harm as they are produced and enacted within AI-driven systems themselves.

These developments highlight the pressing need for design heuristics that move beyond usability and comfort to encompass social values and individual well-being. Accordingly, the proposed framework of ethotic heuristics responds to this need by directly addressing the consequences of computational systems that categorize individuals, and their data, within automated decision-making protocols. Such systems constitute an emerging form of computational persuasion, subtly shaping behaviour, and moral characterization in ethically fraught ways, particularly in contexts where human oversight is limited or absent.

While scholars in fields such as sociology have, also, examined these dynamics, often through paradigms like *captology*¹² (Fogg, 2003), rhetorical theory is uniquely positioned—both historically and conceptually—to interrogate and intervene in these systems. By focusing on their persuasive mechanisms and underlying ethical orientations, rhetoric offers critical tools for evaluating and reimagining the design of emerging technologies. The increasing reliance on AI to make consequential decisions, frequently with minimal human oversight, has precipitated what can be described as a crisis in ethical design. It is within this socio-technical context that “Conversations” emerged, seeking to address these urgent “on the ground” ethical concerns and bridge the gap left by traditional heuristics in the era of AI-driven decision-making. This urgency in the design practice led

¹² The term *captology*—an acronym for Computers as Persuasive Technologies—was introduced by B. J. Fogg to describe the study of how interactive computing systems are designed to influence user attitudes and behaviors. See B. J. Fogg, *Persuasive Technology: Using Computers to Change What We Think and Do* (Morgan Kaufmann, 2003).

me to, sometimes, compromise academic rigour in this early paper, and even communicative effectiveness to some degree, but also led me to establish crucial contextual grounding.

The rapid progression of AI, a field marked by both its dynamism and opaque, black-box nature, framed as intellectual property, has, concurrently, and undoubtedly posed significant challenges to the timely development of scholarly frameworks. At the same time, as practitioners of design, we failed to fully anticipate its impact, especially as the “human” was displaced for the user,” effectively erasing the human element even as human data was increasingly commodified and transformed into mere datasets. In an area where few established references existed for designers, “Conversations” sought to fill a critical void by offering what would later be termed ethotic heuristics. These heuristics function as a meta-framework designed to counteract the misrepresentation and dehumanization inherent in AI-driven data design systems. Subsequent chapters of this thesis operationalized these heuristics through both case studies and an extensive literature review, subjecting them to empirical scrutiny and refinement.

“Sex After Technology” provides a critical site for examining rhetoric as design praxis within AI-mediated healthcare systems, particularly those shaping sexual and reproductive health; and by using heuristics in a 'reverse-engineering' way, looking especially for ethical failures in the design of systems, that chapter also turns the heuristics into analytic instruments. In this work, AI-driven technologies are examined not merely as clinical or assistive tools, but as rhetorically designed systems that encode assumptions about women’s bodies, risk, autonomy, and moral responsibility through their data practices, modeling choices, and interface conventions.

As illustrated in the accompanying schema (see Appendix A: *Table B. Algorithmic Ethopoeia in Women’s Healthcare*), ethical failure in these systems often begins at the level of problem framing, where reproductive health data—such as menstrual cycles, pregnancy indicators, or missed periods—is redefined as a matter of risk assessment or rule compliance rather than care. This reframing shifts

the purpose of healthcare technologies away from supporting bodily well-being and toward monitoring, prediction, and control, rendering the body legible as a site of potential violation rather than need.

Data sourcing practices further intensify this shift by aggregating intimate information from period-tracking applications, GPS data, online purchases, and search histories, constructing comprehensive behavioral profiles that exceed users' reasonable expectations of consent or use. Modeling decisions then translate these data into inferential claims—treating missed cycles, clinic visits, or deviations from normative patterns as signals of pregnancy or abortion—thereby collapsing uncertainty into suspicion and transforming ordinary bodily variation into grounds for moral judgment.

Governance failures compound these harms, particularly in legal contexts shaped by the reversal of *Roe v. Wade*, where private health data may be subpoenaed, disclosed, or repurposed as evidence. In such instances, healthcare data ceases to function as a medium of care and instead becomes an instrument of surveillance and enforcement. The ethical consequence, as the table demonstrates, is a profound inversion of medical purpose: systems designed to support reproductive autonomy instead participate in the moralization and disciplining of women's bodies.

The ethotic heuristics developed in this dissertation inform the analysis by surfacing how design decisions such as defaults around data collection, opaque consent mechanisms, limited user controls, and representational norms, actively participate in the moral characterization of users. In this context, rhetoric operates as a design force that shapes how health data is rendered meaningful, actionable, and governable, revealing how ethical breakdowns in AI-mediated healthcare arise not from isolated

technical flaws, but from cumulative rhetorical choices embedded across data, systems, and governance.¹³

Complementing this analysis, “Rhetoric of Surveillance” extends the framework to AI-powered monitoring systems by demonstrating how surveillance justifies itself through persuasive language that reframes structural social conditions as technical risks. As illustrated in the accompanying schema, this process begins at the level of problem framing, where complex issues such as poverty, inequality, or racialized marginalization are rhetorically reduced to questions of “crime prevention” or “risk mitigation.” Such framings foreclose alternative explanations and legitimize surveillance as a neutral or necessary response.

These justificatory narratives are subsequently operationalized through schema and labeling practices that rely on reductive categories—such as “unemployed,” “foreign,” or “high risk”—which substitute contextual understanding with administratively convenient abstractions (See Appendix A, *Table C. Algorithmic Ethopoeia in Public Safety and Surveillance*). Data sourcing practices further entrench these logics by privileging information drawn from over-policed or heavily monitored communities, producing feedback loops in which visibility itself becomes evidence of risk. As the table demonstrates, feature selection and modeling decisions frequently rely on proxy variables that conflate correlation with causation, transforming ordinary behaviors, geographic location, or economic precarity into signals of suspicion.

At the level of system output and user interface, these rhetorical commitments manifest through opaque scoring, flagging, and explanation mechanisms that deny individuals meaningful insight into how they are assessed or categorized. The absence of robust feedback and governance structures

¹³ See Appendix A for visual representations illustrating the operation of rhetoric as algorithmic ethopoeia. These figures were developed for the dissertation oral defense and are included here to clarify the conceptual framework. The application of this framework is further demonstrated in the chapters “Sex After Technology” and “Rhetoric of Surveillance.”

ensures that such systems remain insulated from accountability, allowing biased assumptions to persist under the appearance of technical objectivity. Taken together, these design decisions reveal how rhetoric does not merely accompany surveillance technologies but actively structures their ethical consequences.

By foregrounding these moments of translation—from discourse to data, from justification to interface—this analysis demonstrates how rhetoric, when situated within design practice, becomes central to understanding and intervening in the ethical failures of AI-driven surveillance systems. “Rhetoric of Surveillance,” alongside “Sex After Technology,” thus shows that ethical breakdowns in AI are rarely the result of isolated technical errors; rather, they emerge from cumulative rhetorical choices embedded across problem definition, system architecture, and institutional governance. In this sense, “Conversations” served as the conceptual foundation, while the later sections provided the necessary precision and depth to validate and implement these heuristics in practice. Let me illustrate this maturation process using an example from “Sex After Technology.” For example, in “Conversations,” I first proposed *privacy* as a key generic heuristic, emphasizing the need for proactive integration of privacy considerations into AI systems rather than relying on reactive safeguards. While this idea was conceptually sound, it was only with “Sex After Technology” that it became substantively developed and substantiated in the case study of Flo Health, a reproductive health tracking app that came under scrutiny for its data-sharing practices. The heuristic became an analytic tool to diagnose and understand processes, which proved its potential as a design value; Flo Health would have been a more ethical app if it was designed and implemented in accord with the privacy heuristic (indeed, with the *ethotic* heuristic suite overall). In “Sex After Technology,” the heuristic acquired a pre-emptive stance toward data management, demonstrating the value of applications built with a privacy-first architecture, rather than patching in safeguards after their vulnerabilities were exposed.

In this context, *privacy*, as a categorical heuristic, must prioritize data security, resistance to unauthorized access, and mechanisms to anonymize or pseudonymize personal identifying information to protect users' sensitive health data. In "Sex After Technology," the *ethotic* heuristic framework aligns with the ethical obligation of designers to ensure that algorithmic systems respect the integrity of women's health data, fostering an *algorithmic prosopopoeia* - a rhetorical positioning of healthcare providers as trustworthy entities that prioritize patient privacy.

Relatedly, and notably, my colleague Monique Kampherm examines the rhetorical devices of *prosopopoeia* and *ethopoeia* in her doctoral dissertation, *Masks and Caricatures: Prosopopoeia, Ethopoeia, and the Effect of Social Media on Canadian Political Leaders*. Building on her insights, I extend the discussion to introduce the concept of *algorithmic prosopopoeia*. I define this term as the phenomenon by which algorithms or computational systems "speak" on behalf of individuals or groups, thereby shaping—or even distorting—their identities within digital and automated decision-making processes. This concept draws on the traditional rhetorical move of *prosopopoeia*, which endows an absent, imagined, or inanimate entity with a voice. In the algorithmic context, *prosopopoeia* illuminates how algorithms construct and project identities, whether through AI-generated personas, predictive profiling, or data-driven characterizations—sometimes reinforcing biases or misrepresenting individuals in ways that carry significant ethical and societal implications. I say this to say that the concepts of *algorithmic prosopopoeia* and algorithmic ethopoeia are themselves interrelated within the context of broader research of how algorithms enable the creation of identity in the digital context and its broader implication for society. A nuanced understanding of these intertwined phenomena is imperative for fostering ethical digital frameworks that can both harness and regulate the transformative power of algorithms. As we continue to unravel the complex interplay between technology and identity, we are compelled to confront the profound ways in which digital constructs reshape societal norms and human agency. For example, in subsequent research on

the evolution of AI within healthcare datafication, I discovered that Flo Health—a case study cited in “Sex After Technology”—implemented significant changes to its privacy policies in response to the SCOTUS reversal of *Roe v. Wade*. This finding underscores how pivotal legal and sociopolitical shifts can catalyze rapid adaptations in digital health practices, reflecting the dynamic interplay between technology policy, and societal values.

In response to growing concerns over digital reproductive surveillance following the reversal of *Roe v. Wade*, companies within the reproductive health technology sector began to publicly reassess their data governance practices. Flo Health, for example, announced the introduction of anonymization measures intended to limit the identifiability of user data. Similarly, Clue’s leadership emphasized commitments to data minimization, anonymization, and compliance with stringent privacy protections, positioning reproductive health data as information requiring heightened ethical and legal safeguards.¹⁴ While these measures reflect a broader shift toward privacy-protective strategies within femtech, they also underscore the extent to which reproductive health platforms have become entangled in legal, political, and surveillance regimes beyond their original care-oriented intentions. A more extensive analysis of Clue is developed in *Design Heuristics for Emerging Technologies*, where the categorical heuristics introduced here are further elaborated as an auditable framework for evaluating ethical risk, data governance, and moral characterization within AI-mediated health technologies (Lubin 2025).

This shift, nonetheless, underscores the real-world significance of the heuristic framework first proposed in “Conversations” and demonstrates how the concept, initially introduced in broad terms, gained specificity and depth through applied case studies in my later chapters, and subsequently the

¹⁴ Following the reversal of *Roe v. Wade*, Clue (another reproductive app company) publicly addressed concerns regarding reproductive data privacy through a statement issued by company leadership outlining commitments to data minimization, anonymization, and user protection. See Clue, “Your Data Privacy After *Roe v. Wade*,” Clue Blog, 2022, <https://helloclue.com/articles/abortion/clue-data-privacy-after-roe-v-wade>

book. Thus, while “Conversations” may not exhibit the same level of scholarly refinement as my later work, it turned out to be a necessary first step—a space where I formulated my initial ideas and theoretical framework, which were then expanded, challenged, and developed through subsequent research.

In “Rhetoric of Surveillance,” the same is true. “Conversations” was likewise foundational in shaping the heuristics applied in that essay to provide stakeholders - scholars, policymakers, and citizens: a set of tools to critically assess surveillance rhetoric and to contribute to auditable guidelines for designing AI-powered systems of surveillance that used human data.

While encouraging readers to critically interrogate the justifications for surveillance, “Rhetoric of Surveillance” promotes transparency, accountability, and equitable practices. At its core, it also engages with the concept of heuristics as a means of guiding ethical decision-making in the design and implementation of surveillance technologies. For instance, one heuristic emphasizes the importance of context, challenging the notion that a one-size-fits-all” approach to surveillance is adequate or ethically defensible. Surveillance *praxis*, applied indiscriminately, risks reinforcing systemic inequities, disproportionately targeting marginalized communities, and eroding fundamental rights to privacy and autonomy. A context-sensitive approach, by contrast, recognizes that surveillance must be adaptive, ethically grounded, and attuned to the nuances of different social, cultural, and political landscapes.

This heuristic-driven framework encourages designers, policymakers, and technologists, as well as citizens, to move beyond default settings of ubiquitous data collection and toward models of surveillance that are proportionate, transparent, and just. It compels stakeholders to ask: Who benefits from surveillance? Who is most vulnerable to its harm? What safeguards exist to prevent misuse? This approach not only critiques surveillance practices but also proposes an ethical paradigm - one that resists the normalization of unchecked monitoring and instead envisions systems that respect

individual agency, uphold civil liberties, and prioritize the well-being of society. By embedding these heuristics into design and policy, the goal is to shift from passive acceptance of surveillance to an active reimagining of how technology can serve humanity without compromising fundamental rights.

I offer this seemingly long, contextual elucidation to underscore that while “Conversations” represents the earliest stage of my intellectual trajectory, it emerges from a moment of profound disruption precipitated by the rapid integration of AI across many industries. This period was marked by conceptual density and methodological urgency, as established design practices were destabilized by new forms of automation, datafication, and algorithmic decision-making. Written in response to the need for “just-in-time¹⁵” intervention within these shifting conditions, the chapter reflects an exploratory phase in which rhetorical inquiry was mobilized to make sense of emergent harms and design constraints unfolding simultaneously across healthcare, surveillance, and other data-intensive domains. From this initial complexity, a more disciplined and systematic framework takes shape—one that informs the subsequent development of ethotic heuristics as a coherent and transferable model for ethical AI design. In this way, “Conversations” lays the groundwork for the more advanced scholarly work that follows, contributing to the dissertation in three key ways, as outlined below:

1. **Refining Heuristics for AI Design:** While the heuristics introduced in this chapter were initially broad and inconsistently applied, they provided the groundwork for the more rigorous framework developed in both the subsequent essays in this integrated thesis. Over time, through recurrent scholarly engagement in different contexts, I refined these

¹⁵ The concept of “just-in-time” (JIT) originates in lean manufacturing and production systems developed at Toyota in the mid-twentieth century, most notably articulated by Taiichi Ohno as part of the Toyota Production System. JIT describes a logic of timely, demand-driven intervention designed to reduce waste and respond adaptively to changing conditions (Ohno). While initially industrial in scope, the concept has since been taken up more broadly to describe responsive practices in organizational strategy, design, and technology development under conditions of disruption and uncertainty.

heuristics to address the ethical, epistemological, and rhetorical challenges posed by AI technologies.

2. **Building on foundational inquiries:** In “Sex After Technology,” my co-author and I examined the ethical implications of AI in reproductive health, expanding on themes first explored in this chapter. This analysis was further developed in “Rhetoric of Surveillance” as well as, *Design Heuristics for AI, Data and Emergent Technologies*, where I continue to interrogate the intersection of AI, surveillance, and human agency. While “Conversations” may not yet reflect the fully matured argumentation of these later works, it was instrumental in shaping the conceptual contours of this inquiry.
3. **Situating conversations in surveillance and digital citizenry:** Lastly, “Conversations” marks my first engagement with the discursive strategies used to justify AI- powered design systems in surveillance practices. I thought about how I would use heuristics as a countermeasure in the same way it applied in “Sex After Technology.” This early exploration, starting with “Conversations” laid the groundwork for my later analyses of surveillance rhetoric and public safety narratives, which became more fully realized in my subsequent scholarship, also enabling me to develop more contextual heuristics to meet the context of surveillance systems design. This (surveillance) is a burgeoning space as we face the move towards global trends in digital citizenship management. This shift is also acknowledged by UNESCO in its *Guidelines on Digital Global Citizenship Education*, which emphasize the importance of digital literacy in shaping how we engage with, and benefit from digital systems that underpin global citizenship management (UNESCO 12). These guidelines provide a comprehensive framework for educators to integrate digital citizenship into curricula, equipping learners with the skills to navigate and contribute positively to the digital world. By situating “Conversations” within this arc of my

intellectual development, I seek to highlight its role as an essential, albeit imperfect, milestone in my research. While the chapter itself may be methodologically and rhetorically uneven, its core ideas have significantly influenced the evolution of my work, underscoring the iterative nature of scholarly inquiry

Reflecting on the development of this chapter clarifies several formative lessons that shaped my scholarly practice. The contrast between this chapter and later publications underscores the critical role of sustained editorial engagement and iterative feedback in producing clear, well-structured, and persuasive academic argumentation. Through subsequent projects, this process sharpened my capacity to refine claims, strengthen coherence, and enhance analytic precision.

This chapter marks an early phase in which theoretical concerns were articulated broadly as the contours of the research agenda were still taking shape. In later work, these concerns are developed through a more deliberate emphasis on case-based analysis and empirically grounded examples, allowing theoretical claims to be situated within concrete design and technological contexts. Similarly, the experience of structuring this chapter foregrounded the importance of logical progression, clearly signposted claims, and rhetorical flow—principles that were subsequently applied with greater intentionality across later chapters and publications.

Within the integrated thesis, this chapter serves as an essential record of scholarly emergence. Its inclusion reflects a commitment to transparency in the research process and to the apprenticeship model that underpins doctoral scholarship. Rather than presenting research as a linear progression toward polish, the integrated format acknowledges how earlier stages of inquiry generate the conceptual foundations upon which later, more refined work is built. In this way, the chapter contributes meaningfully to the dissertation's intellectual narrative by documenting the conditions through which methodological clarity, theoretical depth, and scholarly confidence were progressively achieved.

1.2.2.1 Rationale for an AI-HCI Framework

The growing concerns surrounding AI, particularly its societal impacts and ethical challenges, underscore the critical need for frameworks that can keep pace with AI's rapid evolution. Although AI has become central to user-facing technologies, influencing various aspects of daily life, a significant gap persists in the practical application of AI within design, particularly in the establishment of guiding principles for daily design activities. This chapter identifies this gap, emphasizing the need for robust frameworks that integrate AI technologies within established Design Thinking methodologies and thereby empower designers to address ethical issues, such as transparency and privacy, within AI-HCI contexts.

1.2.3 Methodology

This chapter employs an experiential methodology to develop AI-HCI heuristics and address critical gaps, thereby laying the groundwork for deeper engagement in subsequent scholarly discourse. Specifically, this approach ensures that insights are grounded in real-world context and applications while remaining in critical dialogue with academic discourse. Rather than collapsing the two, it recognizes their distinct yet interrelated roles: practice reveals the tangible consequences of design choices, while academic inquiry offers the frameworks needed to interrogate those consequences. This interplay foregrounds the practical implications of designing AI-powered systems within professional contexts, while also contributing to a broader theoretical understanding of their ethical, social, and rhetorical dimensions.

Grounded in a multidimensional perspective, the methodology integrates a structured literature review—drawing significantly on the seminal works of heuristic pioneers Jakob Nielsen and Rolf Molich—alongside real-world case studies, experiential analysis, and an ethical critique of AI's potential harms, such as biases. Worth noting is that this published work fits among the first in its

class – heuristics, responsive to the changing space of tech design as it becomes powered by AI data design. Collectively, these components converge to produce actionable heuristics that inform ethical, user-centered design practices for AI technologies, especially in high-stakes settings such as healthcare.

Literature Review and Case Studies and Experiential Analysis

A systematic and critical review of existing research on AI design forms the cornerstone of this methodology. By meticulously examining scholarly and industry literature—particularly studies focusing on high-stakes applications like healthcare—the review identifies recurring themes, challenges, and emerging trends. Several scholars have explored the intricate challenges of technology and underscored the importance of human-centered design. Brown (2019) highlights design thinking as a transformative approach that can drive organizational innovation, while Cavoukian (2012) advocates for Privacy by Design (PbD)¹⁶ to integrate ethical considerations into the very fabric of technological development. Brigham and Introna (2007) further emphasize that the design of information technology is inherently political and ethical, urging designers to rethink traditional approaches to mitigate unintended negative consequences.

Complementing these perspectives, Buolamwini and Gebru (2018) illustrate how technology can inadvertently perpetuate intersectional biases, thereby reinforcing the need for design practices that prioritize equity and inclusivity. The review of the works of these scholars provided ground to extract categorical challenges of AI and other emergent technology, which would become the proposed

¹⁶ The term “Privacy by Design” was originally popularized by Ann Cavoukian, former Information and Privacy Commissioner of Ontario. It emphasizes embedding privacy measures directly into the creation and operation of technologies and organizational practices. For further reading, see Ann Cavoukian (2009), *Privacy by Design: The 7 Foundational Principles—Implementation and Mapping of Fair Information Practices*, Information and Privacy Commissioner of Ontario, Canada.

heuristics. This analytical process not only informs the categorization of heuristics but also illuminates areas where current design practices fall short, thereby pinpointing opportunities for targeted improvement in usability and ethical considerations.

Complementing the literature review, this study employs case studies drawn from diverse AI applications to reveal the tangible impacts of design decisions on user experiences. A notable example is the Gender Shades study by Buolamwini and Gebru (2018), which exposes how algorithmic design choices in commercial gender classification systems can result in significant accuracy disparities across gender and skin tone. This case study underscores the importance of integrating explainability and transparency features into AI interfaces to ensure equitable outcomes and foster trust among diverse user groups. Additionally, case studies from health monitoring applications utilizing predictive analytics illustrate how targeted interface elements, such as explainability buttons, enhance user comprehension and trust in AI-driven outputs.

These analyses are further enriched by professional practice narratives and industry discussions, providing a nuanced perspective on the everyday challenges of embedding ethical and user-centered design principles within human-computer interaction (HCI) frameworks. As Brigham and Introna (2007) assert, the political and ethical dimensions of technology design necessitate a critical reassessment of conventional practices, while Cavoukian (2012) advocates for Privacy by Design, to proactively address emerging privacy and security gaps. Collectively, these insights underscore the need for a holistic approach that not only identifies critical vulnerabilities in current AI-powered data design systems but also proposes actionable reforms to enhance both ethical integrity and user-centered design.

1.2.4 Conversations with a Legacy: Adapting Design Heuristics for Ethical AI-HCI

Building on foundational work by usability experts such as Nielsen and Molich (Nielsen & Molich, 1990; Nielsen, 1993), this framework introduces heuristic categories tailored to the unique challenges of AI design. These focus areas include Human Factors and Ergonomics, Accessibility, User Consent, Privacy by Design, User Controls and Affordances, and Transparency. Each category provides designers with actionable guidelines that address both the technical and ethical complexities of AI applications, thereby promoting ethical, user-centered design practices. Heuristics have long served as practical guidelines in interface design legacy, exemplified by the pioneering work of Nielsen and Rolf, whose early studies established usability heuristics that remain influential today Molich (Nielsen & Molich, 1990; Nielsen, 1993). In the context of AI and human-computer interaction (HCI), these heuristic approaches can be adapted to address ethical challenges such as transparency, privacy, and user trust. For example, consider a health monitoring application that leverages AI for predictive analytics. In this setting, explainability heuristics can be integrated into the user interface through features like an “Explain This Result” button. When activated, this feature might present users with clear, jargon-free explanations of AI-driven predictions—for instance, “Based on recent heart rate data and activity patterns...”—thereby fostering user trust and enabling more informed decision-making. Similarly, privacy heuristics can operationalize principles such as Privacy by Design. This could be implemented with a “Manage Data Permissions” button present on every data entry screen, empowering users to control data sharing and storage preferences actively. In addition, a data transparency heuristic might guide the development of a “Data Usage Dashboard,” a feature that provides users with real-time insights into data utilization, historical trends, and the ability to adjust permissions as needed.

By embedding these heuristics into everyday design practices, developers can ensure that AI systems remain both ethically robust and user centered. As AI technologies evolve and regulations

become more stringent, the adaptation of heuristic methods will be critical in maintaining a balance between technological innovation and ethical responsibility. This framework situates contemporary AI design practices within the historical evolution of design heuristics, demonstrating how technological advancements have necessitated a revisitation of these guiding principles. For instance, while traditional heuristics were developed for earlier technological contexts, recent changes have introduced new challenges, such as emergent biases that were not previously accounted for. A revised heuristic that arises from recognizing these biases, where the marginalization of various groups may occur—could specifically focus on ensuring more inclusive, equitable, and responsible AI design practices.

From “Conversations” Towards Application in Healthcare and Surveillance

The subsequent chapters (“Sex after Technology” and “Rhetoric of Surveillance”) expand on this framework, drawing on the work of prominent scholars to explore the ethical dimensions of AI design in two focal areas –the datafication of healthcare data and AI -powered surveillance, respectively. . For example, beginning with such works as *Weapons of Math Destruction* (O’Neil 2016) and the research of Buolamwini and Gebu (2018), we are made aware of the biases in AI systems that disproportionately affect marginalized communities, underscoring the need for closer scrutiny and Similarly, as relayed in a subsequent chapter, “Sex and Technology,” D’Ignazio and Klein (2020) call for equitable AI practices that extend beyond data feminism to promote justice in data use and design across social contexts. “Rhetoric of Surveillance” - the chapter on surveillance engages these ethical dimensions further, with Zuboff (2019) critiquing “surveillance capitalism” and its commodification of personal data, illustrating how AI surveillance technologies can undermine democratic values. Building on earlier theoretical explorations—such as Louis Althusser’s concepts of ideological state apparatuses (IDAs)—and extending through cultural critiques like George Orwell’s 1984 and Aldous

Huxley's *Brave New World*, this datafication of human biometric information is further illustrated in Margaret Atwood's *The Handmaid's Tale*, evoked in "Sex After Technology." Unlike the more generalized political oppression highlighted by Orwell and Huxley, Atwood's portrayal focuses on gender-based subjugation, underscoring how surveillance practices reinforce power imbalances and shape societal control.

Through these scholarly contributions, this chapter advocates transparency, regulatory accountability, and ethical design practices in AI. This progression of my scholarly work highlights the necessity of developing an accountable and ethically grounded AI-HCI framework. By integrating ethical guidelines into design practices, designers can help ensure that AI technologies enhance rather than undermine human well-being.

Together, these methodologically informed frameworks offer a critical, multi-dimensional analysis of AI design practices. By safeguarding user privacy, promoting transparency, and fostering human-centered AI technologies, this chapter lays the groundwork for a comprehensive AI-HCI framework. It examines intersections between AI, inherent biases, conceptualized here as "harm"—and power dynamics through the concept of algorithmic ethopoeia, emphasizing how human data is used in systems design to inform representation and characterization. Through the integration of literature reviews, case studies, experiential insights, and ethical critiques, this adaptable framework equips designers, as well as other stakeholders, including technologists and policymakers with an essential toolset to engage in meaningful AI design discussions and contribute to the creation of technologies that are innovative and ethically sound.

1.3 Chapter 3 Overview Sex After Technology: AI, Health Monitoring, and Women's Autonomy

In Chapter 3, “Sex After Technology” I, along with my co-author, Dr. Randy Allen Harris, critically examine the intersection of artificial intelligence (AI) technologies and the rise of Christo-fascist movements, each of which pose serious threats to women’s health and privacy; joined, they don’t just compound these threats but amplify them exponentially. The chapter situates this examination within the context of recent events such as Amazon’s acquisition of One Medical, Meta’s health privacy violations, and data-sharing by the Flo Period Tracker app, all of which unfold against the backdrop of the U.S. Supreme Court’s reversal of *Roe v. Wade*. Collectively, these cases demonstrate how algorithmic processes, which we term “algorithmic ethopoeia,”¹⁷ construct individual and collective identities by mining personal data to construct predictive and constitutive models, often with the goal of exploiting vulnerabilities. Such constructions, whether formed through illegal harvesting, subversively through convoluted terms-of-service agreements, or even willingly through direct user provision, can propagate digital inequalities and deepen systemic oppression.

1.3.1 Remarks on the Sociopolitical Landscape of Reproductive Rights: Implications for Women’s Health Data and AI Governance

The political landscape in the United States, particularly the reversal of *Roe v. Wade* and its implications for women’s health, is an essential backdrop for this research. This issue gained prominence during the 2024 U.S. general election, where reproductive rights became central to the national debate, underscoring the influence of sociopolitical forces on women’s rights. With Kamala

¹⁷ See Appendix A for visual and tabular frameworks illustrating algorithmic ethopoeia. These materials are adapted from figures developed for the oral defence presentation and are included here to clarify the operational mechanics of the framework.

Harris, who ran as a presidential candidate on a platform centered on reproductive rights, the 2024 election underscored the renewed urgency surrounding these issues. The re-election of Donald Trump on a highly and even comically ‘masculinist’ agenda heightens concerns over threats to reproductive freedoms, reinforcing the need for protective frameworks for women's health data. As this thesis takes shape at the onset of Trump’s second administration, it is evident that the shifting balance of power where the conservative movement asserts dominance over the social values Big Tech, in its explicit rejection of policies encouraging inclusion and diversity and equity, while madly deregulating the sector, argues for greater urgency in deploying the heuristics proposed here. These heuristics serve not only as countermeasures against emerging risks but also as tools that can be leveraged by various stakeholders for audit and accountability purposes, making their implementation more critical than ever.

To address these challenges, this chapter advocates for the development of tools designed to dismantle and regulate the algorithmically constructed representations—or ethopoeia—of women. Drawing on Ruha Benjamin’s concept of the New Jim Code, as articulated in her germinal work *Race After Technology* (2019), borrowing from the works of Michelle Alexander¹⁸, and informed by the data feminism frameworks advanced by Catherine D’Ignazio and Lauren F. Klein (2020), we argue that technological systems rooted in patriarchal supremacy necessitate abolitionist tools to counteract misogynistic and biased coding practices. In response, we adapt the heuristics of “Conversations” into analytic categories to counteract AI’s predatory surveillance activities, which exploit both AI

¹⁸ Ruha Benjamin’s (2019) formulation of the “New Jim Code” explicitly builds upon Michelle Alexander’s analysis of the “New Jim Crow,” which documents how ostensibly race-neutral systems of governance—particularly within criminal justice—reproduce racialized control. Benjamin extends this framework into the domain of algorithmic systems and data-driven technologies, demonstrating how automation and AI similarly encode and legitimize structural inequalities while obscuring their political origins.

advancements and outdated legal precedents to police and surveil women in states where abortion is now illegal.

The resulting violations of individual integrity, termed “ethotic,” involve betraying user data mined algorithmically to construct “user models” that are commodified for corporate, political, and law enforcement use—rarely with the user’s explicit consent and often against her interests. This phenomenon, algorithmic ethopoeia, creates mathematized representations of individuals for commercial trafficking and systemic control.

Significant cases underscore the gravity of this issue. In Salta, Argentina, a government program aimed at predicting teenage pregnancies on AI-mediated profiles derived from a racial- and classist- and masculinist-biased dataset, thus exemplifying state-corporate collusion and the disregard for personal privacy and security (Peña & Varon, 2021). Similarly, Amazon’s acquisition of PillPack and One Medical has exacerbated privacy concerns, given the company’s history of data mishandling (Sifry, 2021). Additionally, tech giants like Meta and Google have commodified intimate data through apps like Flo Period Tracker, highlighting the risks of data exploitation and health information breaches in women’s health (Gupta & Singer, 2021).

These cases reflect a broader trend in AI-driven surveillance and control, often operating under the guise of technological progress and efficiency (D’Ignazio and Klein). It is within this broader context of data extraction, governance, and asymmetrical power that this dissertation turns to abolitionist frameworks as a means of critical and design-oriented intervention.

Lastly, in invoking Benjamin’s formulation of the “New Jim Code” and her call for “abolitionist tools,” this dissertation situates itself within a critical lineage concerned with the persistence of racialized control, under contemporary socio-technical regimes. As noted earlier, Benjamin’s work builds on foundational analyses of structural racism and governance—most notably Alexander’s articulation of the “New Jim Crow” - while extending these concerns into the domain of algorithmic

systems and data-driven technologies. Within this tradition, abolition does not signify negation alone, but a critical and constructive practice: a commitment to dismantling systems that reproduce harm—an imperative closely aligned with responsible design, while simultaneously imagining and designing alternatives grounded in dignity, care, and collective flourishing.

As deployed in this dissertation, “abolition” therefore functions as a design and rhetorical orientation rather than a solely carceral framework. It names an approach to AI and data systems that refuses extractive, coercive, or dehumanizing logics and instead foregrounds accountability, consent, and ethical imagination. This orientation resonates with related concepts such as re-creolizing—understood here as the reworking of dominant technological forms through plural, diasporic, and culturally situated ways of knowing—and Black futurisms, which offer speculative and critical resources for envisioning technological futures beyond the constraints of racial capitalism and colonial modernity. Together, these frameworks inform the analysis developed in “Sex After Technology,” where questions of health, reproduction, and data governance are examined not only in terms of usability or efficiency, but through an abolitionist lens attentive to how AI systems can reinscribe or resist historical patterns of control over bodies and intimate life.

1.3.2 Methodology

This chapter adopts a largely qualitative approach to critically examine the complex dynamics of algorithmic ethopoeia in women's health. Grounded in Critical Feminist Theory and Data Feminism, this framework interrogates the power structures embedded within data technologies while advocating for ethical and equitable AI design practices (Benjamin, 2019; D’Ignazio & Klein, 2020). The specific forms of analysis follow:

Qualitative Analysis of Case Studies

In an era marked by rampant data exploitation and pervasive privacy breaches, qualitative analysis emerges as a crucial method for capturing the nuanced, lived experiences of those affected by these practices. Through an in-depth examination of germinal case studies—including the Salta teenage pregnancy prediction program and the data strategies employed by entities such as Flo Health, Amazon, and Meta—this analysis reveals how algorithmic systems do more than merely process information; they actively shape and reinforce entrenched social, political, and ethical power structures. These examples underscore a disquieting reality: the technologies designed to serve us can, in fact, perpetuate harmful biases and exacerbate inequalities, particularly in sensitive areas like women's healthcare. This inquiry, therefore, not only highlights the urgent need for more transparent, accountable, and equitable AI governance but also calls for a fundamental rethinking of how we approach the design and implementation of algorithmic systems in our increasingly data-driven world.

Analytical Framework for Examining AI, Gender, and Power

This chapter's analytical framework synthesizes three key theoretical perspectives - Algorithmic Ethopoeia, Data Feminism, and Critical Feminist Theory- to provide a comprehensive examination of the intersection of AI, gender, and power. By integrating these frameworks, this chapter critically interrogates the ways in which algorithmic systems shape, reinforce, and sometimes disrupt existing social hierarchies. It further explores how data-driven technologies in women's health both reflect and perpetuate systemic inequities, underscoring the necessity of ethical, transparent, and feminist-informed AI design:

Algorithmic Ethopoeia

Adapting the ancient concept of ethopoeia, as updated and explicated by Kampherm (2023), this framework interrogates how AI technologies construct representations of women in ways that reinforce gender biases and social inequalities. It critically examines the processes by which algorithmic systems—through the aggregation and interpretation of data—shape identities and societal roles, often reducing complex human experiences to reductive, and sometimes oppressive, profiles. For instance, consider the 2017 initiative in Argentina’s Salta province, where a program was launched to predict teenage pregnancy using AI. As Governor Juan Manuel Urtubey announced, the system purportedly forecasted a girl’s likelihood of teenage pregnancy with 86% accuracy by linking personal identifiers to predictive data. Critics argue that such applications, steeped in racist, classist, and patriarchal assumptions, risk further marginalizing vulnerable populations by enforcing stereotyped narratives on women’s reproductive futures. In a post - *Roe v. Wade* world—where women's healthcare data is increasingly politicized—this form of algorithmic ethopoeia not only threatens individual privacy and autonomy but also amplifies systemic harms through the reification of oppressive gender norms. By foregrounding these ethical concerns, this framework advocates for a re-evaluation of AI design practices to ensure they promote equity and justice, rather than perpetuating harmful socio-political agendas. Notably, it is within this framework that the concept of “ethotic heuristics” first emerged.

In that work, I explore heuristics that are tailored to address the urgent need for rebalancing power disparities in the wake of the *Roe v. Wade* reversal, where women’s healthcare data has become centred and increasingly commodified for both profit and control. This approach underscores the necessity of ethical, context-specific design practices that safeguard the rights and dignity of women,

challenging the prevailing paradigms that render personal data a tool for domination rather than empowerment.

1.3.3 Data Feminism and Feminist Theory

Data Feminism, interwoven with broader feminist theory, serves as a guiding lens for this work, enabling a critical examination of the power dynamics that underpin data collection and usage in AI systems. This perspective advocates for transparency, accountability, and inclusivity, rigorously challenging conventional data practices that frequently reproduce and exacerbate systemic inequalities (D'Ignazio and Klein, 2020). By emphasizing equitable methodologies in data usage and analysis, Data Feminism interrogates not only what data is collected but also how and why it is measured—thereby revealing the gendered assumptions that are often embedded in these processes. For instance, one aspect of this research applies Data Feminism to scrutinize the collection and utilization of women's healthcare data in the wake of significant legal and social shifts, particularly in a post-*Roe v. Wade* context. In this scenario, traditional data practices risk commodifying sensitive reproductive health information, such as fertility data, or menstruation data, thus reinforcing patriarchal power structures and marginalizing women's lived experiences (D'Ignazio and Klein, 2020). By leveraging Data Feminism principles, this analysis exposes how certain data collection methodologies privilege specific narratives while simultaneously silencing others, challenging the status quo and advocating for more inclusive and ethical practices.

This perspective further critiques the intersection of technology, gender, and power by advocating for abolition, as articulated by Benjamin, as a framework for dismantling biased and misogynistic code embedded within sociotechnical systems (Benjamin 2019).

It provides a critical lens for examining the socio-political dimensions of AI, calling for transformative frameworks that address systemic injustices. In doing so, it lays the groundwork for

innovative, justice-oriented approaches to data science that ensure the voices of marginalized communities are not merely heard but are central to the design and interpretation of technological systems. O’Neil has often advocated for racial justice in these systems of “math destruction,” when she writes about the “civilian casualties” of these systems (O’Neil, 84).

Building on these theoretical insights, the chapter, also, introduces my design heuristics now angled as analytical instruments, addressing the ethical challenges posed by algorithmic ethopoeia – This angling is contextualized to respond to the increasing datafication of healthcare data and the emergent use of social media data in legal enforcement against women. For example, in states where abortions are now illegal, a heuristic inspired by D’Ignazio and Klein’s “consider context” principle (D’Ignazio and Klein 18) emphasizes the necessity of designing for contextual specificity. This heuristic is designed to ensure that technological solutions not only respect privacy but also actively recognize and mitigate power imbalances by giving women control over their personal data in an increasingly hostile socio-political and legal environment.

Additional heuristics developed in this chapter foreground the importance of human factors and ergonomics, alongside culturally attuned forms of representation. These dimensions function as modes of ethical characterization—here conceptualized as ethotic heuristics: these heuristics orient AI- powered applications toward the protection of user safety, autonomy, and well-being, particularly for populations rendered vulnerable by structural inequities. Taken together, these approaches demonstrate how Data Feminism and feminist theory offer critical analytical and design-oriented tools for interrogating and reshaping the socio-political consequences of AI-driven surveillance and data practices. This analysis advances a call for the reimagining of AI design in ways that centre equity, justice, and the protection of individual rights within contemporary digital systems.

1.3.4 Refining and Implementing Heuristics

During editorial process of this essay, critical questions arose regarding the practical application of these abolitionist tools to mitigate algorithmic harms. The process was instructively detailed and rigorous. The essay appeared in a special issue of *Rhetoric Society Quarterly*. The arguments it develops, in nascent form, made their first public appearance at Association for the Rhetoric of Science, Technology, and Medicine (ARSTM) National Communication Association Preconference in November 2022, entitled *The Futures of Rhetoric of Science, Technology, and Medicine*. My paper was part of a panel on “Futures of STEM Equity.” The pre-conference also featured a roundtable on “Critical Reflections on Medicine in ARSTM,” featuring Zoltan P. Majdik and S. Scott Graham. When their idea for a special issue of RSQ on AI was accepted, they made a point to send me the CFP. Professor Harris and I assembled a proposal based on the notion of algorithmic ethopoeia. It was accepted, and the work, by all parties, really began. First, Majdik and Graham had accepted our proposal, but with detailed commentary. I was lead and corresponding author, but Professor Harris helped me negotiate the accommodations they requested. Majdik and Graham then reviewed a preliminary draft which expanded our ideas and addressed their concerns. Again, the response was thorough. It was in this next draft that the heuristics made their first appearance.

The blind peer reviewers got it next, Majdik and Graham collating their recommendations and guiding our response. They saw a significant disjunction between heuristics, mostly leveraging Benjamin in a design context, and our analyses, leveraging Data Feminism in a critical context. At this point, however, it all came together, as we adapted the heuristics from their design motivations into a critical toolkit. The heuristics were refined to function as countermeasures, borrowing from D’Ignazio and Klein’s principles (*Data Feminism*, 2020). For instance, the Human Factors and Ergonomics heuristic critically examines design practices that rely on biased data, ensuring that applications are both user-friendly and culturally responsive to women’s specific needs in health-

related contexts. This heuristic draws upon multiple principles from data feminism and abolitionist frameworks, including DF3, DF6, Ab1, and Ab2, to promote nuanced and contextually appropriate design solutions. Moreover, it acknowledges the evolving dynamics of power imbalances—such as those between the state and women—by highlighting how these disparities have historically mobilized women and legal advocates to challenge systemic inequities and push for more equitable technological and legal frameworks. We also had the benefit, later in the process of helpful commentary from the journal’s primary editor, Joshua T Barnett, and a round of copy editing. This process was incredibly important in my professional scholarly development as well as the intellectual improvement of my ideas, helping solidify my *ethotic heuristics* framework. I was lead and corresponding author, but my experienced co-author was crucial in turning what looked like complaints and repudiations into strategies for shaping our argument; and, in turn, my ideas, and ultimately, in this journey guided also by Professor Fan and supported by colleagues, editors, and the ARSTM community of my *ethotic heuristic* framework.

This chapter, while it may have developed in a more distended and rigorous way, equally underscores the urgent need that spurred the rapid and loose “Conversations” for an ethical and inclusive discourse on health AI technologies in our rapidly shifting political and technological landscape. By applying a rigorous analytic approach and integrating feminist and abolitionist critiques, this research challenges prevailing narratives around women’s health surveillance and advocates for ethical, transformative AI practices. Drawing on the insights of D’Ignazio and Klein, this examination foregrounds the concept of “technochauvinism”—the belief that technological solutions are inherently superior and the correct approach to solving complex problems. By critiquing “technochauvinism” (D’Ignazio and Klein 246) and emphasizing the need for balanced approaches that integrate human judgment and cultural sensitivity, this chapter advocates for AI systems that genuinely serve the public good. In doing so, it presents a comprehensive critique of current AI

practices in women's health by synthesizing three theoretical approaches: algorithmic ethopoeia, data feminism, and critical feminist theory.

Algorithmic ethopoeia, here applied, examines how AI systems construct and represent identities, often perpetuating biases against women. Data feminism offers principles for conducting equitable, ethical, and sustainable AI research, emphasizing the need to challenge power structures and consider context. Critical feminist theory provides a lens to analyze and deconstruct systemic inequalities embedded within technological frameworks. By employing these approaches, the chapter not only critiques existing practices but also proposes a framework for designing more equitable technologies using heuristics as a guide. The dual approach of presenting heuristics as both practical guidelines and critical tools positions this research to foster a more inclusive and accountable technological landscape, prioritizing women's rights and ethical design in AI data design, development, and critique.

1.4 Chapter 4 Overview Rethinking the Rhetoric of Surveillance in Public

Safety: A Critical Discourse Analysis

In Chapter 4, "Rhetoric of Surveillance," we employ the CDA methodology framework—augmented by a carefully constructed set of contextual heuristics—to deconstruct the language and rhetoric that underpin modern surveillance technologies. This analysis centers on what we term "surveillance rhetoric," a justificatory discourse that legitimizes surveillance practices across a multitude of societal sectors. Such rhetoric is not merely incidental; it is systematically embedded in digitally mediated artifacts, including Terms of Service agreements, law enforcement statements, and curated website content. These artifacts function as "textual productions" (Eyman 2015) crafted to persuade the public to trust, and indeed embrace, surveillance tools, and systems by framing them within the reassuring lexicon of "security" and "public safety."

Drawing on Foucault’s germinal insights into the mechanics of power and control (Foucault 1977, our analysis reveals how these narratives do more than simply communicate policies—they rhetorically shape public perceptions and thereby induce consent to expanded surveillance. Scholars such as Lyon (1994, 2015) have demonstrated that the discourse surrounding surveillance is deeply entwined with broader socio-political power structures, where the promise of safety is often used to mask incursions into privacy and individual freedoms. This phenomenon is further illuminated by Zuboff (2019), who conceptualizes “surveillance capitalism” as a system wherein personal data is commodified under the guise of protection and efficiency, ultimately undermining democratic values.

Moreover, the justificatory language of surveillance rhetoric is reflective of what Ferguson (2017) describes as the rise of big data policing trend where algorithmic processes not only monitor but also pre-emptively manage populations based on predictive analytics. In our analysis, we argue that these discursive strategies are instrumental in normalizing surveillance, making it appear as an indispensable pillar of societal order, while simultaneously obscuring its potentially deleterious impacts on civil liberties. The subsequent sections discuss the contextual backdrop, underlying motivations, and methodological approaches that inform this critical examination, setting the stage for a broader discussion on the implications of surveillance rhetoric in shaping both policy and public perception.

1.4.1 Chapter Remarks and Reflections: Unpacking the Rhetoric of AI-Powered Surveillance

In this integrated thesis, “Rhetoric of Surveillance” serves as the culminating piece that bridges several strands of inquiry into how advanced AI-powered technologies shape surveillance practices. It also critically examines the rhetoric of surveillance as manifested in digital texts—for instance, on social media platforms, in artifacts such as Terms of Agreement, and through website content—

illuminating how such texts both reflect and shape our understanding of data collection, control, and privacy in the digital age.

More than four years into my doctoral journey, my work began to reflect a deeper engagement with both the technological advancements in artificial intelligence. This period was marked by a growing awareness of the ideological shifts that characterize contemporary surveillance, shifts that are increasingly amplified by digital technologies. In my earlier co-authored piece, “Sex After Technology” (published in *RSQ*) and the essay, “Rhetoric of Surveillance,” I established a foundation for dissecting the narratives that underpin and justify surveillance practices.

In one session with a fourth-year sociology class (Fall 2023 SOC 430 “Technology and Society” at the University of Waterloo), my co-author and I—me, serving as a visiting lecturer—introduced the CDA protocol we had refined over countless sessions. Given the time constraints, we focused on Instagram’s Terms of Agreement as a digital artifact. Many of the students, who were involved in legal pursuits, enriched our discussion as we interrogated the underlying ideologies embedded within these terms. For instance, we noted the utilitarian rationale that frames data collection as serving the “greater good” while simultaneously implying that individual privacy may be sacrificed when state interests intervene.

Recognizing that the Terms of Agreement is not merely a legal document, but a text imbued with persuasive rhetoric, we sought to both dissect and remediate these rhetorical devices. We developed heuristics to contextualize and potentially mitigate practices observed in previous work—particularly the ongoing datafication and reification of human experiences, whereby complex, lived experiences are reduced to commodified data points, as seen in the treatment of women’s healthcare data (“Sex After Technology”) and the datafication of human biometrics. These texts underscore how consent and data collection are interwoven into our techno-cultural landscape, facilitating not only overt

forms of surveillance, such as facial and biometric recognition, but also subtler practices enacted *via* social media platforms like Instagram.

My earlier work also extended this analysis to a focused study of a prominent surveillance actor—Clearview AI—which, at the time of writing, faced legal challenges in multiple jurisdictions. In the United States, for example, several states (including Illinois, California, Virginia, New York, and Vermont) challenged the company’s collection and use of biometric data without consent. In Europe, coordinated complaints were filed with data protection authorities in the United Kingdom, France, Italy, Greece, and Austria, while the Dutch Data Protection Authority imposed a fine under the GDPR. Canada, too, has witnessed regulatory scrutiny regarding the scraping of its citizens’ images. These legal actions illustrate a global pushback against such surveillance practices and highlight the contentious justifications that underpin them.

Due to the limitations imposed by our target journal (Springer), the originally extensive work was condensed from a book-length manuscript into a 20-page essay. Although I at times considered withdrawing the paper because much remained unsaid, I recognized that this piece is a critical component of my intellectual journey. It encapsulates my developing expertise in artificial intelligence, data design, and surveillance rhetoric while reflecting the developmental process that has defined and refined my scholarly voice. I began, then, to see the practice of heuristics guidance as useful framework for evaluative guidelines that empower individuals to critically assess the promises and trade-offs embedded in these texts, thereby revealing how ostensibly neutral legal agreements function as mechanisms of control and commodification. For example, the *Rhetorical Analysis Heuristic* class of heuristics, presented in the essay, entails identifying and dissecting the various rhetorical strategies employed within surveillance discourse. This includes examining emotional appeals (*pathos*), such as invoking fear of crime or terrorism; assessing the credibility of sources (*ethos*), such as government authorities or technology companies; and evaluating the logical

arguments (*logos*) that purport the necessity and effectiveness of surveillance technologies. Such an approach is designed not only to discern recurring patterns across various text types but also to surface the underlying ideologies that drive these practices.

1.4.2 Context and Motivation

The growing reliance on surveillance technologies in the name of public safety has become increasingly contentious, especially after high-profile crises such as the 9/11 attacks, the Boston Marathon bombing, and the COVID-19 pandemic. Governments and law enforcement agencies have leveraged these events to justify a significant expansion of surveillance tools, including CCTV cameras, facial recognition software, data tracking, and contact tracing. As machine learning algorithms become integrated into these systems, even developers may lack full comprehension of how data is processed, often reinforcing power imbalances. Researchers such as Joy Buolamwini, in her book, *Unmasking AI*, have highlighted biases in AI-driven tools, especially facial recognition systems that disproportionately affect people of colour and marginalized communities (Buolamwini, 2023), resulting in over-policing and privacy invasions (Harvard ALI Social Impact Review, 2023). These challenges underscore the critical need for ethical AI development to ensure fair and just treatment for all (The Century Foundation, 2017; Berkeley Center for Law and Business, 2023).

“Rhetoric of Surveillance” serves as a culminating analysis that weaves together multiple strands of inquiry into how advanced AI-powered technologies mediate and intensify contemporary surveillance practices. It interrogates the rhetorical strategies embedded in digital texts—such as social media discourse, Terms of Agreement, and website interfaces—that both reflect and construct prevailing understandings of data collection, control, and privacy in the digital age. This work situates surveillance not merely as a technological function but as a normalized cultural condition, legitimized through persuasive textual and discursive forms. Drawing on insights from earlier work, including

“Sex After Technology,” and further informed by societal debates on AI governance and the political economy of biometric data, “Rhetoric of Surveillance” underscores the need to confront the ideological and justificatory narratives that sustain what might be termed surveillance determinism. In doing so, it contributes to broader efforts to theorize the socio-political stakes of surveillance within increasingly digitized publics.

Taken together as rhetorical *topoi*, these areas of analysis enable a systematic interrogation of surveillance discourse, wherein ethotic heuristics offer a critical framework for evaluating the credibility, ethical positioning, and persuasive intent of AI-driven surveillance systems. This heuristic approach not only foregrounds the ethical dimension of technological design but also advances a decolonial and justice-oriented critique of how surveillance is deployed and normalized across digital infrastructures.

1.4.3 Methodology

This chapter utilizes a mixed-methods approach, combining qualitative and quantitative analyses within a CDA framework to examine the socio-political impact of surveillance rhetoric. This methodological integration provides a robust structure for analyzing the power dynamics embedded in surveillance practices and advocating for more equitable systems.

Critical Discourse Analysis (CDA)

Leveraging the analytical tools of CDA, this case study scrutinizes the language and rhetoric embedded in surveillance-related texts to unmask the power structures and ideological forces that shape public narratives of safety and security. In his germinal (1977) work, *Discipline and Punish: The Birth of the Prison*, Michel Foucault explicates Jeremy Bentham’s panopticon, Foucault, earlier, describes it as an ideal of social control:

All that is needed, then, is to place a supervisor in a central tower and to shut up in each cell a madman, a patient, a condemned man, a worker, or a schoolboy. By the effect of backlighting, one can observe from the tower, standing out precisely against the light, the small captive shadows in the cells of the periphery. They are like so many cages, so many small theatres, in which each actor is alone, perfectly individualized, and constantly visible (Foucault 1977, 200).

As in the works of many late-modern and post-modern thinkers (Walter Ong, Marshall McLuhan, Neil Postman) this passage reveals a prescient anticipation (and trepidation) of the arc described by a high-octane capitalist media culture that has delivered the technological environment of the twenty-first century. In Foucault's case, he charts a pervasive surveillance while foreshadowing algorithmic control by technologies that were once barely imaginable. Building on Bentham, by way of Foucault's foundational insights and later studies by Lyon (1994, 2015), this analysis interrogates how official texts - ranging from seemingly mundane Terms of Service agreements to governmental and law enforcement communications—act as instruments of normalization and legitimation, a kind of ambient propaganda for surveillance practices, thereby shaping contemporary power dynamics.

These kinds of text analysed in this chapter frequently deploy a lexicon that not only frames surveillance as an indispensable component of public safety but also marginalizes dissenting voices – the Foucauldian “patient” if you will, thereby reinforcing existing social hierarchies and justifying encroachments upon civil liberties. A compelling illustration of this dynamic can be found in the discourse surrounding predictive policing. For example, in November 2009, the National Institute of Justice (NIJ), in collaboration with the Bureau of Justice Assistance and the Los Angeles Police Department, convened a Predictive Policing Symposium in the wake of the 2008 financial

recession—a time when rising crime rates spurred law enforcement agencies to adopt more aggressive crime prevention strategies

The symposium culminated in the publication of Beth Pearsall's influential article, "Predictive Policing: The Future of *Law Enforcement*?" (Pearsall, 2010), which helped institutionalize the discourse of predictive policing—framing algorithmic crime forecasting not only as a technological innovation but as a rational and inevitable evolution of law enforcement. This discursive framing positioned data-driven surveillance as neutral and objective, masking its embedded biases and reinforcing narratives of pre-emption and control.

In our analysis of this text, my co-author Lai-Tze Fan and I position Pearsall's text within a broader discourse that interrogates how predictive policing is utilized to legitimize surveillance under the guise of proactive crime prevention. The rhetoric in these narratives strategically deploys statistical and algorithmic language to portray surveillance as an objective and indispensable tool for ensuring public safety, all the while subtly obscuring the profound socio-political implications and biases inherent in these practices. Predictive policing systems, which rely on data analysis and machine learning algorithms to identify high-risk areas, aim to pre-empt criminal activity through the strategic deployment of police resources. However, as critics have pointed out, these systems are inherently biased—operating on historical data that disproportionately targets marginalized communities (Ferguson, 2017; O'Neil, 2016).

The emphasis on demographic factors such as race remains a central challenge in the deployment of surveillance technologies. For instance, Buolamwini and Gebru (2018) highlight how facial recognition systems often misclassify Black male faces due to algorithmic biases rooted in phenotypical differences—effectively dehumanizing these individuals and echoing historical practices of racial stereotyping, sometimes reminiscent of the derogatory "sambo" caricatures. Furthermore, the inclusion of criteria such as race, sex, age, and socioeconomic status in predictive models rests on the

problematic assumption that these variables reliably indicate criminal behavior. Such assumptions not only perpetuate systemic discrimination but also raise profound concerns about individual privacy and civil liberties (O’Neil 2016; Ferguson 2017).

This intersection of biased data practices and surveillance underscores the urgent need for ethical, transparent, and socially responsible AI design that critically interrogates the relationship between data, bias, and power. Thus, through CDA, this chapter illuminates how surveillance rhetoric, particularly in contexts like predictive policing, functions as a discursive mechanism that normalizes surveillance and consolidates power. By exposing these narratives, the study contributes to a critical rethinking of how surveillance technologies are communicated and justified, advocating for more transparent, accountable, and equitable systems that prioritize human rights over technocratic efficiency. It also provides yet another context where the heuristics formulated in “Conversations” and refined in “Sex After Technology” can be re-purposed to think of surveillance data.

Case Studies and Textual Analysis

To ground our discourse in tangible examples, this chapter focuses on a detailed textual analysis of the case study mentioned earlier (The symposium that culminated in Beth Pearsall’s influential article, “Predictive Policing: The Future of Law Enforcement?”) (Pearsall, 2010). In addition to predictive policing, the chapter examines the deployment of facial recognition technologies by law enforcement agencies. These examples illustrate how surveillance practices disproportionately target marginalized communities and elucidate the real-world consequences of surveillance rhetoric by exposing how the language used in policy and practice can exacerbate social inequities. By integrating textual analysis with normative claims of law enforcement, the study provides a nuanced

understanding of the mechanisms through which surveillance rhetoric is deployed to maintain the status quo, echoing critiques advanced by Ferguson (2017) and Zuboff (2019)

Surveillance in Literature

This chapter contextualizes the psychological and societal impacts of surveillance. Jeremy Bentham's concept of the panopticon provides a foundational framework for understanding how surveillance induces self-regulation through the internalization of a constant sense of observation (Bentham, 1995). Fictional narratives serve as an essential complement to this theoretical lens. Dystopian works such as Aldous Huxley's *Brave New World* (1932) and George Orwell's *1984* (1949) dramatize the erosion of freedom and individuality under conditions of omnipresent surveillance, offering cautionary tales that remain strikingly resonant amid today's algorithmic governance systems. These literary texts operate not merely as speculative fiction but as cultural critiques that expose the ideological underpinnings of surveillance logics.

This foundation is further enriched by Margaret Atwood's *The Handmaid's Tale* and *The Testaments*, which offer incisive portrayals of surveillance and control specifically targeting women. These works extend the critique into the domain of gendered surveillance, revealing how reproductive bodies, affective labour, and personal autonomy are subjected to regulatory scrutiny under authoritarian regimes. The use of literary fiction here is intentional: it underscores the value of narrative in surfacing the emotional, ethical, and societal dimensions of surveillance that often elude purely technical or policy-based critiques.

Together, these texts enable a multi-layered interrogation of contemporary surveillance practices. By drawing from both foundational theory and cultural imagination, this chapter emphasizes how

fiction can serve as a heuristic device—one that not only reflects but also resists and reimagines the socio-political orders of the digital age.¹⁹

By critically examining the regulatory and ideological frameworks that shape surveillance—and acknowledging the literary canon and genre through which this discourse is explored, this study leverages fiction not as embellishment, but as a vital lens. Fiction offers imaginative insight into power, resistance, and human experience that conventional sociological texts often abstract. In doing so, the study advances proposals for more transparent, fair, and inclusive surveillance practices.

Together, these methodological components provide a nuanced perspective on how discursive practices in surveillance both mirror and perpetuate power imbalances. This integrative approach underscores the urgency of reimagining surveillance policies to safeguard democratic values and individual freedoms in an era of rapid technological change, ensuring that ethical considerations remain central to the debate on digital surveillance. Moreover, it concurrently forges an interdisciplinary bridge among rhetorical studies, ethics, and biometric surveillance—an intersection highlighted in the *Proceedings of the 8th Future of Information and Communication Conference, 2025*—thereby enriching scholarly discourse and advancing critical reform in these intertwined fields.

1.4.4 Heuristics for Evaluating Surveillance: Toward Transparency, Accountability, and Equity

Overall, “Rhetoric of Surveillance” engages in a critical dialogue with contemporary surveillance discourse -a discourse in which citizen management is increasingly intertwined with digital biometric surveillance and AI-powered systems, all integral components of current surveillance praxis.

Accordingly, it develops a comprehensive set of context-specific heuristics designed to equip

¹⁹ A note on publication: Minor editorial adjustments have been made to previously published material for the purposes of clarity, coherence, and thematic flow in this dissertation.

stakeholders - including data designers, technologists, scholars, policymakers, and citizens - with critical tools to evaluate and challenge the pervasive rhetoric underpinning surveillance technologies. Rooted in critical theory and informed by germinal works such as those by Zuboff (2019) and Ferguson (2017) and building on the discussions presented in “Conversations” and “Sex After Technology,” these heuristics underscore that surveillance is not merely a technical mechanism but a socio-political instrument that often reinforces systemic inequities and erodes fundamental privacy protections. By advocating for ethical, transparent, and accountable practices, the heuristic framework created here challenges the normalization of unchecked data collection and compels a rigorous interrogation of the justifications used to legitimize surveillance.

At the heart of this critical approach is the imperative for contextual analysis—a principle that rejects the inadequacy of a “one-size-fits-all” approach in favor of context-sensitive evaluations. Let me explain: Drawing on insights from our earlier exploration in “Sex After Technology,” where domain-specific heuristics were applied to women’s healthcare data design, this framework extends similar context-specific scrutiny to surveillance practices. It recognizes that when applied indiscriminately, surveillance technologies can exacerbate power asymmetries and compromise civil liberties. Thus, by promoting heuristics that are tailored to the unique ethical and social risks inherent in different surveillance contexts, this chapter advances a paradigm that aligns technological oversight with principles of justice and equity. In doing so, it contributes to a broader scholarly dialogue that seeks to recalibrate the balance between state security imperatives and the preservation of democratic values in our transient technological space.

1.4.5 Implications of Surveillance Rhetoric

Our research reveals that the normalization of surveillance rhetoric under the guise of public safety fosters a chilling effect, deterring free speech and activism by equating opposition with criminality.

This strategic framing not only reinforces the indispensability of surveillance for maintaining public order but also marginalizes critical voices that challenge institutional power. As Zuboff (2019) argues, such framings are deeply intertwined with the commodification of human behavior—a core tenet of surveillance capitalism that exacerbates systemic inequities and erodes fundamental privacy protections. The profound impact of this framing extends to privacy and civil liberties, yielding significant socio-political consequences.

By integrating CDA, historical contextualization, and heuristic development, this chapter contributes to the ongoing discourse on the ethical and social implications of AI-driven surveillance. This multifaceted framework offers a nuanced critique of current surveillance practices and proposes actionable pathways to safeguard privacy and promote equity. In equipping readers with tools to critically engage with surveillance rhetoric, the chapter advocates for policies that genuinely prioritize public safety without compromising individual rights. In doing so, it fosters a balanced understanding of the socio-political dimensions of surveillance and underscores the ethical imperative for transparent, inclusive, and equitable AI practices in public safety contexts. Collectively, this study emphasizes the need for a responsive and engaged scholarly approach, ensuring that academic contributions remain both relevant and impactful in navigating the complex landscape of AI-driven surveillance.

Conclusion

This dissertation brings together three interrelated essays, under the rubric of an integrated thesis comprising “Conversations,” “Sex After Technology,” and “Rhetoric of Surveillance”—to offer a comprehensive exploration of AI-driven surveillance and its ethical implications through the lens of design heuristics. In “Conversations,” the concept of heuristics is first introduced, laying the

groundwork for a systematic approach to critically assess technology's socio-political impacts. This foundational discussion set the stage for the more nuanced explorations that follow.

“Sex After Technology” builds upon these initial ideas by focusing on the domain of data feminism and the politicization of women's healthcare data in a post-Roe v. Wade context. Here, the application of context-specific heuristics reveals how design decisions can perpetuate power imbalances and marginalize vulnerable populations. The analysis illuminates the ways in which algorithmic systems, when uncritically accepted, contribute to inequities by encoding patriarchal biases and furthering the erosion of individual autonomy and privacy. This essay not only underscores the urgent need for ethical design practices in sensitive social contexts but also illustrates the transformative potential of heuristics to reshape discourses around gender and technology.

“Rhetoric of Surveillance” extends the discussion to the realm of surveillance practice, interrogating the rhetoric that legitimizes invasive data collection and biometric monitoring under the guise of public safety. Utilizing CDA, this essay exposes how surveillance rhetoric is strategically crafted to obscure its socio-political consequences, thereby reinforcing systemic inequities and restricting civil liberties. By revealing the ideological underpinnings of surveillance capitalism (Zuboff, 2019) and the discriminatory impacts of predictive policing (Ferguson, 2017), the analysis advocates for a recalibration of surveillance practices to prioritize transparency, accountability, and equity.

Together, these essays converge to illuminate the pervasive challenges of power imbalance, marginalization, and inequity inherent in contemporary technological practices. They collectively catalyze the emergence of what will be known in subsequent works as ethotic heuristics—a set of ethical guidelines designed to navigate and redress the complex interplay between technology, design, and social justice. By harnessing the critical insights of scholars across diverse fields—from data feminism to surveillance studies—this research contributes to a growing scholarly dialogue that seeks

to democratize technology and ensure that ethical considerations remain at the forefront of design practices.

Through the incorporation of an empathetic, characterization-driven design methodology, this approach places a premium on the human element in technology. In sum, this integrative framework not only challenges existing paradigms but also offers actionable pathways toward creating AI systems and surveillance practices that uphold democratic values, promote inclusivity, and protect individual rights.

When a digital health platform respects the integrity of women's data and acknowledges the unique risks associated with reproductive health information, it fosters greater trust between users and healthcare providers.

This framework acknowledges the sensitivities associated with such data and emphasizes its confidentiality, ensuring that both the platforms managing the information and the algorithms analyzing it operate with an unwavering commitment to ethical standards. In doing so, it lays the groundwork for what we term *ethotic heuristics*—practical, everyday tools designed to safeguard human dignity and promote transparency in AI-driven systems. As we continue to grapple with the rapid evolution of AI and its multifaceted impacts on society, the development and implementation of *ethotic heuristics* stand as a vital step toward a more just and equitable technological future.

Lastly, and perhaps most importantly, this dissertation marks a transformation in my development as a scholar. What began as an inquiry rooted in design practice and technical critique, inadvertently evolved into a broader postcolonial examination of how AI systems function as mechanisms of power, producing forms of control, classification, and moral judgment that disproportionately impact marginalized populations. Through this process, I came to understand AI not merely as a technological artifact, but as a rhetorical and governing force that reconfigures relationships between individuals, institutions, and the state.

This intellectual shift is inseparable from my positionality as a Saint Lucian-born scholar (the Global South), living in Canada (the Global North), shaped by lived and historical encounters with postcolonial structures of governance, extraction, and classification. As my research unfolded, I increasingly found myself working within what might be described as the postcolonial margins of AI scholarship, spaces where questions of data sovereignty, representational harm, and systemic exclusion are not abstract concerns but material realities. These perspectives sharpened my attention to how AI systems reproduce asymmetries between Global North and Global South, often positioning the latter as sites of experimentation, surveillance, or data extraction rather than as agents of technological self-determination.

This orientation places my work in sustained dialogue with contemporary scholars such as Benjamin, whose articulation of “abolitionist tools,” as engaged in rhetoric as design praxis in “Sex After Technology,” calls for critical approaches that do more than optimize or reform existing technological systems. It is likewise in conversation with the work of Buolamwini on algorithmic bias, Simone Browne on surveillance and racialized visibility, D’Ignazio and Klein on data feminism, Zuboff on surveillance capitalism, and Noble on algorithmic oppression—scholars who collectively expose how AI and data systems reproduce structural inequities under the guise of neutrality and innovation.

At the same time, this work emerges within a longer intellectual lineage that is not always explicitly named in the chapters themselves. Although thinkers such as Paulo Freire, Frantz Fanon, and Aimé Césaire do not appear as central citations, I have come to understand this dissertation as operating within the same foundational tradition of critique: one concerned with how systems of classification, governance, and knowledge production shape subjectivity, regulate populations, and normalize inequality. The problems addressed by these earlier scholars—extraction, domination,

dehumanization, and resistance, persist in contemporary technological form, even as their sites of operation have shifted from colonial administrations to algorithmic infrastructures.

In this context, my work on rhetoric as design praxis advances a framework for interrogating how AI systems justify themselves through language, user interfaces, and design decisions—particularly in contexts of surveillance and governance, as examined in “Rhetoric of Surveillance.” Here, rhetoric does not merely describe technological function; it actively enables regimes of monitoring, control, and normalization, often framed as necessary in the name of safety, efficiency, or public good. By situating AI within this broader historical continuum, the dissertation positions algorithmic systems as contemporary instruments of power that demand the same level of critical scrutiny once directed toward earlier colonial and bureaucratic regimes.

By developing the concepts of algorithmic ethopoeia and ethotic heuristics, this dissertation positions rhetoric as an interventionary design practice capable of exposing and disrupting the moral and political assumptions embedded in AI-driven systems. Across healthcare and surveillance contexts alike, this framework foregrounds the ways in which design decisions participate in the regulation of bodies, behaviours, and social value. In doing so, the work contributes to an emerging body of scholarship that treats ethical AI not as a matter of technical neutrality, but as an ongoing struggle over power, dignity, and human agency, particularly for those communities most vulnerable to the myriad harms of data-driven governance.

Chapter 2 Conversations Towards Practiced AI-HCI Heuristics

Overview & Introduction

Artificial intelligence (AI) has become one of the most critical features of our techno culture, and by extension, a key element in many user-facing technologies. However, experienced designers lack the necessary understanding of AI, as well as the variances of its application, but most importantly, they lack guiding principles for the day-to-day activities of the design function. Through the prism of the existing Design Thinking framework, a knowledge pathway that intersects with AI technology, in pursuit of practical design heuristics, is necessary. Such heuristics must enable Designers to respond to the call for growing and emergent regulations around AI; they must enable the continued adherence of human centred design, privileging human over machine, and they must empower Designers in AI design conversations. Given these circumstances, there is also a need for both research and education that seeks to investigate all the ways in which AI influences human computer interaction (HCI) and design, broadly. This paper takes a step towards acknowledging the lack of practiced AI-HCI knowledge frameworks needed that can guide Designers through the design thinking phases when designing technologies that deploy AI with user-facing technologies, in varying contexts and domains. Further, the growing levels of concern around AI, often with detrimental effects and negative human outcomes, make the matter mission critical and forces the acknowledgment that we need guidance, as appendages to existing design thinking frameworks and which can keep pace with the rapid rates of technological advances. The proposed heuristic classes are *human factors and ergonomics, accessibility, user controls and affordances, user consent, transparency*

Keywords: Artificial Intelligence, Design Thinking, AI- HCI Heuristics

Artificial intelligence (AI) has become one of the most critical features of societal existence and by extension, a key element in user-facing technologies. However, Designers still lack the necessary

understanding of AI, and the variances of its application, as well as what that means functionally, practiced through the prism of a design thinking framework. Therefore, a knowledge pathway to the intersects of AI technology and the design function is critical. This knowledge pathway demands both general guidance and just-in-time practical design guidance systems are not only compliant with growing regulations but also that adhere to centring humans in the process. Given these circumstances, it is worth noting the need for both research and education that seeks to investigate all the ways in which AI influences both the general space of HCI and design broadly. Central to these research undertakings is the need for research that: a) situates the impact of varying AI technological contexts, as it intersects with systems design, b) understands how these varying and contextual AI supports human users, c) devises contextual frameworks and accompanying heuristics that centres and privileges the human users in design systems, d) understands the functional competencies needed to support myriad of Designers seeking to dialogue with more technical functions, e) expands existing design thinking and design heuristics approaches that adopt and integrate new and emergent knowledge systems, f) advances the practice of Design and maintains relevance, and lastly, g) intersects with ethical design guidance. And while this is by no means a comprehensive list, it is here, at these cross points of design research that I situate the most tangible value of this paper, which is an entrance into the AI design discourse through a quasi-theoretical approach, steeped in my twenty years of experiential design practice, management, and training. This paper, therefore, takes a conversational, empirically informed step towards first, acknowledging the lack of practiced AI-HCI heuristics informed by experience, and secondly, empathetically centring the design function and how they continue to remain relevant to systems design and software development, in the age of automation. The desired outcome is to propose classes to share these heuristics.

Much research, and other writings have been done that covers the myriad of these areas of exploration [1,2,5,10,11,17,19,21,33,34], most recently published on account of the nascency of AI-

HCI practices. A number of these have also provided guidance of this paper's focus, with a few referencing a call for guidance [1,2,].

2.1 Methodology – An empirical approach to developing AI-HCI Heuristics

One of the more extensively cited and influential approaches to creating a systematic register of guidance for optimal user-centric design is the work developed by Jakob Nielsen and Rolf Molich [26] and later elaborated upon by Nielsen and others [30,32]. Together, Nielsen and Molich's work has afforded us pathways to discovering the "what" of the design problem space but not necessarily the "how" to remedy all problems discovered through heuristic evaluation. And this, I contend, is an acceptable reason to thus focus on heuristics to uncover the "what" to classify a design "violation" but not expect a heuristic to give specific solutions, i.e., the "how." This is the case because design context and domain change and the heuristics should consider, in this case, the varying AI usage scenarios and the breadth of AI application, across varying domains.

Given Nielsen and Molich's empiricist approach to developing heuristics for user interface design, the heuristics proposed here follow a similar tradition. Methodologically, these heuristics are derived from two primary sources. First, they are informed by my own structured literature review, which identifies recurring themes and challenges in AI design that require clearer guidance. Second, their formulation is influenced by the widespread adoption of certain design principles and challenges within the AI design community. The heuristic categories proposed in this paper reflect the most frequently cited AI design challenges, making them a promising foundation for further exploration. While these heuristic categories remain exploratory, their selection is justified by the emerging nature of AI design and the urgent need for clearer guidance in this space. Additionally, my two decades of experience as a Design Researcher and Design Research Manager - along with my firsthand

awareness of designers' concerns and their relative lack of voice in broader AI discourse—further support the relevance of these proposed heuristic classes.

To date, Designers are familiar with numerous design principles, but the most used has been the “Nielsen design heuristics,” aforementioned, which have been the “go-to” toolset used to design user-facing technologies. The need, however, for the evolution of and extension of those existing heuristics is necessary. Providing additional “containers” to house more finely defined design heuristic, used in a myriad of AI design context, is also critical. Like Nielsen and Molich (Molich and Nielsen (1990) and Nielsen and Molich (1990), those heuristics proposed here are deliberately broad, focusing on the “what” to look for in the process of designing around AI.

The narrowing of more specific heuristics within these wider classes will be informed by the AI and its usage context, the breadth of use, its user facing elements, as well as other industry and domain specific guidelines, which will co-inform more detailed heuristics. Furthermore, due to considerations that designers are already familiar with in these broad themes, it is important to encourage familiar entry point to thinking about the new challenges brought about by AI technologies. They are *human factors and ergonomics, accessibility, user controls and affordances, user consent, transparency*, and today, critically, *privacy* particularly around designing for “trust.”

Together these six categories represent areas of potential human / user impact as they interact with AI. They also represent continuation and evolution of design and Designers to imprint on emergent AI facing technology. These design themes, or what can be thought of as “containers,” are also regularly topics in the public domain; notably, privacy and accessibility (since the early 2000s) have significantly informed laws and regulations around designing for all, creating worldwide guidance. Both privacy and accessibility, as thematic areas of design concern, resonate not only in design circles but also in the public at large.

Several scholars have examined the topic of privacy in depth, particularly in relation to the European Union’s legislative efforts, such as the General Data Protection Regulation (GDPR), which has far-reaching implications for user-facing technologies [3,11,12,15].

A great portion of the General Data Protection Regulation (GDPR) privacy guidelines were guided by research conducted by Ann Cavoukian, former Information and Privacy Commissioner for the Province of Ontario, Canada, whose research efforts also inform this paper’s goals. Research done at this level has informed interface design impact and is critical to the knowledge base needed to upskill HCI practitioners. The concept of *privacy by design* [11] has become part of article 25 of the GDPR and a proposal of seven (7) foundational principles informed by the mantra of “proactivity, not reactivity.”

Like the early calls for better accessibility practice in design, all design “containers” have deep heritage in design practice and are critical in empowering designers who seek to design for AI technology. Another such example is Web Content Accessibility Guidelines (WCAG), the international standard, including WCAG 2.0, WCAG 2.1, and WCAG 2.2, representing the evolution of said guidance. The guidelines generated by this body have become the *de facto* standard, worldwide, for Accessibility design [36] and a great starting point as we extend the use with known AI design challenges.

Others have also proposed heuristics around AI, with varying degrees of specificity but a caution that they must remain broad enough to address AI technologies both by their breadth and usage. A call for domain specificity is also not new and pervades many existing research and discourse [2,4]. Further, we are yet to see the full effect and power of AI technologies and heuristics will have to scale to remain responsive to emergent technological postures. Many of these heuristics are derivative of initiatives happening in other areas, such as accessibility and privacy [11,36]; I contend that deference and collaboration with respective institutions that drive regulations and law is advisable.

2.2 A call for Ethics in Design

AI, to date, has produced novel challenges for the process of design, and a need to situate AI-HCI heuristics at the site of the wider design practice has never been so critical. Heuristics play a significant role in the software development process and are used to provide a discursive link between design and software development. Though not meant to be exact, they have also helped in the creation of industry accepted best design practices. The growing levels of concerns around AI, often with detrimental design defects, producing negative human outcomes, also forces a confrontation with existing heuristics and their alignment with growing calls for AI oversight [2,3,6,8,10,14,15,16,24,34,39] and designing for more human transparency. Therefore, it is mission critical to understand the broad *foci* of AI usage and further, to acknowledge that we need guidance on evolved design thinking principles that supports the rapid rates of these technological advances that are proactive. In addition, we must maintain the critical focus on designing for humans, primarily, undergirded by a mission to “do no harm.”

Many have written in the wider space of ethics in design, and any proposed heuristics must also be considerate of these research endeavours [5,6,10,14,35], especially those for criticality of thought. Realizing these goals, conversations towards AI-HCI heuristics should emerge from existing design considerations of traditional best practices as well as emergent best practices, advised by critical thinking. Lastly, such heuristics should be an additional tool employed by the design community that speaks to our current technological zeitgeist, currently lacking in worldwide regulations.

2.3 AI – HCI Heuristics and Design Thinking

The origins of design thinking stem from the development of psychological studies on creativity in the 1940s but entered the wider design consciousness with the works of Tim Brown of IDEO, among others, and commonly accepted as the predominant creative and systematic process that enables

teams and individuals tackling design challenges [7]. Seen as a non-linear, iterative process, Design Thinking frameworks, often illustrated as a “double diamond” approach to design that takes practitioners along five (5) phases: *empathize, define, ideate, prototype and test* [7]. The process enables teams to work from varying points of ambiguity, by providing human centered design tools and methods that catalyze teams to purposefully diverge and then converge on best contextual solutions. Given this, the use of, and proposal of, any heuristics does not seek to disrupt the ways of working within a design thinking framework. It also does not preclude the use of proposed heuristics for use at any of the five (5) design thinking phases. The underlying proposals of this paper are another layer of existing ways of working.

Another element of the proposed heuristics is a predication on the idea of harm reduction, in design process, managed through a systematic design framework, where any trained practicing Designer can have classes of potential design oversights that can potentially produce human harm and the ability to message and mitigate those harms, with heuristic guidance. And today, these systems are powered by myriad forms of AI, with limited oversight by design teams to gauge harm. The “harms” referenced here include, but are not limited to social, psychological, emotional, and environmental harms. This is alongside creating UI facing technologies that seek to provide transparency of use for human users interacting with nonhuman agents (i.e., AI) [4,9,17,18,24,33,34,37]. Notably, the call for transparency is on the rise as AI currently supports a growing number of decision-making in our society today [37,39], with little transparency, and sometimes with harmful outcomes for marginalized people [8,13].

Against the backdrop of both existing Design Thinking and the prevailing best social ethos of Google’s famous policy, encapsulated in the mantra “do no harm,” a Designer, using these proposed heuristics, can have their own functional “smell test” or most respectfully, functional imprint on the wider process of AI technologies, which are human facing. For example, a Designer, operating at the

tactical level, can ask: did the user provide explicit consent for data exchanges in this experience flow? This can be invoked as part of the *empathy* phase of design thinking, the *define* phase or more commonly a UI phase, where a Designer must make such affordances part of the user interface flow. And in this case, providing a “consent” control and or/ affordance to fulfill this requirement.

2.3.1 Design Thinking Framework and AI Design Heuristics

Understandably, there are many design frameworks (e.g., LUMA, Double Diamond) with which designers are engaged but none as dominant as the Design Thinking framework – a framework that was the key agitator of other design approaches, and that has recently shifted the role of design as a business differentiator to the changing consumer behavioural ecosystem [7]. Hence, it is fitting to situate any proposed heuristics at the intersection of Design Thinking. This design consideration espoused in this paper, as well, cannot be de-coupled from wider societal and academic conversations around tech ethics. As part of the tech world, Designers, too, hold some level of input and responsibility, yet another reason for heuristics that considers the role of design oversight in the process of systems design. And, if viewed through the wider prism of AI and technology that seeks to “do no harm,” Designers must be equipped with the tools to practice this growing mantra. Part of the goal of any heuristic must also consider that the human user must feel a profound sense of trust in technology, made possible by increased transparency of AI technology, to enable the de-mystification of AI, as developed today.

This requirement for transparency is easily part of “good” design thinking practice (Brown, 2009). In the broader space of AI, the issues around transparency are subsumed under the wider topic of “explainable AI,” the initiative to provide more AI black box transparency for users, opening more dialogue as to what AI is doing, and why and most importantly, what if, any harm, is happening and

how to rectify these harms. It is here that heuristics can provide a “what” to look for, while designing, not unlike existing design heuristics, as popularized by Molich and Nielsen.

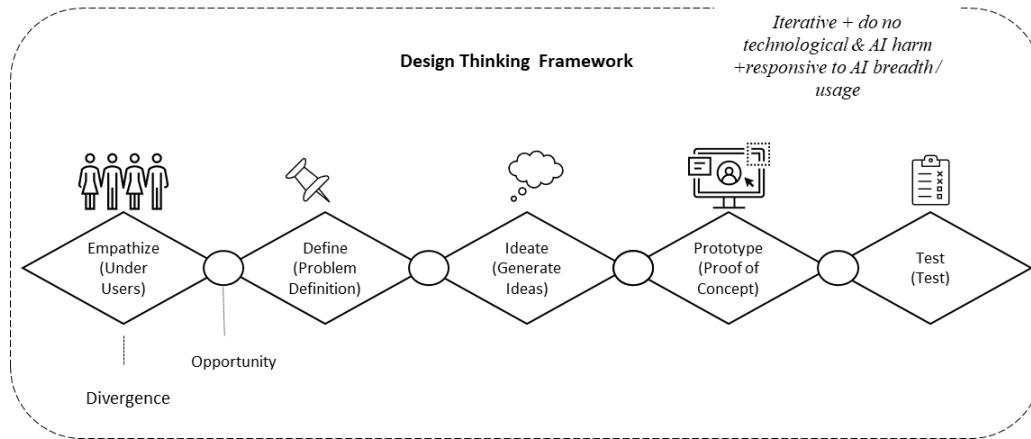


Illustration 2 A Design Thinking framework that illustrates iterative approaches, focused on “doing no harm” and adaptive to AI breadth of usage.

So far, I have situated the proposed AI design heuristics as a supplement to existing heuristics, and invokable at any stage of the Design Thinking framework (see Fig.1). Oftentimes, heuristics are more applicable when designing the user interface (UI) at the *prototype* phase, when ideas are proofed and materialized for testing purposes, before final design. However, I contend that some AI knowledge competency for designers in AI design dialogues [21,22], is necessary here. The following section seeks to open a conversation to this much needed knowledge competency for all Designers.

2.3.2 AI Knowledge Competency for Designers

One of the main challenges for designers is understanding the full range of AI applications, and how AI technologies “unfolding” maps to the work of designers, both from a strategic and tactical level. Given this *topos* of ambiguity, I suggest, here, that any heuristics should be able to: a) be responsive to all forms of AI (by breadth and usage); b) be agnostic to the varying breadth of usages of AI; c) work with existing design heuristics, d) be applicable across one or more of the Design Thinking

phases (i.e. phases empathize to test), as they are critical in influencing the forms of user facing technologies that deploy AI.

To meet this knowledge competency, the tables below outline the categories of AI by breadth and usage, respectively, and is the base knowledge competencies that Designers require to participate in AI design conversations. This is a prerequisite to understanding our role in the wider AI discourse and guidance on how to provide continued value. Lastly, this knowledge competency bares relevance to Designers and their work as creators of the user interfaces, which support the deployment of AI. The following provides a high-level overview of the knowledge that Designers can begin to explore and participate in AI conversations [22].

Table 2.1 outlines the wider classes of AI, in terms of breadth [22], with broad examples. The breadth of AI application ranges from the “narrow or weak AI” to “super AI.” The latter is still an aspirational future state. Situating the Designer in both the present and future states of AI applications is also vital, allowing for proactivity of thought, broadly. However, this categorization of AI by “breadth” of application is not the immediate focus. Instead, this paper’s purpose is the space between user and usage and the tools afforded designers to provide oversight to how the user interacts with AI’s UI technologies, now and in the future.

Table 2.1 Breadth of AI application

AI Category	Breadth of Application	Example
Narrow AI: Also known as weak AI with limited capabilities and designed for specific purposes with a focus on practical tasks.	Traditional (Wave 1)	Apple’s Siri and Chat GPT
General AI: Also known as Strong AI, this type can complete human tasks and, technically, has all the capabilities of a human brain.	Neural Networks (Wave 2)	Movie, Terminator T800 Still conceptual

Super AI: Defined as AI capable of surpassing human intelligence, harnessing cognitive and thinking skills of its own.	Cognitive Architecture (Wave 3)	Still conceptual
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Table 2.1 represents the broad classification of AI, based on usage, which suggests a human facing element with more immediacy and practical guidance for day-to-day practice and use. The categorization of AI by usage includes *reactive machine AI*, *limited memory AI*, *theory of mind AI*, and lastly, *self-aware AI*. [22] All of these classes, once understood by Designers, help bridge the knowledge gap and catalyze the engagement in AI conversations about design requirements.

The first of the four (4) classes (see Table 2.2), reactive machine AI, is heavily cited in connection with IBM's early 1990's Deep Blue. Though this is the most mentioned. Another example in the gaming space is Google's *AlphaGo*, a type of AI that has other applications with user facing elements and therefore require guidance in design. In this mode of human to machine interaction, an AI agent reacts to a human agent's activity and awaits the human agent's interaction before reacting with a subsequent action. And so, in the *Deep Blue* example, the AI reacts to a player's (user's) move on a chess board, based on built-in computations, and machine learning; hence, utilizing some degree human intelligence to supplement its reactions.

One of the relevant challenges is that there is ongoing insight into what lies beneath the decision-making faculty and how that also impacts the human user – from whom all machines learning occurs. Here, heuristics with awareness of the conditions the long-term effects on learning a human, and in known cases eventually removing the human from the equation, making the human redundant. These are, undoubtedly are all related to design decisions that consider this potential harm, under the wider containment, *human factors*.

Table 2 Example depicting classes of AI by usage

AI Category	Uses and Application	Example
Reactive	AI that responds/ reacts to human input	IBM's Deep Blue
Limited Memory	AI that supplemental decision-making	AI powered GPS
Theory of Mind (ToM)	AI that uses some level of cognitive ability	The Kismet robot
Self-Aware	AI with contextual cognitive awareness	Still conceptual

Second, limited *memory AI* includes AI powered technologies that supplement and sometimes inform users' decision-making faculties, providing many ways to optimize outcomes. One such example is global positioning services (GPS) that deploy AI. The AI makes some computations about human navigational contexts (e.g., time of day, constructions etc.) and determines the best outcomes for a user's journey. And while it does not harness data for memorization and later deployment, a need for design guidance is critical here, as well. The challenges of this type of limited memory AI types are that they lack oversight from design, along with how that intersects with the heuristic elements: *accessibility, consent, user controls, and transparency*. Heuristics can help surface and structure some of the known HCI issues in AI design and give users a high degree of centrality, while designing such systems. The third kind of AI that requires design oversight is known as *Theory of Mind (ToM) AI*. This type of AI uses some level of cognitive capacity to attribute mental states both to itself and the human users it serves. For example, The *Kismet* robot head that recognizes emotional signals on human faces (users) and replicates those emotions on its own digital "face," followed by a reaction. The *Kismet* robot, developed at Massachusetts Institute of Technology (MIT) is a machine that recognizes and simulates emotions. This machine to human interaction, too, creates challenges, and similarly to limited memory AI, it requires oversight over issues of human factors, ergonomics, consent, transparency, user controls, along with other checkpoints that the Designer can support.

Fourthly, any heuristics must be responsive to emergent AI, termed self-aware AI. While still at its infancy, self – aware AI may become most critically in need of optimized design principles that guide systems’ design. This form of AI is emotionally aware, and in perpetual connection with a human user’s state of mind, which by application, invokes many ethical considerations and gates of human oversight. For example, a user may be sad leading to a non-human AI, which decides to guide the user to an off ramp, for a break, given the “sad” state. The challenges of this type of AI are that it lacks formality of oversight from design that intersects with issues of human factors, ergonomics, consent, user controls, transparency, along with other gated checkpoints. Heuristics are the optimal pathway to thinking about these AI categories and enable Designers to think critically as they conduct varying phases of the design process. Taken together, ensuring coverage on these four (4) types of AI usages and applications can create more ease for designers, who are key stakeholders in the broader conversations on AI ethics.

2.4 Proposed AI- HCI Heuristics

2.4.1 Human Factors and Ergonomics

Situated as the practiced space of usability engineering, cognitive ergonomics, or user-centered design, human factors practice stems from Psychology and Engineering and relates to the human strengths and weaknesses, in response to technology design. Human factors and ergonomics focus on the physiological and psychological principles associated with the design of products, processes (services), and systems. Common examples of AI, created with good intent but not delivering as envisioned, are plentiful and such violations can be categorized as human factors issues. One example is the famous case of AI technology deployed in the hiring process at Amazon. While not explicitly cited as a human factors’ violation, the specific violation here stems from underlying human harm caused by the discriminatory practices of ill-designed AI, which was, later, discovered to be “sexist”

in nature, based on the training data, privileging men over women identifier tags. Ensuring equitable outcomes for the human users of such technology, through the inclusion of well-seeded data, improves the outcomes for all users.

Here, emergent heuristics must focus on the reduction of human error, increase productivity, enhance mental and physical safety, provide system availability, as well as the comfort of the human user as they interact with AI technologies. A conversation towards concrete heuristics must therefore consider all these facets of what it means to design with human factors and ergonomics as requirement categories. Together this heuristic must also contend with the overall mantra of “do no harm” in the overall design thinking phases, as well as the domain-specific spaces in which AI user facing technologies is deployed. There is emergent research initiatives around topics related to human factors and ergonomics that explore this topic in greater detail than can be afforded here [10,16,21,25,33,34,39].

2.4.2 Accessibility

Accessibility, as practiced in the design space, ensures that any designed product, service, or environment is usable by people with myriad disabilities. The concept of accessible design and practice of accessible development ensure both “direct access” and “indirect access” meaning compatibility with a person’s assistive technology. The WCAG provides the current guidelines to Accessibility, and any heuristics must be observant of this organization and be an extension of existing guidelines that they provide. Given this, AI technology, and accompanying UI and ergonomic elements, must be informed by heuristics focused on the equitable usage and outcomes, agnostic to of human ability, as defined by the WCAG, as well as conform to the domain-specific best practices. Others have written very extensively on this topic, and their deeper research can bear on the

kinds of specific, contextual, and domain-centric heuristics that can address how to design for AI and Accessibility [16,27,36].

2.4.3 User Consent

An understanding of the kinds of data exchanges that require user consent is critical to human centred systems. Oftentimes, a system requires consent for personalization, but consent and agency must therefore reside with the system user. In UI design, a user should also have a visual indicator of when they are in front of, or behind a security system (commonly referred to as a “firewall”), state of consent or indication of data consent. Relatedly, as systems and companies interopt their processes with exchange of data about users, users should remain in control of the consent and use of their data. Given these broad requirements, heuristics focused on human consent management that guide compliance by informing users about data collection and AI usage practices, known and unknown, are recommended. Some of the research in this space addresses, also broader societal implications of consent [3,10,11].

2.4.4 Privacy by Design

Privacy by design, is an approach to systems engineering which is a joint report on privacy-enhancing technologies by the Information and Privacy Commissioner of Ontario, Netherlands Organization for Applied Scientific Research, and the Dutch Data Protection Authority. This approach, taking practiced, had begun to shape European GDPR privacy initiatives, favours the design of systems that centres human privacy. There are already in existence many iterations of guidance of the tenets of “privacy by design” and these guidelines represents those already adopted in Europe, Australia, and the United Kingdom and more recently Canada. Given this, heuristics focused on designing functionality and options that allow users to configure privacy-related controls and options such as

login, logging, log retention, log usage, and secure personally identifiable information, known and unknown to the user during navigation, are advisable. The following are a few research initiatives in the space of designing for privacy [12,13].

2.4.5 User Controls and Affordances

From the of traditional UI Design, user controls are elements captured in traditional cascading style sheets, and more currently captured in “design tokens” that manages a range of human interactions with AI technologies. This traditionally has included the control of such things as colour, layout, and fonts. However, this paper focuses on user controls that give the end user the necessary controls and affordances enabling human to AI interaction. Simply understood controls and affordances that provide the ability to gauge the underlying computations upon which an AI makes a decision that impacts the end user. Given this, heuristic guidance about user controls that help optimize human to AI communication, are necessary [1,4,21,23,26]. Current mode of AI puts the user in an inferior positional value to AI, oftentimes without a means of communicating back to the AI and correcting miscalculations. Other types of controls, not covered here, include functional controls. Ultimately, optimal AI design must ensure that users of such systems are provided with the affordance that they need to interact optimally with AI agent’s context and domain.

2.4.6 Transparency

Much of AI is easily reducible to its computational form, in mathematical language, and often incomprehensible to human users. Other research happening in this space relates to research conducted by Wardrip-Fruin who explores a number of effect types that emerge out of human to AI-agent communication; namely - the *Eliza effect* – when the systems produce simple outputs cloaked in complexity; the *Tale-spin effect*, which it the reverse, presenting complex outputs cloaked in

simplicity and lastly, *SimCity effect*, where the system attempts to bring the user to the closest point of operational understanding [33]. Given this and other research [8,9,17,24,25,33,39], any incongruency of human to non-human communication, must be addressed with heuristics focused on demystifying AI black-boxes, their functionality, existence, as well as outcomes for the human user. Users of AI systems should not be led by deceptions and misunderstandings [9, 25] and must always have a sense of orientation as to how the AI interacts with them. The ACM has already defined seven (7) principles relating to algorithmic transparency and accountability, which exist as part of its code of ethics. It is also worth noting that *transparency* heuristics are related to heuristics around *user controls* and *affordances*. See table below.

Table 2.3 Proposed Table of AI-HCI Design Heuristics

AI Category	Design Thinking Phase
Human Factors/ Ergonomics	Heuristics that provide guidance on a) reduction of human error b) increase human productivity, c) enhance mental and physical safety, d) provide system availability, e) Maintain comfort of the human user Supporting Reference (s): [10,16,21,25,33,34,39]
Accessibility	Heuristics focused on the equitable usage and outcomes, agnostic to of human ability. Supporting Reference(s) [16,27,36]
User Consent	Heuristics focused on human consent management that guides compliance by informing users about data collection and AI usage practices, known and unknown, are recommended. Supporting Reference(s) [3,10,11]
Privacy by Design	Heuristics focused on designing functionality and options that allow users to configure privacy-related controls and options such as login, logging, log retention, log usage, and secure personally identifiable information, known and unknown to the user during navigation, are advisable. (Ref to GDPR guidance). Supporting Reference(s) [12,13]
User Controls / Affordances	Heuristic guidance about user controls is necessary. Other types of controls, not covered here, include functional controls. Supporting Reference(s) [1,4,21,23,26]
Transparency	Heuristics focused on the demystification of AI black-boxes and their functionality, existence, outcomes, which can lead to users' deception and misunderstanding. The ACM has already defined seven principles relating to algorithmic transparency and accountability as part of its code of ethics, HCI. Supporting Reference(s) [8,9,17,24,25,33,39]

Taking together, these thematic elements can form the foundation of heuristics responsive to AI technology with user facing interactions. Within these “containers” of heuristics can emerge more contextual and domain-specific heuristics that can guide designers towards designing, with human centred design, within the Design Thinking framework

Conclusion and Future Work

Heuristics emerging from these six (6) categories provide a pathway to think of the guidance needed for Designers to support development but also, they are a means of upskilling to a base knowledge competency of AI and its impact on design. It also contributes to the distillation of some design considerations and building upon existing frameworks such as “Nielsen heuristics” and Design Thinking. It is important to keep in mind that research on AI-HCI is still in its nascent stages. Much of the work cited still requires a deep collation of empirical research to build a robust and representative understanding of real-life design AI best practices needed to sustain the practice, as well as inform future design pedagogy of less technical audiences. The design knowledge competencies and heuristics outlined in this paper will also require expansion to accommodate new contextual and nuanced uses of AI technologies, and the rapidly changing use of AI in more civic contexts. Design researchers and educators in HCD, HCI, AI should join this conversation and use them as a guide to grow the field and maintain its due relevance.

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Chapter 3 Sex After Technology: The Rhetoric of Health Monitoring Apps and the Reversal of Roe vs. Wade

Overview & Introduction

The convergence of Artificial Intelligence (AI) technologies with the growth of Christo-fascist movements in the United States presents an alarming threat to women's health, especially considering known privacy violations by the major players—all in the shadow of the US Supreme Court's reversal of *Roe v. Wade*. These violations are ethotic; that is, they betray information that has been mined algorithmically to construct 'user models,' bits and pieces of which are sold or otherwise circulated without true "user" consent or cooperation. Such models are best understood as *algorithmic ethopoeia*, mathematized representations of individuals charted as matrices of commodified categories for commercial trafficking, but also for politicians and law enforcement. Taking inspiration from Abolitionist tools for resisting intersectional racism, and incorporating Data Feminism, we offer six categories of design heuristics to respect and maintain *ethopoeic* integrity, especially in the domain of women's health in a post-Roe technological landscape, using a fundamental rhetorical concept to serve designers, as well as critics and activists.

Keywords: abortion rhetoric; sexual surveillance; AI; menstruation rhetoric; algorithmic ethopoeia

"We are launching a program to prevent teenage pregnancy by using artificial intelligence ... [with the help of] a major software company," Juan Manuel Urtubey proclaimed in 2017. Urtubey²⁰, the conservative governor of Argentina's Salta province, was proudly announcing the agreement his government had struck with a Microsoft subsidiary. "With this technology," he gushed, "you can

²⁰ «Lanzamos un programa para prevenir el embarazo adolescente utilizando inteligencia artificial . . . reconocidísima empresa de software del mundo.» (Página12, 2018).

predict five or six years in advance – with the first and last name and address – which girl, future teenager, has an 86% predestination of having a teenage pregnancy.”²¹ Artificial Intelligence (AI) prognosticating the reproductive predestination of little girls? What could go wrong? Feminists can answer that question, the question of what could come from too much faith in technology, a prurient interest in teenage-girls’ activities, a dataset full of racist, classist assumptions, state-corporate collusion, and an utter recklessness about privacy and security. In fact, feminists have answered that question, in a way that helps us understand and respond to the alarming threat to women’s health posed by the convergence of AI and Christo-fascism. Salta’s Technological Platform for Social Intervention (Plataforma Tecnológica de Intervención Social) offers a dark parable of social engineering through surveillance and oppressive algorithms. Analyzing the Salta program and other such parables, human-rights, media activists Joana Varon and Paz Peña lay out a Critical Feminist Framework for responding to and preventing or constraining such projects. While there is a growing consensus among AI ethicists around issues such as transparency, privacy, safety, and explainability, Critical Feminism asks more fundamental questions about projects like Salta’s pregnancy-prediction engine, like “Whose power does it serve? Who profits? Who loses?” (Varon and Peña 3).

While rhetoricians surely hear an echo of Cicero’s proverbial motive-solvent in this approach, Cui Bono? (“Who benefits?”), we are not sure Cicero would have noticed, unless he adopted a Critical Feminist Framework, that La Plataforma’s ethopoeic fixation on young, biologically coded females “reinforces patriarchal gender roles and blames female teenagers for unwanted pregnancy, as if a child could be conceived without semen” (Varon & Peña 8); or understood that its focus on socioeconomic class, ethnicity, and ableist physiology is a realisation of oppressive social theories; or

²¹«Con la tecnología vos podés prever cinco o seis años antes, con nombre, apellido y domicilio, cuál es la niña, futura adolescente, que está en un 86 por ciento predestinada a tener un embarazo adolescente.» (Página12, 2018).

even that the motivation for predicting the pregnancy of “future teenagers” from such ethopoeic values evokes the eugenicist and genocidal blanquismo (“whitening”) policies which shaped much of Argentina’s (and all of the Americas’) history (Jemio et al.).

In today’s technopolitical milieu, there is no shortage of such parables, frequently implicating the technogiants that rule and even regulate unbelievably large banks of data. While the major software company Urtubey celebrated was Microsoft, other familiar behemoths are not absent from this space, like Amazon. Its twin acquisitions of PillPack, an online pharmacy, and One Medical, a primary care provider, is similarly disconcerting. Given Amazon’s documented history of data mishandling (Sifry) and its massive investment in AI, these moves raise flags about data privacy and the broader implications for healthcare. Meta, equally reckless and even more avariciously pursuing AI, has scraped health data from hospital websites with its benignly named Meta Pixel tracker (McKeon). Flo Period Tracker (hereafter Flo), a phone app that solicits incredibly intimate details from its more than 100 million users (colour and consistency of discharge, duration of periods, frequency of sex, whether sex was protected or unprotected, levels of sexual desire), seems to be quite happy sharing such data with companies like Meta and another AI megalodon, Google, despite promises to the contrary (Gupta and Singer). These are only a few the most publicised data security issues that implicate women’s health, all occurring against the backdrop of the US Supreme Court’s reversal of *Roe v. Wade* which overturned the right to abortion, perhaps the most significant U.S. legal ruling for women’s health in the 21st century.

Privacy and security issues, under acute threat in the increasingly monopolistic and rapacious contemporary datascape, have become even more urgent with the appearance of new AI regimes. Android’s most recent terms of service agreement as we finalize this essay, for instance, say that its AI agent, Bard, “will read and analyze your private messages, going back forever;” everything you have thumbed into your phone will be mined. *Everything*. The occasional notes to your roommate to

pick up tampons. The time and geolocation when you texted your mom the pregnancy-test results.

Your sexts. Those ones could be especially helpful for Bard's sentiment analysis, which it performs to benignly "tailor its responses to your mood and vibe," with the promise "to understand your relationship dynamics" (Doffman 2024).

These matters are fundamentally ethotic, data as characterization. Salta's Microsoft-fuelled efforts at social intervention constructs a model of 'at risk' pre-teenage girls. Amazon is amassing data to build models of typified health consumers that they can target; Flo and Google and Meta, more indirectly, mould their gendered data into *ethopoeic* models with targets painted on their backs that they can sell to advertisers—based on their menstrual cycles; or not. In 2018, Facebook was charged with targeting ads only at men (Ortutay).²² Who knows Android's designs, or iPhone's, who will surely have Siri follow Bard's lead? Coming or going, as Catherine D'Ignazio and Lauren Klein note, once these companies "have your gender, they can turn around and use it against you" (251n77). Their concerns evoke Damien Pfister's critique of late capitalism. Pfister frames Big Tech intrusions as a function of neoliberalism "that privileges market logics, individualism, and private profit," pushing "civil inattention to extremes." Interaction with "others is valued only insofar as it is useful or monetizable," he notes (Pfister).

The algorithmically assembled and deployed 'user models' in the datascape are definitively ethotic. The Salta ethotic modelling is explicitly created for state actors, but the Flo and Meta Pixel models, and Bard's interest in your "vibe," are unquestionably just as vulnerable to exploitation by state actors as they are by commercial entities. In the post-Roe landscape, we can see where such modelling might take us. As a cultural mediation of these consequences, the dystopian fictional world of

²² The case, brought by the American Civil Liberties Union, was settled in 2019 with Facebook promising to "eliminate age- and gender-based targeting as well as options for targeting associated with protected characteristics or groups" when selling ethotic data (Sherwin and Bhandari).

Handmaid's Tale emerged out of a period of violence and Christofascist oppression which featured “abortion riots” (183). Creatively, Margaret Atwood was responding to the political rise of the Christian right in America, which has had *Roe v. Wade* in its crosshairs from the beginning and finally knocked it off in 2022. Atwood’s world is one where the kind of data Flo collects can be lethal. “You had an abortion,” Commander Judd tells/accuses Aunt Lydia in *The Testaments*, having mined her medical records. “You are aware that this form of person-murder is now punishable by death?” he asks, rhetorically, then drops the hammer: “The law is retroactive” (Atwood, 2019, *Testaments* 42). Aunt Lydia imagines Judd “rifling through some records.” What Atwood does not put into this world is AI and the additional horrors it might wreak, rifling through such records.

The kind of data we have been talking about—age, home addresses racialized categories, for the Technological Platform for Social Intervention, vaginal discharges and libidinal levels for Flo, history of abortions for Gilead inquisitors (all of it gendered female by default)—is collected and structured to characterize individuals, and the practice of typifying individuals aligns closely with the ancient rhetorical term, *ethopoeia*. When the data is harvested and deployed computationally, we term the structured representations algorithmic *ethopoeia*: the mathematizing of human data for the digital representation of people in subjugation to algorithmic processes.

In this context, building on the foundation of Ruha Benjamin’s concept of the “New Jim Code,” we argue that patriarchal supremacy in technology requires similar “abolitionist” tools to eliminate misogynistic and biased code, which in turn traffics in *ethotic* data. By doing so, we can help ensure that women’s health data is secure, that women’s health is safeguarded, and that women’s reproductive rights are not compromised by predatory surveillance activities that leverage AI and outdated jurisprudence. On the way, we will briefly establish *ethopoeia*, along with its perennial stablemate, *prosopopoeia*, as ineliminable modes of human reason and of algorithmic reasoning about humans.

3.1 Terminological remarks

As *augmenters* of ancient Greek terminology, in Kennerly's taxonomy (10-12)—that is, as retainers of ancient Greek terminology under a new angling—and especially because our ancient word has seen multiple semantic shifts, we need to offer some justification for that augmentation. We are aware of the noetic clutter that can muddy rather than clarify when old, weary, long-travelled, words are polished up for new duties; of the barriers that such canon-enforcing practices can raise to young scholars; and of the toxic Greek/Whiteness correlation in Euro-American scholarship that infects ancient vocabularies (Law and Corrigan). Why not just coin, say, *algorithmic characterization*, or adopt another modern coinage—Bhandari and Bimo's "the algorithmized self," for instance, or Gibbon's "persona 4.0"²³—or just pick up the tech industry's own label, "user model"? We cannot address each of these possibilities, but the tensions they enact are present in the very authorship of this article. One of us is an old, White, male, settler, traditionalist, the other a young, Black, female, immigrant, activist. So, we assure you, these issues have not gone unnoticed.

Algorithmic ethopoeia—coined, incidentally, by the young, Black, activist scholar—is recommended by both its capacities and its limitation. The essential capacity it has that is unavailable in a vernacular term like *algorithmic characterization* is the scholarship it brings along; not just Aristotle and Cicero, but Garver, Thimsen, Kampher, and so on, lending a theoretical robustness that stands out from noetic clutter, especially by way of its linguistic radical, *ethos*. It gains its value (in the Saussurean sense of *value*) in a theoretical vocabulary that includes powerful terms like *phronesis*, *arete*, *eunoia*, and especially *prosopopoeia*. Similarly, it provides essential limits that screen off the counter-productive assumptions embedded in tech-talk like user model (or user profile,

²³ At least one other candidate term should be mentioned, the term data-consubstantiation, suggested by Hanford's rich Burkean essay, "The Data Machine: Identification in the Age of Data Mining;" we set it aside largely because *ethos* commands a more familiar legacy in rhetoric than *identification*.

or customer model). And like those terms, algorithmic characterization would neutralize the atmosphere of false benignity that pervades the field of Human-Computer Interaction (HCI), a field that relentlessly frames itself in terms of user advocacy, reducing keystrokes while often ignoring privacy and well-being. Meanwhile, the very useful terminologies of scholars like Aparajita Bhandari and Sara Bimo, Michelle Gibbons, or Nicholas Hanford are angled in somewhat different ways from our investigations, ways that we would only distort if we appropriated their words. But, of course, the only justification for algorithmic ethopoeia that really counts requires, first, a clear and productive specification of its rhetorical dimensions and, second, a successful deployment of those dimensions, in that order.

3.2 Ethotic impulses

A “figure,” a “technique,” and an “exercise” at various points through the long and tangled history of rhetoric, *ethopoeia* has always concerned the capture of an individual’s²⁴ traits to build and project a model of that individual. This next section establishes algorithmic ethopoeia as a contemporary phenomenon in the analysis, capture, and performance of character through technological means.

Ethopoeia can be understood best in its partial contrast, and partial overlap, with *prosopopoeia*, both deep impulses of identity. *Ethopoeia* (*ethos* [ἦθος], “character” + *poeia* [ποίη], “making”) is the construction and depiction of other people’s character; rhetorically, it is the symbolic depiction of other people’s character. *Prosopopoeia* (*prósōpon* [πρόσωπον], “face,” “mask,” + *poeia* [ποίη], “making”) is the adoption of other people’s character; rhetorically, it is the symbolic projection of other people’s character. The terms and the impulses are tangled up in our technologies and their

²⁴ We are aware that, like many big terms in rhetoric, and lots of small ones too, ethopoeia is essentially contested. The most comprehensive account of the contestation, which lands close to where we are with the term, minus the algorithms, is Kampherm’s “Masks and Caricatures: Prosopopoeia, Ethopoeia, and the Effect of Social Media on Canadian Political Leaders’ Debates,” on which we have drawn liberally.

algorithms. In the contemporary period, with the growth of computation and data manipulation, *ethopoeia* has very naturally been drawn into accounts of automated and digital characterization (Miller “Presumption,” “Writing,” “Automation;” Nass et al. “Anthropomorphism,” “Social actors”), though it has not always been successfully disentangled from its flip side, *prosopopoeia*. With Monique Kampherm, we regard these two notions as sociocognitive impulses. Ethopoeia is present every time someone forms an opinion of someone else’s—or even *something* else’s—character, and it manifests rhetorically when that opinion is given symbolic form, when someone says “Joan is a wonderful neighbour” or “I’m not voting for Smith. He’s a commie.” *Prosopopoeia* is present whenever we adopt the perspective of someone else—or even something else—and it manifests rhetorically when we give that perspective symbolic form, when we put on their mask and say “So, Michelle goes ‘oh my god!’” or “I’m voting for Jones. His slogan is ‘A chicken in every pot!’” Carolyn Miller (“Automation” 151) calls the former our “ethopoetic impulse” and it instinctively extends to abstract notions (“Karma is a bitch”) and artefacts (“My phone hates me”), even to vegetation and meteorological phenomena. When Daniel Dennett describes “the intentional stance,” in his anthropomorphic descriptions he is in fact describing *ethopoeic* strategies:

In a locale with late spring storms, you should plant apple varieties that are particularly *cautious* about *concluding* that it is spring—which is when they *want* to blossom, of course. [Ethopoeia] even works for such inanimate and undesigned phenomena as lightning. An electrician once explained to me how he worked out how to protect my underground water pump from lightning damage: lightning, he said, always *wants* to find the best way to ground, but sometimes it gets *tricked* into taking second-best paths. You can protect the pump by making another, better path more *obvious* to the lightning. (Dennett 22; emphasis in original)

Prosopopoeia is equally instinctive, extending also to the performance of abstract typified roles (“As a lawyer, I advise you to ...”) and quoting artefacts (“My phone is always going ‘bing! bing!’ when I’m falling off to sleep”), to vegetation (“Like a willow, I will bend but I will not break”) and

meteorological phenomena (“If you even think of hurting my daughter, I will rain down a world of hurt on you”). Self is, we all know, a composite, a collection of roles, performances, not a monolith; synecdochally, we are an array of faces, *prósōpa* [πρόσωπα]. We find this sense in theories like Marvin Minsky’s *Society of Mind* and Julian Jayne’s *Bicameral Mind*, in memoirs like Wayne Booth’s *My Many Selves*, in phrases coming out of our own mouths when we say “Part of me wants the chocolate mousse and part of me wants the apple pie.”

Gender is our most intimate identity. Judith Butler tells us it is a performance, a role layered among our other roles, a face among faces. Rhetorically, our various faces manifest most obviously in registers, in the different stances we adopt when we speak to our children, our partners, our colleagues, to the police officer that pulls us over, to the doctor querying our bowel movements. But in the actual, deep, defining composition of our idiolects, as Mikhail Bakhtin (*Speech, Dialogic*) develops in his notion of heteroglossia, every word and construction is populated with the voices from whom we got them, *prosopopoeically*; *ethopoeically*, when we utter “our” words, they are also always addressed to (our constructions of) other characters.

While daily thought and language are shot through with *ethopoeia and prosopopoeia*, we only concern ourselves in this essay with the tactical use of these notions, and overwhelmingly just with *ethopoeia*, expressly as it is mediated algorithmically; *prosopopoeia* we introduce mostly to separate off some *ethotic* dimensions and performances. In this context, *algorithmic ethopoeia* denotes the construction of data-driven representations of individuals, assembled from their declarations and behaviours, which are subsequently deployed to influence, regulate, or support human action—often with uneven ethical consequences. The data might be harvested with the full open participation of the people it characterizes, collected surreptitiously through bewildering terms-of-service agreements,

shared as part of third-party platform interoperability,²⁵ or unlawfully scraped, but its purpose is to algorithmically categorize and predict the behavior of people, potentially reinforcing biased and discriminatory outcomes. *Algorithmic ethopoeia* is the mathematizing of human data for the purpose of digital representation through the processes of sorting and targeting, with subsequent subjugation to algorithmic procedures and decision-making protocols. One the most revealing excavations of algorithmic *ethotic* modelling is *ProPublica*'s analysis of Facebook user categories, which uncovered over 29,000 algorithmically generated categories, providing for combinations that can target specific groups (Tobin, Angwin, & Varner). The reporters used those classifications to build *ethopoeia* from such categories as "Jew hater," "Hitler did nothing wrong" (labelled in data collection as a 'field of study'), and "Nazi SS" (an 'employer').

Among the most significant threats posed by algorithmic ethopoeia is its capacity to reproduce and legitimize bias through the incorporation of historically skewed data. As Wendy Chun, in *Discriminating Data: Correlation, Neighborhoods, and the New Politics of Recognition*, argues, predictive technologies often function not by offering objective insight but by reinforcing existing social hierarchies under the guise of neutrality. When such algorithms are deployed to monitor and restrict women's reproductive rights, they do not merely reflect bias—they operationalize it, enabling new forms of systemic oppression and discrimination against women. Primarily, this is in the context of commercializing women's health data, which may be sold to third-party advertisers, shared with law enforcement, or used to target women with specific products and services. This raises profound concerns about privacy and perpetuates gender-based stereotypes and discrimination, which can have

²⁵ In software design, interoperability emphasizes the smooth integration and communication between different software and hardware systems. For businesses, the benefits include increased efficiency due to seamless data flow, the flexibility of system choices without compatibility concerns, fostering innovation through easier tech integration, and an enhanced user experience. For instance, interoperability between PillPack and One Medical would ensure streamlined data exchange and collaboration, ideally to optimize patient care and service delivery.

detrimental material outcomes. It is essential, therefore, to recognize that algorithmic ethopoeia can have potentially catastrophic impacts on the construction of individual and collective identities, as well as on the broad perpetuation of social inequalities and injustices. Accordingly, it is necessary to develop and regulate ethical, inclusive AI systems that are based on data that has been filtered against bias, AI designed to advance social equality and justice, rather than enshrine and propagate discrimination and oppression.

We promote this agenda in the form of six double-edged algorithmic ethopoeia heuristics in the age of AI. The heuristics work both for design, shaping the systems of algorithmic user modelling, and for critique, revealing the ethical failures of existing systems of algorithmic user modelling. Importantly, these heuristics are not tools to purify data and abolish biases in binary modalities; rather, they are tools that equip us with a way to interrogate the digital construction of identities; in this case within the context of healthcare and reproductive data. Algorithmic ethopoeia transcends its origins as a figure and assumes a position of rhetorical method. We further suggest that the work of Zoltan Majdik and James Wynn may be ideally suited to, and be used in tandem with, our heuristics to classify the AI rhetorical structures.

As disciplines seek interdisciplinary alliances, we now elucidate the broader implications and magnitude of our research, especially the proposed design heuristics. Design and language have long been inextricably entwined both academically and professionally. We suggest that the categories themselves can be seen as the “abolitionist” tools that can mitigate the known biases of *algorithmic ethopoeia*. Given this, the proposed heuristics can also be viewed as a dialog between rhetoric, communication studies, and interaction design. While our initial focus is on the immediate application of these categories for developers and designers, where one of us plies our trade, we recognize the profound impact these principles have in shaping the discursive landscape across various sectors and disciplines, inclusive of ethics. In a world increasingly mediated by technology, the design choices

made for us invariably influence the framing of communication, community interaction, and public discourse. It is here that we see the most significant value of our research beyond traditional rhetorical practice.

We ground our study in the understanding that the recent florescence of massive dataset Machine Learning is embedded in the high-capitalist exploitation of vulnerabilities, such as racialization, ableism, and gendering, but also in the understanding that such exploitations can be resisted, ameliorated, and even overcome rhetorically. It is in the spirit of resistance, amelioration, and social justice that we foreground the design heuristics. As S. Scott Graham and Hannah R. Hopkins argue, “the affordances of [machine learning] can be leveraged effectively for social justice research” (89). The concept of algorithmic *ethopoeia* guides our exploration of the potential implications of AI technologies for society and culture to the case of women’s healthcare, but also in consideration of broader ethical questions raised by using algorithms to create representations of humans for predicting, influencing, or controlling their behavior. We contribute to the ongoing discussions at the intersections of technology, ethics, gender studies, and the humanities, seeking to provoke critical reflection on the ways in which technology is reshaping our understanding of what it means to be human. In its initial formulations, *ethopoeia* referred to a logographer scripting a speech in the rhetorical voice of the person who would deliver it. *Ethopoeia* now exists in algorithmic scripts that characterize women and other humans, often for less than wholesome purposes. As such, our heuristics are fundamentally informed by data-feminist and abolitionist insights.

3.3 Data Feminist and Abolitionist Ethotic Heuristics for Tech

In *Data Feminism* D’Ignazio and Klein develop an activist response to the techno-ideological control of gendered social inequalities. They exhort data practitioners to challenge and disrupt codified sexism in data technologies. Their approach is a rhetoric-adjacent shift from data as fact to data as

argument, encouraging a pluralistic notion of data which supports multiple perspectives and interpretations. They warn especially about “Big Dick Data,” the kind of projects characteristic of the tech giants generally but also more broadly of the overwhelming contemporary approach to AI which relies on datasets of unimaginable bigness and demonstrable dickery. Abebe Birhane, Vinay Uday Prabhu, and Emmanuel Kahembwe, for instance, found egregious problems in 2021 with the widely used LAION-400M dataset, problems aptly captured in their subtitle, “misogyny, pornography, and malignant stereotypes.” Data is necessarily *ethopoeic*, of course, because it is collected for some use; therefore, some users. The very collection and organization of data models of its users—their interests, their associations, their methods. LAION400M models a user who believes *European* is an adjective for geography, but African is an adjective for people, especially for women, mostly in images that include their faces and upper torsos, mostly in ‘traditional’ clothing (Birhane et al. 27).

Among the more pernicious, but benign, attitudes informing such datasets Birhane, and her colleagues observe and explode is a tech-bro belief that “scale beats noise;” noise being oppressive data elements, scale being bigness (Birhane et al. 6). The bigger the dataset, the less oppressive it should be, runs that reasoning. LAION stands for Large-scale Artificial Intelligence Open Network; 400M signals the 400 million image-text pairs that were scraped from the internet to populate the dataset. If that looks like Big Dick Data to you, and it does to us, what do we call the LAION5B dataset, released in 2022, now swollen to include 5.85 billion image-text pairs?

Data Feminism is highly practical, developed more to inform activism than academia, so D’Ignazio and Klein distil it into seven specific principles. Coded for later reference, the seven principles are (17-18, *et passim*):

DF1 *Examine power.* As in Varon & Peña’s framework, one needs to determine who wins and who loses in the collection and deployment of data.

DF2 Challenge power. When the power is unequal, and especially when it leads to oppressive outcomes, it must be challenged. The remaining principles are methods to diagnose and challenge unequal and oppressive power in data and its use.

DF3 Elevate emotion and embodiment. D'Ignazio and Klein emphasize the importance of the real bodies that have been abstracted into, or targeted by, data, prominently including their emotions.

DF4 Rethink binaries and hierarchies. Patriarchal power is deeply rooted in a male/female (or a 'true male' and 'other') binary, in which the first element is positioned above the second. Data Feminism rejects those assumptions.

DF5 Embrace pluralism. Data feminism is committed to multiple epistemologies, not a One Right Reason perspective, but they also give priority to Indigenous, experiential, and local knowledges.

DF6 Consider context. Context is essential for conducting accurate, ethical analysis that recognizes and addresses power imbalances.

DF7 Make labor visible. Women's work is often devalued and obscured, but the assumed neutrality of data can also be a smoke screen for exploitative or oppressive motives. Making the labour visible in data science gives credit where it is due and enables the assignment of blame when needed.

As these principles make evident, data feminism is intersectional. It "takes all inequality into account at every stage of the data processing pipeline, including gender discrimination but also other forms of intersecting discrimination like racism, classism and ableism" (Corbyn 83). It is intersectional, but it leans most fully into gender oppression. Ruha Benjamin, founder of Princeton's Ida B. Wells Just Data Lab and author of the (2019) book whose title we have riffed, has a similar intersectional project. Her *Race After Technology: Abolitionist Tools for the New Jim Code*, highlights the ways in which technology can perpetuate a matrix of domination "in which race, class, gender and other axes of power" mutually reinforce one another in a meshwork of exploitation and oppression (85-6). But while data feminism leans to gendered oppressions, Benjamin's abolitionist approach leans to racist

oppressions. She defines the *New Jim Code* as “the employment of new technologies that reflect and produce existing inequities but that are promoted and perceived as more objective or progressive than the discriminatory systems of a previous era” (2020, 6). Among the strategies she proposes for resisting the inequities coded into new technologies are (again coded for later reference):

Ab1 *Reframing the problem:* We need new narratives and conceptual frameworks that shift away from existing discriminatory systems (Benjamin 5-6).

Ab2 *Creating alternative visions:* Similarly, we need to imagine new futures, creating and promoting visions of technology from a community-driven, user-centered, and socially just perspective (Benjamin 21-23).

Ab3 *Building collective power:* We need to support collective power among marginalized communities, demanding more democratic control over technology (Benjamin 17).

Ab4 *Redistributing resources:* And we need to provide financial resources to community-centred efforts that prioritize social justice and equity, especially streaming funds toward them otherwise marked for the tech-bro status quo (AKA *Big Dick Data*; though, given Benjamin’s emphases, perhaps *Big Klan Data* would be better) (Benjamin 160-162).

These are not tools so much as convictions and perspectives; how to build such community collectives, for instance, or to redistribute resources, would be good to know. But we share those convictions and endorse those perspectives, especially because of their overlap with Data Feminism, and by other intersectional critics of indiscriminate data assemblages that might either propagate biases or be relatively ‘neutral’ but deployed with bias, if not malice. We are thinking of Catherine O’Neil’s (2016) *Weapons of Math Destruction*, for instance, and Safiya Umoja Noble’s (2018) *Algorithms of Oppression: How Search Engines Reinforce Racism*; of Abeba Birhane’s work, and Sareeta Amrute’s (e.g., 2016, 2019, 2020), and Chris Gilliard’s (2018, 2021a, 2021b), and many others resisting the exploitations and subjugations coded into our technologies. This paper joins the ongoing, important project that these scholars—mostly women, mostly racialized—are collectively

forging. But we take, particularly, inspiration from Benjamin and from D'Ignazio and Klein because of their interventionist ideas into the earliest sections of the technology pipeline, with the implications those interventions have for the design of technology that not only avoids historic oppressions but actively advocates for the structural changes needed to prevent those oppressions from taking new forms and lifts the oppressed. Our approach is intersectional as well, but because of the current post-Roe climate, we lean towards oppressions that target women's reproductive rights.

In the context of women's health data, abolitionist tools would involve developing technologies that protect women's privacy and security while ensuring that their data is not used to perpetuate continued oppression and discrimination. Amid the pressing concerns of women's health data, the role of algorithms becomes increasingly pivotal. While on one hand, there is a dire need for abolitionist tools that prioritize women's security, on the other, there is the persistent challenge posed by algorithmic ethopoeia.

Algorithmic ethopoeia perpetuates digital inequalities and oppressions, further exacerbating the threats to women's health. Therefore, it is crucial to develop tools that can dismantle, secure, and regulate the algorithmically constructed datafication of women.

3.4 Design heuristics for algorithmic ethopoeia

We offer a more tactical approach to the deployment of abolitionist tools than is common in rhetoric and media studies, which rarely include design. They are deeply informed by the rich tapestry of the Humanities, with its centuries of understanding human narratives and identity construction and can be used to un-construct ethotic data. We propose six categorical heuristics for the implementation of abolitionist strategies: *human factors and ergonomics*, *accessibility*, *user consent*, *privacy by design*, *user controls and affordances*, and *transparency*.

Our six categorical heuristics are anchored in the practice of software design. They apply to design in terms of User Experience (UX) considerations by ensuring that user interactions are intuitive, inclusive, and respectful, addressing diverse user needs while fostering an environment of trust and transparency in digital experiences. While they are presented in the abstract, they presuppose an iterative design-critique-revise production cycle which relies heavily on input from, and consultation with, the widest possible spectrum of users, prominently including the constituencies most likely to be harmed; not, as in current practice, the constituencies where the greatest profits are presumed to lie.

The six categorical heuristics follow:

(1) ***Human Factors and Ergonomics:*** Human factors and ergonomic considerations cannot be one-size-fits-all, especially when that one size relies heavily on data from a particular sector, like, for instance, from a population of white, male, cis, upper-middle-class individuals. Pertaining to technological design that is user-friendly and comfortable, physically but also cognitively, this categorical frame is crucial in the context of women's health for designing applications based on an ethopoeia attuned to female users that ensures privacy and safety. Technology that creates unease for users is worse than useless, and women have much to be uneasy about in the current climate. This category requires a knowing ethopoeia of women's bodies and minds. It is especially inspired by DF3, DF6, Ab1, and Ab2.

(2) ***Accessibility:*** Pertaining to the accommodation of physiological or cognitive atypicalities, accessibility has resonance in data-feminist terms for atypicalities associated with reproductive health, as well as mobility, vision, and hearing. Incorporating relevant assistive technology in the design enables greater participation in digital spaces, which can enhance quality of life, facilitate access to critical information and services, and crucially respond to the call for ethical and just

technology that relies on ethopoeia sensitive to individual differences. In application, this would include a sub class of heuristics that address reproductive health considerations. A designed platform would need to provide comprehensive information and resources related to reproductive health, addressing the diverse needs and concerns of individuals with varying health conditions or atypicalities. (DF3, DF5, DF6, Ab1, Ab3, Ab4)

(3) **User Consent:** Given the unique sensitivity of personal health data related to women's reproductive health, clear explicit consent is fundamental for abolitionist design. This heuristic category emphasizes the necessity for truly informed consent from women for their health data, ensuring they are aware of exactly what data is collected, how it will be used, who will have access to it, and how it will be protected. This requires a respectful ethopoeia and most directly implicates information design that may involve displaying security certifications, encryption methods, and other security protocols to build trust with users. Given the post *Roe v. Wade* landscape in the US, this heuristic is of utmost importance. (DF2, DF3, DF6, Ab1)

(4) **Privacy by Design:** This heuristic frame requires proactive integration of privacy considerations, a pre-emptive stance to data management, rather than a reactive one. Designing applications that prioritize data security and are highly resistant (ideally, invulnerable) to hacking and other forms of unauthorized access is driven by an ethopoeia that respects the integrity of women's sensitive health data, in turn fostering an algorithmic prosopopoeia for healthcare providers that encourages trust in their female clients. Where possible, personal identifying information would be anonymized or pseudonymized to protect users' identities and privacy. Notably, as it will be expanded on shortly, Flo has moved to anonymize data in the wake of the SCOTUS reversal of *Roe v. Wade*. (DF2, DF3, DF6, Ab1, Ab3)

(5) ***User Controls & Affordances:*** This category requires an ethopoeia that confers a high degree of agency and control to users. It demands the design of clear and usable applications, including affordances for users to regulate their own data sharing and privacy settings, ensuring that the technology adapts to them, rather than the other way around. This broad category of heuristics must provide what designers call granular control. Users should have granular control over their data sharing preferences. For example, they might choose to share certain health information only with specific groups or individuals, with the ability to revoke this level of sharing. (DF1, DF2, DF4, DF6, Ab4)

(6) ***Transparency:*** This category prioritizes obvious and unambiguous design, with no tricks or hidden functions. Users should be able to see how an app collects and processes their data. Transparency as a broad heuristic must include deep levels of explainability which can include the use of plain and simple language: The application's user interface, privacy policy, and all communication with users must use plain language. This ensures that users can easily comprehend the information being presented to them. (Ab3, Ab4, DF4, DF7)

The significance of these design framings cannot be overstated, given their potential to inform and enhance the practices that underpin these areas. In direct design terms, they do not just serve designers. They also serve users and user-communities, who can cite them to advocate for tools and applications that properly accommodate their needs; implement them to find the tools and applications that respect their requirements and concerns; even employ them in grievances or legal actions, when harms result from violating them. But, more crucially for our purposes, they serve activist criticism. Using the fundamental rhetorical dimension of ethopoeia to probe the algorithmic mining and representational commodification of massive, indiscriminately extracted datasets allows

us to see how data structures the way they are deployed match up with the goals of a just and equitable society or fail to match up with the goals of a just and equitable society.

As we advance further into the digital age, it is imperative that app designers continue to harness these innovative heuristics, ensuring that technological advancements and women's rights evolve in tandem, reflecting a future where digital interventions respect and reinforce individual agency and choice; and equally that scholar-activists use them to guard against perversions of such a future. One of the most significant areas of concern is the use of technologies to surveil and discipline women.

3.5 Sexual Technosurveillance and female Ethopoeia

“Carefully investigating the promise of health AI,” S. Scott Graham (Doctor and the Algorithm 8) warns us, “requires being assiduously attentive to [its] many perils.” Chief among those perils is ethopoeic exploitation, for which history offers many lessons, as in the frequent eugenics movements that certainly violated our heuristics for privacy and consent. The scrupulous records of Nazi Germany are the most notorious example. They kept detailed ethopoeic data structures from the earliest days of the regime, in their program to prevent people “they regarded as undesirable from having offspring through forced sterilization and subsequent euthanasia of those who escaped the eugenics net” (Chalmers 187), records that were later used to fuel their extermination efforts. Widespread sterilization programs in the U.S., Canada, Mexico, Australia, and other slaveholding and/or colonialist states going back centuries may have relied on less meticulous ethopoeia than the Nazi programs, but their records were all that was needed to trigger the same *undesirable* valuation. Often, only two data points were sufficient:

☒ Female

☒ Black / Indigenous

More recent but more surreptitious programs—what might be called predominantly *coerced*, rather than explicitly *forced*, sterilization (Ko 2016)—have built surrogate, or proxy data into their *ethopoeia*, data which get used as justifications for the racism and misogyny of their core motives. Project Prevention, which arose in the wake of the media-hyped “crack baby epidemic” of the 1980s and 1990s, is a prime example. “[P]romoting the idea of damaged children born to damaged men and women,” it soon induced over a thousand people to “give up the ability to reproduce for money [\$200]” between 1997 and 2003. Project Prevention’s “clients” are lured by web pages, videos, and other media (early billboards in Black and Latino communities read “If You Are Addicted To Drugs, Get Birth Control—Get \$200” and “Don’t Let A Pregnancy Ruin Your Drug Habit” (Scully 2000)).

The targets of the Project are impoverished and addicted people (Shatila et al. 34), though *people* is something of a band-broadening euphemism here: the numbers are racially skewed and extraordinarily gendered. Blacks are sterilized at a rate well over twice their demographic proportionality (Shatila et al. 2005, 36). Men? Despite the comparative ease of male sterilization, of the Project’s first 1,126 “paid clients” only 24—two percent—were male. The asymmetry is not, of course, accidental.

“For centuries,” Erika Derkas reminds us, “Black women’s fertility has been marked by suspicion regarding genes as degenerative and inferior to white” (2012, 181), an attitude that informs the dominant *ethopoeia* of the Project. Its original (and still legal) name is C.R.A.C.K., which both metonymizes the racially coded drug and activated a pity-the-children pathos (it stands for Children Requiring A Caring Kommunity). It practices and exhibits a dominant image of neglected, abused, emotionally and cognitively stunted children clogging up health and social systems and draining state resources, but the characterization is meant transitively, to inculcate the mothers. This *ethopoeic* summary is from their website:

[these children have] diminished ability to concentrate[,] nihilistic [sic] or fatalistic orientations toward the future[,] poor attachment behavior, or a tendency to choose risky behavior, including the use of alcohol or other drugs later in life. [...] The annual medical cost of caring for cocaine-exposed babies nation-wide has been estimated at 33 million for neonates, and as high as 1.4 billion during the babies' first year of life [1999 figures]. ("Sad Reality")

This nouveau Dickensian picture of broken and doomed children comes with a clear target of blame: the mothers. Best just remove their uteruses. For her part, Barbara Harris, the founder of C.R.A.C.K frames her *ethopoeia* of those mothers in zoomorphic terms. "We don't allow dogs to breed," she says, "We spay them. We neuter them. We try to keep them from having unwanted puppies, and yet these women are having litters of children" (Bickman).

The similarities between this enterprise and Salta Province's Technological Platform for Social Intervention are striking, especially in their mutual preoccupation with monitoring and obviating the reproduction of impoverished and marginalized girls and women, and in their disregard for genuine consent and privacy. Project Prevention is the crudest on these dimensions. It targeted people women who were effectively chosen based on their diminished agency for consent. Indeed, pulled by the cash, pushed by their additions—they were self-selected through that diminishment. Its *ethopoeia* was ready made. No surveillance needed. The Technological Platform also had significant elements of its data structures pre-determined (only low-income children were targeted, for instance) but built its pregnancy-prognosticator on *ethopoeic* models distilled through a survey. The survey itself was highly problematic. In addition to pre-identifying its "at-risk" population, there were built-in filters for the data: the survey generated the model of a typified girl, but the answers were provided by the parents, with approval given overwhelmingly by the fathers. But the algorithm was also compromised by using synthetic data (i.e., manufactured data made to resemble the actual data; see Kumar 2023) (Slezak [2018]). Machine Learning, almost by definition, violates our transparency heuristic.

It is impossible to know how the resulting algorithms arise but mixing synthetic data into the training and/or evaluation set confounds the issue even further—now one doesn't even know which aspects of an algorithm's behavior comes from real data, however unreliable, and synthetic data (which, in turn, could be replicating already unreliable data). The physical and emotional discomfort that can arise from enterprises like C.R.A.C.K/Project Prevention and the Technological Platform, and the potential effects on mental wellness violate our ergonomic and accessibility heuristics.

3.6 The SCOTUS Reversal of Roe v. Wade and AI Rhetoric

In the wider medical space, AI technologies have been used to improve cancer diagnostics, develop personalized treatment plans, and manage patient data. But these benefits should not lead us, as it has led some, to see AI as a panacea for so many medical challenges that require high levels of efficacy to enable treatment plans. In fact, it has potential for precisely the opposite of a panacea, a plague. The increasing political reach of Christo-fascist movements (with their punitive ethopoeic constructions of women as organic reproduction machines having an unfortunate free will that leads them into murderous behaviours) and the complicity of tech giants can sponsor technologies that compromise women's health data and infringe on their privacy and reproductive rights.

It is telling, for instance, that the Technological Platform for Social Intervention did not just appear coincidentally in 2017 out of a sudden benign urge. It came during turmoil over moves to decriminalize abortion in Argentina. In the background, too, was a “third member of the alliance between the tech giant and the government,” namely “Abel Albino, a medical doctor and activist who [opposed] that legalisation.” He was no fan of condoms either (Pedace et al. 2023). Predicting teen pregnancy, as Peña and Varon (2021) observe, “is the perfect excuse for anti-women, anti-sexual and anti-productive rights activists to declare [access-to-]abortion laws unnecessary.” The program spread quickly to other provinces in Argentina (La Rioja, Tierra del Fuego, and Chaco) and to

Colombia, and Brazil. “Bad ideas disguised as innovation spread rapidly,” Peña and Varon (2021) observe laconically.

Closer to home, non-state-actor Target engaged in a very similar bad idea, a pregnancy prediction algorithm based on *ethopoeia* built from consumers’ purchasing behaviors; so, to start with, no genuine consent. This AI-facilitated system resulted in an incident where Target dispatched maternity promotional materials to a young woman’s home, negligently divulging her pregnancy status to her unsuspecting father (Duhigg 182); so, also no ability for their quarry to exercise control over her data, and no concern for her privacy.

The corporate world salivates such data so it can target unsuspecting internet surfers with fertility-clinic or infant-formula ads, track clients and set insurance rates, monitor employees, and regulate their performance. That is all familiar. But now law-enforcement agencies in states with anti-abortion legislation are just as eager for such data, which can be mined for evidence needed to prosecute women who violate these increasingly draconian laws. What these very real possibilities expose is the inherently misogynistic dimension to the algorithmic traffic in intimate *ethopoeia* of women, characterizing them for commodification and discipline. This commitment to addressing the “grand challenges” of our times (Royster and Kirsch) resonates powerfully with growing activism of data feminist, rhetorical values of design systems; it also aligns with the justice-oriented aims of our research.

The commercialization of the internet has fostered pervasive surveillance apparatuses by governments, corporations, and other entities to monitor and track individuals. These entangled surveillance systems are enabled by the masses of data generated and collected through CCTV, facial recognition software, online browsing activities, social media pursuits, chat rooms, and just walking down the street, geolocation on; all the ways in which people show their “faces” to the swarming technologies around them. The surveillance apparatuses take these digital *prosopopoeia* and fashion

highly intricate mathematized profiles of individuals and groups, *algorithmic ethopoeia*, for targeted advertising, political campaigning, law enforcement, and national security.

These developments are made more insidious by the engineering of user consent through opaque and dubious terms-of-service agreements, obscuring individuals' rights and stealth-staking corporate rights to personal data, violating the spirit of our consent heuristic, if not its letter, thereby opening up violations of the other heuristics. A proliferation of health-tracking apps and devices in this environment collect and process troves of physiological data, including sleep regimes, diet, exercise, metabolic states, heart rates, gut health, body mass, and so on; for women, in the post-Roe world, the most alarming data is the tracking of menstrual cycles, fertility, and sexual activity. This is an area that requires immediate regulatory and design oversight.

Conclusion

As we stand at the intersection of technology and personal rights, we must reflect on how the very fabric of our digital interactions affect our identity, autonomy, and dignity. In a world awash with data, there is an urgent need to assess and re-evaluate the ethics of data collection and its subsequent use. Socrates famously said, “the unexamined life is not worth living” (Plato, *The Apology*, 37e), but we are pretty sure he did not mean by Amazon, Meta, and Flo. The proliferation of digital monitors, health apps, search engines, and other online tools, has enabled the collection of vast amounts of personal health information. However, the privacy protections that govern the sharing of health information in a doctor's office have vanished in the digitized health world. The result is a construction and characterization of people and their bodies, *algorithmic ethopoeia*, by Big Tech companies that have become central to the way people access healthcare or monitor their health. We can take Google's mission statement synecdochally for all these behemoth data-mongers: it pledges “to organize the world's information and make it universally accessible and useful” (“Our

approach”). But it can only organize all that information if it acquires all that information, which it never stops doing. While making some information “accessible and useful,” it is harvesting other information, which becomes the material out of which various ethopoeia are algorithmically constructed—accessible and useful now for a price, or a warrant. A Nebraska woman was recently sentenced to two years, for instance, and her daughter for 90 days, on the evidence of ‘private’ conversation they held over Facebook about the daughter’s abortion (Sherwin), an episode that violates each one of our heuristics. The emotional and mental well-being of neither mother nor daughter took priority when Meta handed over the text of their conversation (Ergonomics and Accessibility); neither had consented to their conversation being provided to anyone else, least of all to the police (User Consent); the privacy of both was violated, even though the design of Facebook was represented as being secure (Privacy by Design was not only violated, in other words, it was betrayed); they were only given false control over their data (so User Controls & Affordances marks another betrayal). There was so little transparency from Meta that the two women did not find out about the violations and betrayals until their attorneys encountered them in the formal, pre-trial process of Discovery.

Crucial safeguards are missing to protect people from the commodification and provision of their jurisdictions, most aggressively in the European Union, the escalation of Pretrained A.I. models in the current decade is outstripping all such attempts, and the United States government seems content to let Big Tech ‘regulate’ itself. We do not have great faith in that process, but our Design Heuristics categories are aimed, in the first instance, at developers and designers to aid them in behaving ethically, which they can use for guardrailing technology to protect women’s data and, therefore, to protect women in a time of heightened vulnerability. But they also apply more broadly, to protect men’s health and wellbeing, children’s health, and wellbeing; to protect citizens, and workers, the aged and the oppressed, to protect speech and political action; to safeguard communities and

individuals. By revisioning Data Feminist perspectives and Abolitionist tools as design heuristics, we aim to influence the earliest stages of algorithmic pipelines, but also to make them available for critique and strategies of renovation.

We have considered ethopoeia as a bridge to understanding how characterization of women in digital spaces evidence is born of harnessed data, and this evidence is the object used by law enforcement and other judiciary institutions, particularly in states where abortion is now illegal. We have done this because women's reproductive rights are under extraordinary pressure right now; because the data that can be used to literally police and punish women because of their reproductive choices; and because the algorithms that can harvest and exploit that data are both increasingly pervasive and increasingly opaque. But, as we have noted, our ethotic heuristics are equally available for the design and critique of tools that enforce other oppressions or exploit tother vulnerabilities. Our guiding concept, *algorithmic ethopoeia*, is constructed through manifold, moment-to-moment digital harvesting methods, sometimes illegally, often quasi-legally, through bewildering terms-of-service agreements.

We need to develop tools that can protect, and regulate, and if necessary, dismantle the algorithmic characterization of women and other victims of exploitation and oppression. As we neared the end of this paper, we are encouraged by having a local developer offer his talents in enabling the proceduralizing of these heuristics, with the idea of, perhaps, having it as part of future systems that require heuristic oversight and or auditing.

For scholars in rhetoric, as well as stakeholders in data governance, the phenomenon of algorithmic ethopoeia is a clarion call. It compels a multidisciplinary approach, merging the technical with the humanistic, the empirical with ethical. From this analysis emerges a vision for a more equitable digital future—a future where technology serves humanity, not controls it. The path forward is one of collaboration, introspection, and innovation. As the narrative of algorithmic ethopoeia unfolds,

scholars and practitioners alike must question, challenge, and reshape the algorithms that define our digital realities. This research is but a starting point, a beacon. The next chapter is for all of us to write, ensuring that the digital realm echoes the values, rights, and dignities we cherish.

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Chapter 4

Rethinking the Rhetoric of Surveillance in Public Safety: A Critical Discourse Analysis

Overview & Introduction

In the digital age, AI-driven surveillance technologies, including predictive policing and facial recognition systems, have shifted from speculative fictional concepts to pressing societal concerns. These systems have provoked extensive debate among policymakers, legislators, and human rights advocates due to their capacity to infringe upon privacy and civil liberties. This paper is part of a broader research initiative that examines the discourse surrounding AI-powered surveillance; while our broader research focus includes case studies of predictive policing, facial recognition, and social media monitoring, this specific paper will examine predictive policing. Employing Critical Discourse Analysis (CDA), the study interrogates the competing narratives of technological advancement versus privacy protection, alongside the tension between industry self-regulation and governmental oversight. Central to this inquiry are the ethical implications of AI surveillance, including its capacity to enhance authoritarian control, exacerbate systemic biases, and facilitate abuses of power, particularly within law enforcement, population management, and the regulation of human movement. Drawing on case studies and stakeholder perspectives, this research elucidates the ethical and social dilemmas inherent in AI surveillance, emphasizing the necessity for heightened scrutiny, regulatory intervention, and a critical examination of the discourse that underpins surveillance practices. The paper further proposes a framework of surveillance heuristics to deconstruct the justificatory language embedded in digital texts—such as terms of service—that normalize and legitimize surveillance. The study advocates the responsible integration of AI technologies,

emphasizing the importance of safeguarding privacy while acknowledging the potential benefits of innovation in the digital age.

Keywords: Surveillance Rhetoric, Critical Discourse Analysis (CDA), Surveillance Heuristics

In the current era of advanced digital technology, the rise of AI-powered mass surveillance, particularly through applications like facial recognition systems, has become a significant societal concern. Once confined to speculative fiction, the discourse surrounding surveillance has gained prominence among policymakers, legislators, regulators, and human rights advocates. Volker Türk, the United Nations High Commissioner for Human Rights, has warned that AI-driven facial recognition systems could enable mass surveillance and erode privacy [1]. These concerns are particularly salient in the context of the European Union's forthcoming AI Act, set to become a foundational regulatory framework by 2025. The Act emphasizes stringent restrictions on real-time biometric surveillance, predictive policing, and retrospective facial recognition, CPO Magazine [2]. Türk also highlights the broader risks of AI, including its potential to bolster authoritarian regimes, deploy autonomous weapons, and exacerbate systemic biases OHCHR [3]. He stresses the need for robust regulatory scrutiny, particularly in high-risk sectors such as law enforcement, justice, migration, and financial services, Brookings [4].

While this paper focuses on predictive policing as a case study to be analyzed, our wider research critically examines the rhetoric of AI-driven mass surveillance through three case studies: predictive policing, facial recognition technologies, and social media monitoring. The study explores tensions between technological advancement and privacy protection, the interplay of self-regulation and government oversight, and the ethical implications of AI surveillance. Drawing on perspectives from stakeholders like Türk and the EU legislative bodies, this research analyzes the evolving discourse on

AI surveillance, emphasizing the need for strong regulatory frameworks to protect civil liberties in the digital age.

Surveillance rhetoric refers to the strategic use of persuasive language and discourse to justify the deployment of mass surveillance technologies under the guise of public safety. This rhetorical approach seeks to convince citizens of the necessity of increased surveillance by invoking fears of crime, terrorism, and other threats to societal security. The discourse commonly frames surveillance as an evolution of public safety, suggesting that these technologies are essential for preventing crime and protecting the public from harm. It emphasizes proactive measures, such as predictive policing and social media monitoring, designed to identify potential threats before they manifest. However, critics argue that this rhetoric often overlooks significant concerns related to individual privacy, civil liberties, and the potential for surveillance technologies to reinforce biases and discriminatory practices. As such, it becomes crucial to critically examine the underlying rhetoric that promotes surveillance and develop ethical frameworks that prioritize social justice and equity.

The use of surveillance rhetoric in the context of public safety presents both positive and negative implications. On the one hand, technologies like predictive policing algorithms, facial recognition, and social media monitoring have the potential to enhance public safety by identifying threats and enabling law enforcement to respond swiftly and efficiently. This rhetoric also offers reassurance to citizens, fostering a sense of security and peace of mind by signaling that their safety is being prioritized. However, on the other hand, reliance on such rhetoric can lead to significant negative consequences. As previously mentioned, the application of surveillance technologies in law enforcement has often resulted in poor outcomes, particularly for marginalized communities. Critics argue that the language and discourse used to justify surveillance can perpetuate systemic biases and discriminatory practices, particularly against communities of color and other vulnerable groups [5,7].

Given the discursive nature of surveillance rhetoric, this hermeneutical approach via CDA is well-suited to interrogate the underlying “texts” that frame and justify surveillance practices.

Related Works

Historically and in literature, surveillance has been used as a rhetorical device to exert control and enforce compliance. One of the earliest recorded examples of this can be found in the biblical tale of Adam and Eve, where an omniscient God watches over the pair. In this narrative, God commands Adam and Eve not to eat from the Tree of Knowledge of Good and Evil, warning them of severe consequences if they disobey. This serves as an example of how surveillance, in this case divine, is used to regulate behavior through an authoritative and omnipresent power as depicted in Genesis 2:17. Notably, as the story unfolds, after Adam and Eve eat the forbidden fruit, God punishes them: Adam is condemned to a life of toil and labor, while Eve is subjected to painful childbirth and subjugation to her husband in Genesis 3:16-19. This tale exemplifies one of the earliest instances of surveillance rhetoric, where the threat of observation and punishment is employed to enforce obedience and control behavior.

In this biblical tale, the language used highlights the power dynamics between the divine and human, much like modern surveillance practices where authorities use observation to regulate and discipline, or as Louis Althusser describes through his concept of Ideological State Apparatuses (ISAs) [6]. These ISAs—institutions such as schools, churches, and media—serve to perpetuate the ideology of the ruling class, subtly enforcing conformity and obedience through everyday practices rather than overt coercion. The message is clear: “you are being watched.” This theme of surveillance dominates a wide range of literary discourse, becoming especially relevant as fiction increasingly mirrors fact, with language as its primary vehicle.

Surveillance and Linguistic Control in Orwell and Huxley's Dystopias: A Contemporary Analysis

In popular literature, surveillance themes are especially prominent in works like George Orwell's 1984 and Aldous Huxley's *Brave New World*. In Orwell's 1984, the concept of Newspeak represents a controlled language designed by the state to limit free thought and manipulate the beliefs of its citizens. By simplifying grammar and restricting vocabulary, the state exerts control not only over expression but also over the scope of human cognition. Orwell's concept of doublethink—the capacity to hold two contradictory beliefs simultaneously—further exemplifies how language can be engineered as a tool of ideological control [6].

Newspeak is characterized by its simplified grammar and intentionally restricted vocabulary, designed to limit free thought and control the expression of Oceania's citizens. In the novel's appendix, Orwell elaborates that the primary purpose of Newspeak is to restrain the scope of human thought and expression. A notable example of Newspeak is the word "plusgood," which replaces terms like "better" and "great." The concept of doublethink, which refers to the capacity to accept two contradictory beliefs simultaneously, further demonstrates how language manipulates and restricts logical reasoning and free thought [8, p. 66]. Orwell's depiction of Newspeak illustrates how language can serve as a tool for ideological control and manipulation within a totalitarian regime, forming a subtle form of surveillance rhetoric embedded in the language itself.

In contrast, *Brave New World* presents a different yet equally effective approach to surveillance. While Orwell portrays overt surveillance and control, Huxley's dystopian world is grounded primarily in psychological conditioning, functioning as an internal surveillance mechanism. This conditioning begins at birth, where individuals are genetically engineered and socially indoctrinated into predetermined caste systems, ensuring societal conformity without constant external oversight. Repeated hypnopaedia (sleep-teaching) phrases, such as "everyone belongs to everyone else," underscore this internalized surveillance, ingraining a collective identity while diminishing

individualism. This subtle, yet pervasive, form of linguistic control operates not through the watchful eye of an external authority but through the internalized beliefs and behaviors of citizens themselves, promoting self-regulation.

In *Brave New World*, this comparison emphasizes the varied approaches to surveillance in dystopian literature and how it can be either concretely applied or psychologically enforced. What becomes evident is that the literary constructs of Orwell and Huxley have now become a social reality. Citizens have been normalized into accepting mass surveillance practices, guided by similar *hypnopaedia* rhetoric, leading many to internalize a sense of predetermined fate for the masses. As Orwell and Huxley's dystopian visions of panopticism have materialized in our contemporary surveillance society, we must confront the consequences of technological fallibility within these systems and the underlying rhetoric that drives them. What was once the domain of science fiction has now become a pressing reality: the growing dependence on surveillance systems, coupled with the increasing power of AI, should raise alarms for scholars, policymakers, regulators, and citizens alike

In our research, we conceptualize Newspeak as a linguistic construct analogous to contemporary narratives captured in texts like, Terms of Agreement, state, and law enforcement public service announcements—forms of language that mediate surveillance rhetoric. These complex legal frameworks, frequently employed by major technology corporations in collaboration with law enforcement and government agencies, systematically monitor and regulate user behavior. Such texts function as mechanisms of control in the digital age, facilitating the implicit complicity of everyday citizens in the expanding scope of digital surveillance practices.

4.1.1 Modern Surveillance Rhetoric & Theoretical Frameworks

The backdrop of our research highlights the convergence of corporate and state interests, reflecting a broader socio-political trend toward increased surveillance and data commodification. Shoshana Zuboff's *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power* illustrates this connection in depth. Her analysis underscores the far-reaching implications of digital surveillance, arguing that it represents a new form of economic order that commodifies human behavior and systematically exploits it for profit, thus challenging the very foundations of individual autonomy and democracy. While surveillance technologies are often marketed as tools to enhance public safety and efficiency, they have been critically examined for their potential to perpetuate significant errors and injustices. Zuboff further emphasizes the pervasive nature of data-driven surveillance and its implications for societal control. She contends that the commodification of personal data, driven by powerful tech corporations, frequently leads to intrusive practices that undermine democratic values [9].

The works of Joy Buolamwini likewise echo the findings of Shoshana Zuboff's research, drawing attention to well-documented concerns surrounding the deployment of facial recognition technologies and their profound impact on marginalized communities. Buolamwini's groundbreaking research, particularly her collaboration with ethicist Timnit Gebru, exposed significant racial and gender biases in commercial AI systems. Their seminal study, *Gender Shades* [10], revealed that facial recognition algorithms, widely adopted by tech giants, disproportionately misidentified darker-skinned individuals, and women, with error rates as high as 34.7% for dark-skinned women compared to less than 1% for light-skinned men. These findings underscore how AI technologies, far from being neutral, risk amplifying existing social inequalities and injustices by entrenching systemic biases into digital infrastructures. Buolamwini's work has been instrumental in initiating broader discussions on

algorithmic accountability and the ethical implications of AI, influencing both corporate practices and regulatory debates on the responsible use of AI-powered surveillance tools [10].

The convergence of Zuboff's critique of surveillance capitalism with Buolamwini's empirical findings underscores the urgent need for comprehensive regulatory frameworks. These frameworks are crucial to address the profound ethical and social implications posed by the deployment of surveillance technologies, particularly in law enforcement. Beyond regulatory measures, this paper argues that a critical audit of the text generated through digital discursive practices is essential. Such an audit would reveal the underlying rhetorical strategies that shape and inform the praxis of surveillance, thereby exposing the subtle ways in which power and control are exercised through these technologies. Where we add value is by asserting that language is the primary mediator of surveillance rhetoric. It is through language—whether embedded in legal agreements, policy documents, or the very algorithms that power these systems—that surveillance is normalized and legitimized in society. Understanding and analyzing this rhetorical function of language is key to uncovering how power is distributed and maintained in modern surveillance practices.

Some scholars have even called for a 'tearing down' of the panopticon [4,7,12,20] framing a position that advocates confronting entities whose power far surpasses that of the public. This approach also includes demanding greater transparency and developing mechanisms to interrogate and hold accountable those at the helm of our modern-day panopticons in all their myriad forms.

4.2 Failures and Biases in Surveillance Software: Implications for Civil Liberties

A crucial topic in today's scholarly and political conversation is the potential for errors and failures in surveillance software and the associated harm it can inflict on those targeted. One significant example is Amazon's Rekognition software, which has faced considerable scrutiny and controversy,

particularly regarding its use in law enforcement and surveillance. Based on the work of researchers like Buolamwini and others, Amazon, in response, imposed a one-year moratorium in 2020 on the use of Rekognition by police departments, which was later extended indefinitely due to growing concerns about privacy and civil liberties [10]. Despite this, the FBI has resumed using Rekognition for image and video analysis under Project Tyr, raising concerns among privacy advocates regarding potential misuse and lack of transparency [3,5,10,17,18,39,46]. Further, the American Civil Liberties Union (ACLU) has been particularly vocal about the dangers of facial recognition technology. A test conducted by the ACLU revealed that Rekognition incorrectly matched 28 members of the United States Congress with criminal mugshots, highlighting the software's potential for significant errors and biases, especially against people of color [5,10,18,20,24].

In the United States, numerous instances of faulty surveillance software have sparked serious concerns regarding the accuracy and reliability of these technologies in law enforcement practices. For example, an independent review of the New York Police Department's facial recognition software revealed that more than half of the cases resulted in false matches, leading to the incorrect identification of innocent individuals and raising significant questions about the dependability of facial recognition technology in the criminal justice system [4,5,10,11,15,18]. Similarly, the Florida Department of Law Enforcement's use of flawed software for processing DNA evidence has been implicated in wrongful convictions and unjustly prolonged sentences for innocent people, underscoring the unreliability of forensic evidence and its profound implications for the criminal justice system [4,5,11,12,16-18,23,40, 41]. Additionally, during the Black Lives Matter (BLM) protests, the Los Angeles Police Department's deployment of social media monitoring software was criticized for producing numerous false flags on protected speech, highlighting the potential for

discriminatory practices and the chilling effect such technologies can have on free expression [4,17,22,25,39, 44].

These examples highlight the urgent need for rigorous oversight and regulation of surveillance technologies to prevent the perpetuation of injustices and the erosion of civil liberties. They also reveal the dangers of over-reliance on technology in law enforcement, reinforcing the need for greater scrutiny. The most pressing issue lies in the rhetoric used to justify these technologies, which often promotes a narrative of technological determinism, implying that surveillance is an inevitable and unquestionable progression.

4.3 Methodology - Critical Discourse Analysis (CDA)

This condensed version of our broader research focuses on the textual dimensions of surveillance praxis, specifically examining predictive policing, often in conjunction with facial recognition. Here we present the text: ‘The Future of Law Enforcement?’ [14]. The text seeks to justify predictive policing. Our analysis underscores the urgent need for transparency and accountability in the development and deployment of surveillance technologies to ensure accuracy, fairness, and effectiveness. While much of our analysis is anchored in the history of surveillance practices in the United States, these issues transcend national borders. Left unchecked, the global proliferation of such technologies could lead to far-reaching societal consequences, reinforcing the fallacy of technological determinism, the misguided belief that surveillance is an inevitable and natural progression. Given the profound concerns surrounding this trajectory, a Critical Discourse Analysis (CDA) of surveillance rhetoric is essential. This approach enables a thorough examination of the discourses that grant legitimacy to both big tech and state actors in their extensive use of sanctioned surveillance systems. By scrutinizing these narratives, we aim to uncover how surveillance is framed

and justified, revealing the underlying power dynamics and broader societal implications [7,12,22,25,39,46].

Conducting a discourse analysis of surveillance rhetoric requires a nuanced understanding of the power structures and ideologies that shape the deployment of surveillance technologies under the guise of public safety. Our research builds on a historical foundation, tracing the evolution of these practices, with a focus on marginalized communities, those disproportionately impacted by surveillance but excluded from dominant narratives. By centering their experiences, we aim to reveal the full implications of these technologies.

A critical element of this analysis involves unpacking the power structures that drive the development and implementation of surveillance technologies. We explore the economic and political forces that often reinforce dominant power structures, perpetuate social hierarchies, and amplify biases along intersecting lines of race, class, and gender. Moreover, our analysis critically assesses the dominant crime prevention discourse, which frequently serves to uphold existing power dynamics. By examining alternative approaches to community safety, those rooted in principles of social justice and equity, we seek to shift the focus from surveillance as a superficial solution to addressing the root causes of crime and inequality. Furthermore, it is crucial to highlight the resistance and agency of communities affected by surveillance. Our analysis amplifies how these communities resist and advocate public safety models that do not rely on pervasive monitoring and control. A comprehensive analysis must critique dominant frameworks while elevating the voices of those challenging surveillance in pursuit of justice and equity. Ultimately, this work contributes to the development of ethical frameworks that recognize the limitations of technology in addressing complex social issues. Table 1 provides a structured and comprehensive overview of the analytical framework employed to critically assess texts related to predictive policing, facial recognition, and social media surveillance,

the *foci* areas of this wider research. This systematic protocol enables a thorough examination of the rhetorical strategies used to justify and legitimize these surveillance technologies, particularly within the context of modern governance and law enforcement. The categories outlined in the table emphasize the importance of dissecting both the explicit and implicit narratives embedded in these texts, focusing not only on the surface-level justifications but also on the underlying power dynamics and ideological constructs.

Table 4 2 Framework for CDA of selected texts

Category	Outcomes/Why
Objective	To assess how selected texts justify or challenge surveillance rhetoric
1. Text Identification	
Category	Description
Title	What is the text title?
Author/Creator	Who wrote it?
Legislative/Authority	Was the text created by a government entity or company?
Publication Date	When was it written?
Source	Where did the text originate?
Medium	How was the text disseminated (e.g., online, interview)?
Public/Academic Interest	Does the text engage public or academic concerns?
Key Terms & Phrases	What are the key terms and phrases?
2. Contextual Analysis	
Historical/Cultural Context	What happened when the text was produced?
Intended Audience	Who is the target audience, and how might it influence the rhetoric?

3. Rhetorical Analysis	
Central Claims	What is the text's position on surveillance?
Evidence/Justifications	What evidence or reasoning is used?
Counter Arguments	Does the text address opposing views?
Visual Design	How are visuals used to support or distract from the rhetoric?
Analytical Dimensions of Surveillance Rhetoric	
Ethical Justifications	How does the text justify surveillance ethically?
Practical Justifications	How does it justify surveillance practically?
Emotional Appeals	How are emotions (e.g., fear, safety) used to support surveillance?
Technological Determinism	Does the text portray surveillance as inevitable due to technology?
4. Representation & Power Dynamics	
Stakeholders	Who benefits or loses from the surveillance described?
Power Dynamics	How are the relations between the surveillers and surveilled portrayed?
Voice & Agency	Does the text give voice to those under surveillance?
5. Comparative Analysis	
Similarities	What arguments or strategies are shared across texts?
Differences	How do the texts differ in their portrayal of surveillance?
6. Reflection & Implications	
Bias/Objectivity	How might the author's biases influence the rhetoric?

Societal Implications	What are the societal consequences of accepting or rejecting the text's rhetoric?
Overall Assessment	How do the texts contribute to the surveillance discourse?

The framework facilitates an analysis that moves beyond mere description, encouraging a critical interrogation of how surveillance technologies are portrayed as inevitable, necessary, or neutral tools in maintaining social order. By categorizing elements such as 'Historical/Cultural Context,' 'Ethical and Practical Justifications,' and 'Representation & Power Dynamics,' this approach reveals how certain texts obscure the ethical dilemmas and socio-political ramifications of these technologies, while reinforcing a rhetoric of technological determinism. Such rhetoric often dismisses valid concerns about privacy, bias, and agency, and positions surveillance as an indispensable mechanism of public safety, rather than a tool prone to abuse and misapplication.

Focusing on predictive policing, particularly when coupled with facial recognition, this methodology underscores the pressing need for transparency and accountability. By analyzing the 'Central Claims,' 'Evidence/Justifications,' and the presence (or absence) of 'Counter Arguments' in these texts, the framework sheds light on how surveillance technologies are not only normalized but are also strategically positioned as solutions to deeply entrenched societal issues. However, this normalization is often predicated on problematic assumptions, including the belief in the objectivity of data and algorithms, despite mounting evidence that these systems perpetuate existing biases and systemic inequalities.

The 'Comparative Analysis' and 'Reflection & Implications' sections allow for a broader discourse, enabling a comparison of how different texts frame surveillance practices. This reveals patterns in the discourse that legitimize surveillance by invoking fear-based emotional appeals or by appealing to utilitarian justifications that prioritize collective security over individual rights.

Moreover, the framework's inclusion of 'Bias/Objectivity' and 'Societal Implications' ensures that the analysis remains critical of how these texts influence public opinion, policymaking, and the broader societal acceptance of increasingly invasive surveillance practices.

By employing this comprehensive framework, this paper critically engages with the justificatory narratives surrounding predictive policing and facial recognition technologies, contributing to the broader scholarly discourse on surveillance. CDA serves as a powerful tool in exposing how language, power, and technology converge to reinforce dominant ideologies that prioritize control and surveillance over civil liberties and social justice. Language not only mediates these dynamics but also normalizes invasive technologies, obscures their ethical implications, and perpetuates existing power hierarchies. The expanding scope of surveillance—spanning predictive policing, facial recognition, and social media monitoring—reflects broader socio-political efforts to regulate populations under the guise of public safety.

4.3.1 Predictive Policing: A CDA of “The Future of Law Enforcement?” text by Beth Pearsall

In November 2009, the National Institute of Justice (NIJ), in collaboration with the Bureau of Justice Assistance and the Los Angeles Police Department, convened a Predictive Policing Symposium. This event took place in the aftermath of the 2008 financial recession, a period marked by rising crime rates, prompting law enforcement agencies to explore more advanced strategies for crime prevention. The symposium culminated in the publication of Beth Pearsall's article, “Predictive Policing: The Future of Law Enforcement?” in the May 2010 issue of the National Institute of Justice Journal [14]. Pearsall's text, combined with the symposium's insights, laid the foundation for the increasing emphasis on predictive policing as a cornerstone of modern law enforcement. In our analysis, Pearsall's work is situated within a broader discourse that explores how predictive policing serves to legitimize surveillance under the guise of crime prevention.

Predictive policing relies on data analysis and machine learning algorithms to identify areas at high risk of criminal activity. Its stated goal is to prevent crime through the strategic deployment of police resources in these high-risk areas, thereby pre-emptively deterring potential criminal activity. In practice, these systems process various data sources—including crime reports, arrest records, and demographic information—to identify patterns and predict where crimes are likely to occur [46]. However, critics argue that predictive policing technologies reinforce existing biases and contribute to discriminatory policing practices, particularly against marginalized communities. These algorithms, while sophisticated, are only as unbiased as the data they are trained on. Historically, policing data has disproportionately targeted communities of color, leading critics to assert that predictive policing systems may perpetuate, or even exacerbate, these patterns of discrimination [10,16,44-46]. Moreover, predictive policing raises significant concerns regarding individual privacy and civil liberties. The system's reliance on demographic factors—such as race, age, and socioeconomic status—implies a problematic assumption: that these factors are reliable indicators of criminal behavior.

Research challenges the assumption that demographic variables consistently predict criminal activity, showing that predictive policing often leads to false positives and unfairly targets innocent individuals. While proponents argue that it improves public safety and reduces crime, critics warn it may encourage discriminatory practices and erode civil liberties. As policing technologies, especially those using AI, continue to evolve, it is crucial to examine their social and political impacts. These technologies must be developed with principles of social justice, accountability, and transparency to prevent bias, and policymakers must establish ethical frameworks to address concerns about discrimination [19].

4.3.2 Findings and Discussions

Our research identified broad categories that we term the ‘reasons and motives for surveillance.’

While extensive, the justifications for modern surveillance practices are by no means exhaustive, as future developments will likely introduce novel use cases. We observe an increasing trend in which both current and emerging demands continue to shape the rationale for ongoing surveillance. This list not only reflects established practices but also anticipates the evolving landscape of surveillance technologies and applications.

1. **Counterterrorism:** Governments frequently justify surveillance in the name of counterterrorism efforts. After the events of 9/11, the U.S. enacted the USA PATRIOT Act, which significantly expanded surveillance capabilities under the premise of national security, prompting debates over its effectiveness and the implications for civil liberties [1,3,16-18, 21,28].
2. **Crime Prevention and Investigation:** CCTV cameras are widely used in public spaces to deter crime and aid in criminal identification, particularly in Western cities. Although many Canadians recognize the public safety benefits, privacy concerns persist, leading the Office of the Privacy Commissioner of Canada to issue guidelines for video surveillance [14,17,24].
3. **Cybersecurity:** With the rise of cyberattacks, monitoring online activity has become critical. In 2018, Canada launched the Canadian Centre for Cyber Security (CCCS) to provide guidance and services related to cybersecurity [6,26,31,32].
4. **Border Security and Immigration Control:** Surveillance technologies, such as drones and biometrics, are increasingly deployed at borders for security and immigration control. The U.S.-Mexico border exemplifies this trend, where the balance between security and individual rights remains a persistent challenge [7,18,22,25,27].

5. **Public Health Surveillance:** During the COVID-19 pandemic, governments employed surveillance measures like contact tracing apps to mitigate virus spread. Canada's 'COVID Alert' app, launched in July 2020, aimed to notify users of potential exposure to the virus [29, 30].
6. **Economic Interests:** Countries like China justify surveillance to protect intellectual property and secure their digital economies. China's cybersecurity law, for instance, aims to safeguard domestic and international business interests [3,9,12,37].
7. **Child Protection:** Surveillance is often justified as a tool to combat child exploitation online. For example, Australia's Assistance and Access Bill (2018) facilitates law enforcement access to encrypted communications, though it has raised significant privacy concerns [13-14, 33, 34].
8. **Regulation and Censorship:** Some governments use surveillance to monitor and censor internet content to uphold societal values and maintain political stability. Russia, for instance, employs surveillance to protect cultural norms and censor so-called 'Western propaganda' [2,7,15-17,32].
9. **Traffic Management and Urban Planning:** Surveillance technologies, such as Singapore's Intelligent Transport Systems (ITS), are used to manage traffic and optimize urban planning through real-time data collection and analysis [7,24, 36].
10. **Public Utility Management:** Monitoring utilities like water and gas ensures efficient infrastructure management. Advanced sensors are deployed to detect leaks and monitor performance, preventing wastage and reducing risks [37,38].

These justifications for surveillance practices, while varied in specifics, tend to share underlying ideological themes such as security and safety, utilitarianism, control, trust in institutions, trade-off

perspectives, technological determinism, and the normalization of surveillance. As others have suggested [1,23-25,42,45], the technology deployed often embodies an underlying philosophy—a theme we have recognized in our own analysis. To facilitate deeper examination, we have coded these ideological themes “[IT]” and anticipate cross-referencing them with the proposed heuristics discussed later in this paper.

1. **[IT1] Security and Safety:** At the core of many justifications for surveillance is the promise of protection—whether from terrorism, crime, cyberattacks, or health threats. The prevailing assumption is that surveillance can ensure safety and order by preventing, detecting, and responding to potential dangers.
2. **[IT2] Utilitarianism:** Arguments for surveillance frequently embrace a utilitarian perspective, suggesting that the greatest good (i.e., safety, health, or order) for the greatest number can be achieved through surveillance, even if personal privacy is compromised.
3. **[IT3] Control:** Implicit in many surveillance measures is the assertion of authority and control. Whether this control is exercised over borders, online spaces, public areas, or utilities, surveillance is often a tool for exerting and maintaining order.
4. **[IT4] Trust in Institutions:** Surveillance practices hinge on the belief—or assumption—those institutions, whether governmental or corporate, will use the collected data responsibly and in the best interests of the public or nation. This ideology requires citizens to trust these institutions to act judiciously and refrain from misusing their surveillance powers.
5. **[IT5] Trade-off Perspective:** A common rationale for surveillance is the notion of a trade-off: some degree of personal privacy is sacrificed in exchange for broader societal benefits, such as safety, health, or public order. This view conceptualizes privacy and security as oppositional, wherein increasing one requires a reduction in the other.

6. **[IT6] Technological Determinism:** The rapid pace of technological advancement often fosters a sense of inevitability about surveillance. Proponents of this ideology argue that because we have the technological capability to surveil, it is both expected and necessary for societal progress.
7. **[IT7] Normalization of Surveillance:** Over time, as surveillance becomes more embedded in daily life, there is a growing perception that it is inevitable or ‘natural.’ This ideology frames surveillance as an integral part of modern society, rendering resistance futile or outdated.

Informal focus groups with students and the conceptual framework explored in our research reveal that these ideological threads do not operate in isolation; rather, they intersect and overlap, reinforcing each other. This interplay underscores the rationale behind proposing heuristics as a holistic approach to the design of surveillance systems. Public perception and acceptance of these justifications can vary significantly depending on cultural, historical, and individual contexts. Critics of widespread surveillance often challenge the ideological foundations that underpin these systems, raise concerns about civil liberties, the misuse of power, and the potential for dystopian outcomes that stem from these justifications and their underlying ‘rationales.’

To fully evaluate the rhetoric surrounding surveillance, with its complex interplay of power dynamics, mechanisms of knowledge control, societal norms, and embedded political and ideological nuances, a robust methodological tool like CDA is essential. The method’s utility becomes particularly evident when considering the inherent power relations within surveillance practices and the ideological foundations that shape their narrative. Its interdisciplinary insights enable both micro-level linguistic analysis and macro-level discursive evaluations, offering a historically grounded understanding of surveillance rhetoric. This dual-level analysis, combined with CDA’s ability to

engage with broader socio-political contexts, makes it uniquely suited to unpack the layered rhetoric that defines surveillance discourse. We frame this approach as progressive because it aligns with the overarching goal of this paper: advocating for societal reform toward greater equality and liberty, not only for marginalized communities—who are disproportionately targeted by surveillance—but for society.

4.3.3 Analysis

We now turn our focus to the specific texts and domains under examination: predictive policing, facial recognition technology, and social media monitoring. Recognizing that surveillance practices are deeply embedded in the design of systems; we argue that the application of heuristics is essential for technologists to address the growing ethical concerns surrounding these technologies. As discussed earlier, heuristics provide a structured approach to ensuring responsible surveillance practices. While our broader research examines all three areas in detail, this paper will primarily concentrate on predictive policing, drawing on texts (i.e. Pearsall text) informed by the NIJ and developed in collaboration with the Bureau of Justice Assistance and the Los Angeles Police Department. We analyze the surveillance rhetoric embedded in Beth Pearsall's text, particularly how it constructs a narrative that legitimizes predictive policing while overlooking the potential harms to marginalized communities. Our examination of Pearsall's work focuses on several key areas, acknowledging that the text originates from a government-sponsored source, thereby positioning it as a pivotal artifact in public discourse on law enforcement technologies. In summary, our findings reveal the following:

1. **Contextual Analysis:** The Pearsall text was produced in the aftermath of the 2008 financial recession. It reflects societal concerns about rising crime rates and law enforcement's response to these pressures. Its intended audience includes law enforcement agencies,

policymakers, and the broader public, with a clear emphasis on justifying the utility of predictive policing.

2. **Rhetorical Analysis:** The central claim of the text is that predictive policing represents the future of law enforcement, portraying surveillance technologies as indispensable tools for crime prevention. Pearsall supports this claim by citing examples of how predictive policing has been implemented and its successes in reducing crime. However, the text conspicuously omits counterarguments regarding the potential for bias and discrimination inherent in these technologies.
3. **Analytical Dimensions of Surveillance Rhetoric:** The text highlights both the practical and utilitarian benefits of predictive policing, framing it as a proactive, data-driven approach to enhancing public safety. Simultaneously, it relies on emotional appeals to public safety, employing fear of crime to justify the expansion of surveillance technologies. The text, also, implicitly endorses technological determinism, suggesting that advancements in technology necessitate the widespread adoption of predictive policing as an inevitable progression.
4. **Representation & Power Dynamics:** The text primarily centers on law enforcement and government stakeholders, offering little to no consideration for the voices of those most affected by surveillance practices—namely, marginalized communities. This omission reinforces the power dynamics between the surveillers and the surveilled, depicting citizens as passive recipients of surveillance technologies rather than active participants in the discourse surrounding their implementation.

By conducting this critical analysis, we expose how Pearsall's text not only legitimizes predictive policing but also obscures the socio-political and ethical consequences of these technologies, particularly for marginalized groups. This CDA-based approach allows us to reveal how language and

power operate within surveillance rhetoric to uphold ideologies while silencing opposition and dissent.

In this context, “The Future of Law Enforcement?” serves as a paradigmatic example of a text that endorses surveillance rhetoric while downplaying the risks inherent in predictive policing. Although this text portrays predictive policing as a necessary and inevitable advancement in law enforcement, our analysis critically interrogates these justifications, emphasizing the systemic inequalities that such practices may perpetuate. While the full breadth of our study extends beyond the scope of this paper, we applied heuristic frameworks to address the potential harms identified in Pearsall’s justifications, as well as in additional texts that, due to space limitations, are not discussed here in detail. We will now proceed to outline the key heuristics that informed our critical assessment.

4.4 Heuristics Frameworks for Analyzing and Countering Surveillance Rhetoric

One of the most extensively cited and influential approaches to human-centric design is the work of Jakob Nielsen and Rolf Molich [43]. Their contributions provide pathways for identifying design problems—what they term ‘violations’—through heuristic evaluation. However, their framework does not fully address the ‘how’ of resolving these issues, a crucial distinction given the varied design contexts and domains where heuristics must be adapted, particularly in AI-driven systems. Thus, while heuristics can effectively identify design challenges, they are not inherently prescriptive in offering specific solutions. This distinction forms the foundation of our approach to heuristic development, especially in the context of AI and surveillance technologies. Methodologically, our proposed heuristic categories are derived from two primary sources: a structured literature review highlighting themes related to surveillance ideologies and their challenges, as well as strategies for addressing these concerns, alongside prevalent practices within the AI-powered design community. Our approach draws on scholars who have explored surveillance rhetoric and discourse analysis, such

as Barnard-Wills [44], Cheney-Lippold [45], and Dodge & Kitchin [46], while incorporating insights from digital media analysis [5]. Where we diverge from the existing canon is in our development of heuristic guidance, informed by CDA, aimed specifically at mitigating the inherent rhetoric that justifies surveillance practices.

We envision this heuristic framework as an interdisciplinary tool, integrating perspectives from rhetoric, communication studies, sociology, interaction design, and philosophy, particularly with respect to technological determinism. By offering a holistic system, this framework enables various user groups to critically engage with surveillance systems as they become increasingly embedded in society. Our approach systematically examines a set of context-specific heuristics designed to analyze and interrogate surveillance discourse, particularly the justifications advanced by both large technology companies and state actors. Table 4 2 lists and describe each heuristic category and explain how they challenge and mitigate the ideological justifications previously discussed.

Table 4 2: Framework for Analyzing Rhetorical Strategies in Surveillance Discourse: Categories, Descriptions, and Ideological Address

Heuristic Category	Description of Heuristics	Addresses Ideological Category
Rhetorical Analysis Heuristic	This involves identifying and dissecting the various rhetorical strategies used in the discourse and textual artifacts originating from those perpetuating surveillance text and discourse. • Pathos: Emotional appeals, such as fear of crime or terrorism, which may be used to justify increased surveillance. • Ethos: Credibility of sources promoting surveillance, such as government authorities or technology companies. • Logos: Logical arguments or data presented to support the necessity and effectiveness of surveillance technologies.	IT1, IT4

Narrative Framing Heuristic	This heuristic class focuses on how surveillance is framed within public discourse and the balances to be considered. This includes heuristics in two key classes: • Security vs. Privacy: How are the needs for security balanced against privacy concerns? • Public Safety vs. Citizen Agency: Analyze narratives that position surveillance as crucial for public safety, potentially at the expense of individual freedoms and agency.	IT1, IT3, IT5
Trust-Building Heuristic	This heuristic class should investigate how trust in surveillance technologies is constructed. • Transparency: Degree to which information about surveillance practices and policies • Accountability: Mechanisms for holding entities using surveillance accountable for misuse or overreach	IT3, IT4
Technological Impartiality Heuristic	This heuristic class should examine the pervasive portrayal of technology as neutral or inherently beneficial. • Technological Determinism: Challenges the idea that technology development and deployment are inevitable and always beneficial. • Critical Technological Assessment: This heuristic class should encourage critical assessment of technology, including potential biases and harms.	IT5, IT6, IT7
Stakeholder Impact Heuristic	This set of heuristics should take a multi-faceted approach to analyzing the impact of surveillance on different stakeholders. • Impact on Citizens: How surveillance affects citizen privacy, behavior, and perception of safety. • Impact on Policy Makers: Influence on policy decisions and legislative measures	IT2, IT4, IT5, IT6, IT7
Historical Context Heuristic	This heuristic class should strive to situate current surveillance practices within a historical context. • Historical Precedents: Comparisons with past surveillance practices to understand evolving norms and values.	IT2, IT6, IT7

	• Evolution of Public Attitude: How public opinion on surveillance has changed over time.	
Future Implications Heuristic	This heuristic class must speculate on future trends and implications. • Emerging Technologies: Impact of new technologies on surveillance practices. • Societal Impact: Potential changes in society due to evolving surveillance practices	IT2, IT5, IT6, IT7
Ethical Considerations Heuristic	This heuristic category should consider two levels of impact around ethical concerns. • Moral Implications: Ethical dilemmas posed by surveillance, such as discrimination or infringement on rights. • Balancing Act: The ethical balance between public safety, national security, and individual rights	IT2 -IT7

While our initial focus centered on the direct application of heuristic categories for developers and designers, we acknowledge the broader ethical implications these principles hold across multiple sectors. In an era increasingly dominated by predictive policing, social media monitoring, and facial recognition, the narratives that justify and legitimize such surveillance practices are pivotal in shaping public discourse, communication, and community interactions. The true value of our research extends beyond traditional rhetorical analysis by addressing the complex interdependencies of these surveillance systems. By applying these heuristics, critical readers—including scholars, policymakers, and citizens—are empowered to engage in a more nuanced analysis of surveillance discourse. Our framework seeks to shift the conversation away from passive acceptance—often exemplified by the implicit consent of terms of service agreements, the unnoticed collection of biometric data through facial recognition and CCTV, and the pervasive use of social media monitoring—toward active, critical engagement. This approach fosters a deeper understanding of how these surveillance mechanisms function collectively, enhances citizen agency, and supports informed decision-making by policymakers and other stakeholders responsible for the deployment and regulation of these technologies.

Conclusion

The exploration of surveillance rhetoric reveals profound implications for our understanding of privacy, autonomy, and power in contemporary society. This study has dissected the multifaceted ways in which surveillance is framed, justified, and resisted, applying Critical Discourse Analysis (CDA) alongside our proposed heuristics. The pervasive influence of surveillance texts—and the rhetoric they employ—shapes how citizens internalize and respond to surveillance practices. By examining the intersection of technology, policy, and discourse, we have uncovered subtle yet significant ways in which surveillance rhetoric molds public perception and governance.

In an era marked by rapid technological advancements and increasing datafication, the insights from this analysis are crucial. They highlight the urgent need for critical engagement with the language and strategies employed in surveillance practices. Policymakers, technologists, and citizens must remain vigilant and proactive in addressing the ethical and social ramifications of surveillance. Such vigilance is essential to maintaining a balance between security and freedom, fostering a society that values and protects the rights and dignity of all individuals.

Our analysis of technological determinism underscores how this determinism is shaped by discursive practices, reminiscent of Orwell's *Newspeak* in 1984 and Huxley's *hypnopaedia* in *Brave New World*. These linguistic tools lay the groundwork for surveillance practices employed by both big tech and state actors, normalizing them as inevitable progressions of society. This form of determinism is further exacerbated by the relentless pursuit of speed and efficiency, a hallmark of Silicon Valley's collaboration with state authorities, particularly in law enforcement.

When we return to the rhetoric surrounding surveillance and its societal impacts, it becomes evident that ideologies enabling these technologies to flourish require critical examination. The dominant narrative of security and efficiency often serves as a justification for the unchecked deployment of surveillance tools, obscuring their tangible consequences. For example, the use of

predictive policing, integrated with facial recognition by the New York Police Department, resulted in false identifications that disproportionately affected marginalized communities, perpetuating systemic biases and contributing to over-policing [5,10,11,17,18,20]. Similarly, flawed DNA evidence processing in Florida led to wrongful convictions, illustrating how technological errors can have devastating consequences, particularly for vulnerable individuals within the justice system. Furthermore, the monitoring of social media during the Black Lives Matter protests by the Los Angeles Police Department exemplifies how surveillance can suppress free speech and civil activism, creating a chilling effect on democratic participation [3,24,31,44]. These examples underscore the pressing need for critical scrutiny of the ideological underpinnings of surveillance rhetoric and the importance of advocating for more equitable and transparent applications of technology in law enforcement. Without such scrutiny, the unchecked proliferation of surveillance tools risks perpetuating injustices and undermining civil liberties, disproportionately impacting marginalized communities.

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Chapter 5

Conclusion and Future Work

This dissertation - from its opening discussion in “Conversations” to the final reflections in “Rhetoric of Surveillance,” has laid bare the intricate and oftentimes unsettling intersections among artificial intelligence, data design, human identity, and societal governance. It underscores the critical necessity for ethical deliberation in both the design and deployment of AI systems, advocating for heuristic strategies to mitigate recognized challenges. Furthermore, the exploration of algorithmic ethopoeia—the process through which human characteristics and behaviors are abstracted into digital representations - serves as a compelling demonstration of AI’s capacity to blur the lines between individual agency and institutional control, thereby presenting both unprecedented opportunities and significant ethical dilemmas.

Beginning with an examination of “Conversations” within the overall trajectory of my research, this chapter serves as a foundational point that enabled the development of the subsequent essays and the evolution of key theoretical insights. The efforts to refine this dissertation—both in terms of updating the original heuristics and situating them within a more robust theoretical framework—exemplify the iterative nature of academic inquiry. “Conversations” served as the initial platform for articulating key ideas that were later expanded, tested, and formalized in “Sex After Technology,” “Rhetoric of Surveillance,” and in my book, *Design Heuristics for Emerging Technologies*. This process of intellectual maturation highlights the importance of engaging with early, exploratory work not as static artifacts but as evolving contributions that refine and inform subsequent scholarship. For example, the introductory case study of Argentina’s predictive platform in “Sex After Technology” demonstrates how AI-powered data design, employed to forecast teenage pregnancies, can under the guise of social welfare reinforce entrenched biases and systemic discrimination. Although marketed

as a health initiative, the “Technological Platform for Social Intervention” exposed the potential for AI to be weaponized against vulnerable populations. This case encapsulates the ethical paradox inherent in many AI applications: while designed to serve the public good, they may simultaneously perpetuate invasive surveillance, encroach on privacy, and undermine individual autonomy. As this research illustrates, AI applications in sectors traditionally associated with public welfare—such as public safety and healthcare—often normalize intrusive surveillance and data commodification, ultimately privileging institutional interests over individual rights.

In the context of healthcare policy, this dissertation critically explores how AI has inserted itself into intimate dimensions of human life, especially in relation to reproductive rights. As documented in “Sex After Technology,” the convergence of AI with health monitoring applications places considerable power in the hands of corporations and governments, allowing them unprecedented access to personal data. This data, frequently collected through ambiguous or coercive consent mechanisms, is repurposed to model, predict, and sometimes manipulate individual behaviors, often without users' full knowledge or genuine consent. The implications in the United States are particularly severe in the current Roe world, where women's health data has been centred and can become a tool for surveillance and control, raising dire concerns about bodily autonomy and privacy.

The exploration of surveillance rhetoric in “Rhetoric of Surveillance,” further highlights the sociopolitical dimensions of AI, demonstrating how public safety narratives can legitimize the expansion of surveillance technologies. Through a CDA of terms-of-service agreements, public statements by law enforcement, and other rhetorical artifacts, this study revealed how language is strategically employed to frame surveillance as a necessary measure for security, thereby concealing the risks associated with these technologies. This rhetorical framing fosters a culture of acquiescence, where individuals come to accept pervasive monitoring as inevitable or even beneficial, without fully understanding the implications for their rights and freedoms. The growing role of AI in surveillance

not only intensifies pre-existing biases within the criminal justice system but also contributes to the over-policing of marginalized communities, thus reinforcing historical patterns of discrimination.

One of the central contributions of this dissertation is the development of contextual heuristic frameworks that address the urgent need for ethical oversight in human-computer interaction design. By proposing heuristics grounded in critical feminist theory and data feminism, this work offers actionable strategies for technologists to embed transparency, accountability, and inclusivity into AI systems. These heuristics aim to provide a structured pathway for designers to navigate the ethical complexities of AI development, emphasizing the need for human-centered design that respects user autonomy and privacy. By incorporating ethical considerations into the foundational stages of design, this framework encourages a proactive rather than reactive approach, promoting the creation of AI technologies that align with principles of social justice and human dignity.

Moreover, this dissertation underscores the importance of interdisciplinary engagement in AI research. As AI becomes increasingly enmeshed in everyday life, it is vital that scholars from diverse fields—technology, sociology, law, ethics, and the humanities—collaborate to address the ethical and social ramifications of these technologies. The cross-disciplinary methodology employed in this study, which integrated qualitative and quantitative analyses, case studies, rhetorical theory, and discourse analysis, reflects a commitment to a holistic understanding of AI. Such an approach is necessary not only to critique current AI practices but also to propose equitable solutions that anticipate future developments. This research advocates for an academic landscape that is responsive to the rapid evolution of technology, fostering dialogue between disciplines to ensure that AI serves as a tool for empowerment rather than oppression.

The concept of *algorithmic ethopoeia*, as developed in this dissertation, further serves as a crucial conceptual tool for understanding how AI technologies construct and impose identities upon individuals through data-driven representations. These algorithmically generated identities, while

ostensibly neutral, often reflect and reinforce societal biases, creating digital identities that can have tangible consequences for individuals' real-world experiences. By framing algorithmic ethopoeia within a critical feminist and ethical lens, this research challenges the presumption that AI can ever be fully objective, urging designers and policymakers to recognize the subjective values embedded within these systems. In doing so, this dissertation calls for a shift away from the ideal of "neutral" AI towards a model of AI that is explicitly designed to minimize harm and promote fairness.

The ethical triad of *bias*, *transparency*, and *privacy* emerged repeatedly in this research as essential pillars for responsible AI development. These themes underscore the profound responsibility held by technologists, corporations, and governments to prioritize ethical considerations in AI implementation. Without robust frameworks for addressing bias, ensuring transparency, and protecting privacy, AI risks entrenching inequality, infringing on civil liberties, and eroding public trust in technology. As this dissertation has demonstrated, these ethical concerns are not merely academic; they have real and immediate implications for the lives of individuals, especially those in marginalized communities who are disproportionately affected by the deployment of AI-driven surveillance and data-driven decision-making.

The political implications of AI, particularly in the context of surveillance capitalism, also warrant critical attention. As discussed, AI technologies are increasingly developed and deployed in alignment with corporate and state interests, often prioritizing profit, and control over individual rights. This dynamic, as illustrated by thinkers like Shoshana Zuboff, presents a fundamental challenge to democratic values, as the commodification of human behavior threatens to reduce individuals to mere data points in an economy of surveillance. By situating AI within the broader context of surveillance capitalism, this dissertation highlights the urgent need for regulatory frameworks that protect individual autonomy and resist the encroachment of corporate interests into the realm of personal data.

In the broader landscape, this research contributes to a growing body of scholarship advocating for an “inclusive AI” that respects diversity, promotes equity, and prioritizes ethical considerations (Brookings Institute). The recommendations presented here—ranging from the development of ethical heuristics for designers to policy proposals for regulating AI-driven surveillance—offer practical pathways for mitigating the risks associated with AI. These strategies are essential not only for addressing current challenges but also for guiding the future development of AI in a direction that aligns with the values of inclusivity, fairness, and respect for human dignity.

As we look toward the future, the need for ethical, transparent, and human-centered AI becomes increasingly clear. This dissertation stands as both a critique and a call to action, urging researchers, designers, and policymakers to approach AI with a sense of moral responsibility and a commitment to social justice. In a world where technology has the power to shape human lives in profound ways, it is imperative that we strive to create AI systems that reflect and uphold our highest ideals.

This research illuminates the urgent need for a critical audit of AI’s role in society, advocating for frameworks that prioritize human rights and societal well-being. The challenge ahead is substantial: to build AI systems that serve the public good without compromising individual freedoms, to promote technological innovation without sacrificing ethical integrity, and to foster a future where AI enhances, rather than undermines, our shared humanity. Only through a concerted, interdisciplinary effort can we hope to navigate the complexities of AI in a way that truly benefits all members of society. This dissertation, by providing both theoretical insights and practical recommendations, contributes to that effort, offering a foundation upon which more ethical and equitable AI can be built. So, how have I mobilized my research into action and impact?

Accordingly, this research not only investigates the intersection of AI and design but also establishes a foundation for my continued scholarly and professional and impactful pursuits. These efforts aim to address critical challenges in the integration of AI and emerging technologies, with a

particular emphasis on underexplored geographic and cultural contexts. The subsequent section outlines four key areas of future work that exemplify my development and the directions I am taking my scholarship:

1. **The AI Global South Summit:** This initiative, a registered Canadian not-for-profit, and rooted in my Caribbean heritage (the Global South), highlights my commitment to amplifying underrepresented voices in discussions about AI and emerging technologies, particularly in contexts beyond the Global North. The inaugural event was held in October 2024.
2. **The International Development Empowerment and Representation Agency (iDERA):** Initiated at the inaugural summit, this project is about how Small Island Developing States (SIDS) can influence strategies for achieving data sovereignty and safeguarding privacy. By adapting and reimagining global frameworks, it aims to foster equitable digital futures and strengthen the autonomy of SIDS in an AI-driven world.
3. **Gap Analysis on Educator Salary Adjustments in the Turks and Caicos Islands (TCI):** This research investigates the equity and systemic reform implications of AI-driven education policies, focusing on addressing disparities within the context of the Global South.
4. **Book: *Design Heuristics for Emerging Technologies*:** This book explores the ethical, cultural, and equity dimensions of AI design, emphasizing the intersection of gender and technology and proposing human-centered approaches to ensure inclusivity and fairness.

The following section provides more details on the above-mentioned initiatives:

5.1 AI Global South Summit: Leveraging Emerging Technologies for Economic and Cultural Growth

In June 2024, recognizing the urgent need to expand AI literacy beyond the Global North, I co-founded the AI Global South Summit Foundation, along with Dr. Gale Rigobert, the current Dean of

Academics at the University of Saint Martin, part of the Kingdom of the Netherlands and ex- Deputy Prime Minister of Saint Lucia. It was a conversation we have had prior and given her own doctoral work at Cambridge on the Global South digital divide, this project was timely and suited to our joint scholarships. The inaugural event, held from October 29 to 31, 2024, in Saint Lucia, was a transformative platform for exploring how AI and emerging technologies can drive economic development and cultural preservation in the Global South—a region comprising 60% of the world’s population, often referred to as the global majority. Strategically aligned with Saint Lucia’s rich French Creole heritage, and held during the island’s Creole Heritage Month, the summit addressed a contextually critical question: Can AI and other emerging technologies, unlock sustainable growth and empowerment opportunities for the Global South that were previously unattainable?

This initiative underscored the potential of AI to act as a catalyst for innovation and resilience in underrepresented regions while celebrating and preserving their unique cultural identities. The summit, accordingly, convened an interdisciplinary group of scholars, practitioners, policymakers, and cultural custodians to investigate how AI can transform the creative sector—also known as the “Orange Economy” into a driver of economic independence. The Orange Economy, a term in frequent use by the assembled, also known as the Creative Economy, refers to the sector of economic activity that is based on the generation of ideas, cultural expression, and creativity. It encompasses industries such as arts, culture, gastronomy, design, media, advertising, architecture, software development, and entertainment, which leverage intellectual property and cultural assets to drive innovation, employment, and economic growth. This sector highlights the value of human creativity and cultural heritage as critical resources in the modern economy. Further, this sector, abundant with untapped cultural resources, holds immense promise for regions, like SIDs where cultural heritage has historically been undervalued. Through AI, actionable strategies were proposed for monetizing and preserving tangible and intangible cultural assets, such as language, music, and traditions. The

initiative moved beyond academic discourse to deliver practical frameworks that empower youth, cultural entrepreneurs, and digital innovators in creative industries. The summit emphasized aligning sustainable economic models with cultural preservation, offering a roadmap for the ethical and responsible application of AI in the Global South.

5.1.1 Impact and Legacy of the 2024 AI Global South Summit

By convening policymakers, industry leaders, academics, and cultural custodians, the summit highlighted the transformative potential of AI in fostering equity, preserving cultural heritage, and advancing sustainable development. Rooted in my Caribbean upbringing, the event celebrated our region's unique identity while emphasizing the necessity of including underrepresented voices in global AI conversations. The summit achieved broad representation across geographic and professional lines, with over 152 attendees from 11 countries, including Canada, Saint Lucia, United Kingdom, India, United States, Nigeria, China, and the United Kingdom. Participants encompassed a range of stakeholders, including government officials, technology professionals, regional organizations, educators, and students, creating a vibrant interdisciplinary dialogue on AI's potential and challenges.

Prominent attendees included Hon. Philip J. Pierre, the Prime Minister of Saint Lucia; Hon. Emma Hippolyte, the island's minister for Commerce and Technology; and Dr. Didacus Jules, Director General of the Organization of Eastern Caribbean States (OECS). Other participants include Dr Michael Anton Dila, representing the Canadian organization, Oslo for AI, discussed the foundational role of conversations in driving innovation around AI, while Fabien Anthony, Chairperson of the Pan African Council, explored power imbalances in technology within a multipolar world, focused on AI. From impactful keynotes to middle and high school focused workshops and art gallery displays by Saint Lucian artists like Ted Sandiford, the also summit offered a vibrant interdisciplinary set of

activities like workshops and demonstrations, including sessions led by developers from OpenAI, highlighted AI's practical applications and ethical considerations. This multifaceted dialogue underscored the region's potential to lead inclusive AI innovation while preserving cultural identities. Some of the key outcomes documented in our impact report are as follows:

- **Recognition of the Global South's Role in AI Innovation:** The summit underscored the underrepresentation of the Global South in AI innovation and emphasized the importance of its active inclusion to ensure equitable technological development.
- **Emphasis on AI's Transformative Potential:** Participants collectively acknowledged AI's ability to reshape industries and societies, highlighting the need for strategic action to maximize its benefits while mitigating associated risks.
- **Development of Ethical AI Frameworks:** Tailored frameworks were proposed to address the socio-economic and cultural nuances of the Global South, ensuring AI deployment aligns with principles of equity, justice, and inclusivity.
- **Collaborative Initiatives:** Working groups were convened to develop and implement AI-driven strategies with a focus on cultural preservation and the advancement of sustainable development goals. From these efforts, two key projects emerged, which are elaborated upon in the subsequent sections: the initiatives in Turks and Caicos and the International Development Empowerment and Representation Agency (iDERA).
- **Educational Programs to Bridge the Digital Divide:** Targeted AI literacy initiatives were launched to empower underserved communities, equipping individuals with the knowledge and skills needed to thrive in the AI ecosystem.

- **Commitment to Ongoing Dialogue:** A series of virtual and hybrid events were initiated to foster continued collaboration, knowledge sharing, and community building across regions.

In the Stakeholder Declaration, available on the summit's website, we also urged attendees to commit to an equitable and inclusive AI future by endorsing the declaration's four key pledges. Thus far, we have received many electronic signatures. The declaration included the following:

1. Championing responsible and ethical AI development tailored to the needs of the Global South.
2. Empowering communities to leverage AI for social equity, economic advancement, and cultural preservation, particularly in Small Island Developing States (SIDS).
3. Advocating for policies that safeguard the digital sovereignty and autonomy of the Global South, more specifically the Caribbean and Latin American regions.
4. Preserving the region's unique cultural identities while ensuring AI technologies contribute to cultural continuity and growth.

This declaration served to delineate the specific individual and collective actions necessary to advance AI development, with an explicit emphasis on centring the Global South.

5.1.2 Broader Implications: Ethotic Heuristics and Beyond

Now, I turn to what this means beyond the event. This summit's outcomes align closely with my research on ethotic heuristics, the conceptual framework that explores how data, when used by AI, represents and characterises human identities, behaviours, and values. This approach, I strongly believe, underscores the imperative for AI-powered design systems to prioritise dignity, equity, and cultural diversity by ensuring that their representations of individuals and communities are ethical,

accurate, and contextually respectful. Much of this work is outlined in the essay “Sex After Technology,” (Lubin and Harris) where my co-author and I examine these principles within the context of women’s healthcare data. However, the implications transcend this domain, particularly as AI-powered systems are increasingly integrated into both global and civic management, as well as into critical decision-making processes that have traditionally been the purview of state actors, such as provincial and federal agencies. Ethotic heuristics, therefore, provide a moral and practical foundation for the development of AI-powered design systems that not only avoid perpetuating biases or marginalising underrepresented voices but also actively foster inclusivity, equity, and fairness for all of society.

Further, this proposed heuristic framework is increasingly critical as countries such as Canada invest in AI-driven data centres, raising pressing concerns related to land rights, environmental sustainability, and equitable access to technological infrastructure. In this context, the 2024 AI Global South Summit transcended the traditional boundaries of a conference; it served as a catalyst for transformative change in the application of AI within the Global South. By fostering actionable initiatives, promoting interdisciplinary collaboration, and prioritising educational empowerment, the summit established a foundation for a more inclusive, ethical, and culturally responsive AI future. Its legacy continues to inspire ongoing efforts to advance equity and sustainability in an increasingly AI-driven world.

Building on this momentum, subsequent events are planned for 2025 in Canada, in partnership with Carleton University, which was represented by several attendees at the inaugural summit. Specifically, the AI Global South Summit will be partnering with Dr. Gerald Grant from Carleton University who is also the Director of the Centre for Information Technology, Organizations, and People (CITOP), to understand the conversations of role of AI in Black businesses in Canada. Dr Grant’s funded research also collects data in this space, making it useful for my own work in

understanding AI in a specific context of use and application. Second, I am partnering with the not-for-profit organization, LiftOff by CCAWR (now, Lanterna Black Innovation Hub), which stands for Caribbean Canadian Association of Waterloo Region, in partnership with key stakeholders' partners like the University of Waterloo. The organization hosts monthly events. Given that I am the co-founder residing in Canada, I will be co-hosting an AI and Black Entrepreneur themed event in Sprint 2025.

5.2 Gap Analysis for Educators in the Turks and Caicos Islands: Addressing Compensation and Technological Disruption

As the global education landscape undergoes rapid transformation, my research and advocacy efforts in the Turks and Caicos Islands²⁶ (TCI) grounded in insights from a working group at the AI Global South Summit, seek to address the growing disparity between the expanding demands placed on educators and the current compensation frameworks. Through a comprehensive gap analysis of relevant policy documents, this work substantiates the need for commensurate salary adjustments that acknowledge the heightened responsibilities educators now shoulder in a post-pandemic, technology-oriented era, particularly with the rise of AI-based tools.

The integration of AI-driven tools and educational technologies has significantly transformed pedagogical practices, necessitating that educators continuously reskill, adapt to hybrid and remote learning environments, and cultivate digital literacy among students. Moreover, the growing utilisation of AI across various educational processes, including teaching, has further expanded the responsibilities of educators and policymakers. Despite this increased complexity, existing compensation frameworks remain inadequate in recognising the broader scope of their roles. Along

²⁶ The Government of TCI sent a total of six attendees to the Summit with a focus on Education policies around AI.

with Summit co-founders, Dr. Rigobert,²⁷ we conducted a gap analysis on existing policy documents that highlights the critical need to recalibrate salaries to align with these evolving demands and examines the broader implications for teacher retention, job satisfaction, and the overall quality of education. This project utilized not only my scholarship but also my professional skills in Digital Transformation Coaching, using human centred design principles.

Future research in this area will explore strategic approaches to aligning educator roles with equitable compensation. Attention will be given to leadership positions, such as district education officers and school administrators, who are tasked with implementing technological reforms and providing critical support to educators during this period of transformation. By addressing these systemic challenges, this research aims to contribute to policy recommendations that promote sustainable and equitable education systems capable of meeting the demands of education and technology futures.

5.2.1 Empowering Small Island Developing States (SIDS) A Roadmap for Data Sovereignty and Privacy

The third initiative emerging from the AI Global South Summit is a collaborative project with the International Development Empowerment and Representation Agency (iDERA)²⁸, a prominent think tank. iDERA's stated mission is to "secure changes in national and international policies, regulations, and practices to make them more conducive to sustainable development in small and vulnerable states." In alignment with this mission, the collaboration centers on addressing the unique challenges and opportunities faced by Small Island Developing States (SIDS)²⁹ in relation to data sovereignty.

²⁷ Dr. Rigobert is the Dean of Academics at the University of Sint Martin and had previously been engaged in a similar effort at her university.

²⁸ iDERA is led by the Economist, Edwin Laurent, who was the Saint Lucia's Ambassador to Taiwan.

²⁹ SIDS: a designation recognized by the United Nations. In the Caribbean, SIDs face distinct social, economic, and environmental vulnerabilities—such as small domestic markets, high reliance on tourism, and susceptibility to climate change—making them a focal point for targeted regional development strategies.

These nations, predominantly located in the Global South, find themselves at a pivotal crossroads as they navigate the dual imperatives of safeguarding their data sovereignty and adapting to the rapid advancements in AI-driven technologies.

SIDS face heightened stakes in this context, as global AI systems increasingly rely on data originating from their regions. The challenge lies in protecting civil liberties, privacy, and intellectual property while simultaneously ensuring that their perspectives and priorities shape and constrain global technological frameworks. However, this challenge also presents a transformative opportunity: by strategically harnessing AI technologies, SIDS can strengthen regional cooperation, reinforce self-determination, and develop policies attuned to their distinctive cultural, socio-economic, and geopolitical realities.

This project aims to empower SIDS to assert their autonomy and leverage AI for equitable and sustainable development. Recognizing the long-term nature of this endeavor, the initiative aspires to enable enduring influence over policy frameworks that align with the overarching goals of iDERA. Through this collaboration, SIDS can position themselves as active contributors to the global discourse on AI, ensuring their voices and interests are effectively represented. Also crucial for this initiative is developing actionable and context-sensitive strategies at the intersection of AI powered design systems, data sovereignty, and privacy that can protect and empower these nations. Drawing inspiration from the success of regulatory frameworks such as Europe's General Data Protection Regulation (GDPR) and informed by the challenges encountered in initiatives like Canada's Artificial Intelligence and Data Act (AIDA) and the U.S. Algorithmic Accountability Act (AAA), we recognize the imperative to examine the ramifications of these developments for Small Island Developing States (SIDS). Further, the California AI Safety Act, for example, provides lessons for regulatory proposals such as our project which aims to adapt, reimagine and influence these models to address the specific needs of SIDS – learning from both success and failures.

The outcome will be a comprehensive roadmap that transcends regulatory guidelines to envision equitable digital futures. This roadmap will prioritize the autonomy and integrity of small island nations, ensuring they not only safeguard their interests but thrive in a globally interconnected world. Through this project, SIDS can emerge as exemplars of resilience, innovation, and equitable technology governance.

5.3 Book on Heuristics for Emerging AI Technologies

Lastly, building on the themes of this thesis, my book, *Design Heuristics for Emerging Technologies*, introduced and developed the concept of ethotic heuristics³⁰—the critical meta-framework that took shape through my dissertation research. It is designed to confront and dismantle the systemic biases and dehumanization embedded in technological systems that affect women as a class. This book format integrates theory and practice, providing actionable heuristics that empower designers to navigate the ethical complexities of AI and data technologies, while developing and nurturing systems that prioritize the rights of women and marginalized communities.

The book is part of SAGE Publishing’s imprint, Universal Write Publications (UWP) acquisition, which publishes scholarly works through the framework of black scholars, like me, that underscores research, data analysis, and scientific methods. The book is divided into two main sections. The first part focuses on the use of case studies as well as literary reviews, inclusive of some of works referenced in essay “Sex After Technology” Engaging deeply with foundational texts like *Algorithms of Oppression* by Safiya Noble and *Race After Technology* by Ruha Benjamin. The book critiques the prevailing narratives in AI development and proposes a new path forward as it pertains to design data with AI power.

³⁰ The book is 135 pages in length.

Further, through real-world case studies such as the controversial AI project in Salta, Argentina, mentioned in the essay “Sex After Technology,” and an analysis of global policies like Europe’s GDPR and Canada’s AIDA, *Design Heuristics for Emerging Technologies* underscores the criticality of embedding equity-centered design principles into the heart of AI development. Organized under six heuristic categories, the book will provide a robust framework for practitioners, policymakers, and scholars to address the complex challenges posed by design data systems using AI and other emerging technologies.

This takes me to the second part of the book which, following the publisher acquisition brief, focuses on the actual heuristics – the practice part. Here, I discuss six categories. They are user controls and affordances, accessibility, user consent, privacy, human factors and ergonomics and transparency, along with their subcategories. These same heuristics appear, in brief, in the essay, “Conversations.” These heuristics are expanded upon to address several well-documented (primarily the News) challenges related to data and its impact on women in the wake of the *Roe v. Wade* reversal.

This approach integrates theory and practice, providing actionable heuristics that empower designers to navigate the ethical complexities of AI and data technologies narratives while fostering systems that prioritize the rights of women and marginalized communities.

For example, the heuristic guidance around data access control, ensures users of menstruation and fertility apps (women and menstruating peoples) maintain autonomy and privacy over their information, allowing users - to view, edit, or delete their data. Heuristics around data literacy (explainability) empowers women to understand how their data is collected, processed, and utilized, enabling informed decisions about privacy and sharing. This is critical in what we have witnessed in the reversal of *Roe v. Wade*.

Another critical heuristic accounted for is data minimization which emphasizes collecting only essential information, mitigating risks of breaches and misuse. I strongly believe that by incorporating ethotic heuristics into the design and deployment of AI technologies, we can ensure that the rapid expansion of AI infrastructure does not perpetuate historical injustices or create new forms of marginalization. By prioritizing transparency, accountability, and justice, ethotic heuristics guide the development of technologies that empower all communities, fostering an inclusive technological future that prioritizes human dignity and agency over profit or efficiency.

The criticality of developing ethotic heuristics is further underscored by recent developments in Canada, where substantial investments are being made in AI-driven data centres. For instance, Alberta's Technology Minister, Nate Glubish, in 2024, expressed ambitions to see \$100 billion worth of AI-powered data centres under construction within the next five years. While these initiatives promise economic growth and technological advancement, they also raise significant concerns among activist and Indigenous communities regarding environmental impact, land rights, and cultural preservation. A pertinent example is the apprehension voiced by First Nations in northern Alberta over this proposed AI data centre. The community has raised issues related to potential environmental degradation and the lack of adequate consultation, highlighting the broader implications of such technological projects on Indigenous lands. These concerns emphasize the necessity for frameworks like ethotic heuristics, which advocate for ethical, equitable, and inclusive AI systems that respect the rights and sovereignty of Indigenous populations.

Future work stemming from this book will focus on refining and expanding ethotic heuristics as a scalable framework for evaluating the societal impacts of AI and emerging technologies. These efforts will emphasize advancing gender equity, foster economic inclusion and ensure access to opportunities in an era where technological infrastructures increasingly shape global power dynamics.

Design Heuristics for Emerging Technologies will not just offer a theoretical exploration but will issue a clarion call for transformative action, inviting designers, policymakers, technologists, and researchers to reimagine AI systems as tools of empowerment, justice, and human-centered innovation.

These four initiatives—the AI Global South Summit, iDERA, the gap analysis for educators in the Turks and Caicos Islands, and the book *Design Heuristics for Emergent Technology*—represent not merely efforts toward professionalization, but deliberate forms of boundary work that connect academic inquiry to societal engagement. Grounded in the principles of responsible research and innovation (RRI), these interconnected projects reflect a commitment to applying theoretical insights in real-world contexts, particularly within and in partnership with communities across the Global South. Each initiative addresses distinct sociotechnical challenges—ranging from educational capacity-building to policy discourse—while contributing to broader conversations on equity, sustainability, and human-centered technological futures. Together, they exemplify a research praxis that seeks not only to critique but to actively shape more inclusive and ethically grounded technology systems.

Closing Remarks

As I conclude this scholarly journey, it is evident that the path traversed has been one of real-time responsiveness, adapting to the changing landscape of digital ethics, socio-political climate and data governance. For example, recent developments in the US surrounding the Department of Government Efficiency (DOGE), a new idea led by Tech Capitalist, Elon Musk, as part of the second Trump administration, underscore the critical importance of the ethotic heuristics in preventing unethical digital characterization of individuals through their data – and here in this case, US citizens. Case in point - the U.S. Treasury's decision to grant DOGE access to sensitive payment systems has sparked

significant legal and ethical concerns. A lawsuit filed by federal employee unions alleges that this access violates multiple privacy laws, highlighting the potential risks to personal and financial information (*Wired*).

Another development is Google updated its public AI ethics policy removes its promise that it will not use the technology to pursue applications for weapons and surveillance. This announcement is headlining news such as “Concern over Google ending ban on AI weapons” (Hooker).

These situations exemplify the pressing need for robust ethical frameworks to guide data access and utilization, ensuring the protection of individual rights in the digital age. As we witness these unfolding events, it becomes increasingly clear that integrating ethical considerations into data management practices is not merely advisable but imperative. The concept of ethotic heuristics, therefore, offers a valuable approach to navigating the complexities of digital ethics, providing tools to prevent data misuse and safeguard human dignity. Moreover, it underscores the critical moment when the collision of politics, ethics, and technology creates a profound “problem” that significantly affects civil rights and liberties (Calabrese).

Taken together, the concepts of algorithmic ethopoeia and ethotic heuristics offer critical analytical lenses for examining the ethical, rhetorical, and political dimensions of contemporary AI-powered data design systems. *Algorithmic ethopoeia* names the processes through which AI systems participate in moral characterization, producing, reinforcing, and operationalizing judgments about individuals and populations through data classification, prediction, and surveillance. *Ethotic heuristics*, by contrast, function collectively as a design-oriented intervention framework: a set of reflective and actionable guides intended to support designers, developers, and institutions in critically assessing how values, assumptions, and power relations are embedded within data practices and technical systems. These heuristics are applicable to contesting the rhetorical moves that operate

both inside and outside the technical system - those encoded within computational processes themselves and those articulated through the surrounding discourses that legitimate their use. As demonstrated across the analyses of surveillance rhetoric in the essays, “Rhetoric of Surveillance” and “Sex After Technology,” the ethotic heuristics enable critical interventions in how algorithmic systems assess, predict, and moralize human behaviour, particularly where claims of neutrality obscure practices of monitoring, categorization, and control. In doing so, they provide a means of resisting the normalization of algorithmic judgment by making visible both the internal logics of computation and the external narratives that frame such systems as necessary, benevolent, or inevitable

Together, these concepts enable both diagnostic and generative engagement, making visible the rhetorical work AI performs while offering principled means of reshaping that work toward more just and accountable outcomes. This dissertation underscores the urgent need for meaningful oversight in AI development and for responsible data practices that mitigate harm while promoting equity, accountability, and human dignity. Drawing on sustained engagement across both professional design practice and humanities-based scholarship, my work bridges theoretical rigour with applied insight to address the complex socio-technical challenges shaping the present and future of AI.

In summation, this dissertation examines the dynamic and often fraught interplay among technology, data, and ethics at a moment of heightened political, legal, and cultural instability. The current global climate serves as a reminder that AI systems do not operate in isolation, but are embedded within broader regimes of governance, power, and value. It is my hope that this research contributes meaningfully to ongoing debates on ethical data design and responsible AI practice, and that it encourages sustained critical engagement with the principles necessary to safeguard individual rights and collective well-being in an increasingly data-driven society.

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Appendix A

Visual & Tabular Frameworks for Algorithmic Ethopoeia

This appendix contains a series of visual and tabular frameworks, taken from my oral defense, developed to support, clarify, and illustrate the dissertation’s central theoretical contribution: Algorithmic Ethopoeia. These materials were originally created for use during the oral dissertation defense to render complex rhetorical, ethical, and computational concepts legible to a multidisciplinary examining committee. They are included here to document how the dissertation’s arguments were communicated, synthesized, and made analytically tractable in a live scholarly setting. While pedagogical in form, the tables and figures presented in this appendix are analytically grounded in the dissertation’s theoretical and methodological framework. They are meant to function as interpretive instruments rather than standalone empirical findings, translating classical rhetorical concepts—such as ethos, ethopoeia, logos, pathos, kairos, phronesis, and related rhetorical operations—into applied analytical structures that demonstrate how AI systems perform moral and characterological judgment in practice. Collectively, these materials show how rhetorical action in AI operates across interrelated sites—outside systems, where legal and institutional discourse justifies surveillance and risk, and inside systems, where assumptions are embedded in data, models, interfaces, and inference—demonstrating that moral characterization is a material outcome of socio-technical design and that rhetorical theory can serve as a transparent, cross-disciplinary analytic tool for interrogating AI in domains such as women’s healthcare, public safety, and surveillance, where claims of neutrality often conceal ethical judgment and governance.

Table 1. Algorithmic Ethopoeia Framework:

Table 1 presents a framework showing how AI systems perform moral characterization through processes analogous to rhetorical practice. Steps 1–7 outline the conditions of algorithmic characterization—problem framing, data definition, pattern selection, and inference. Steps 8–10 highlight the key intervention points where ethotic heuristics are operationalized. lifecycle.

Step (how AI perform characterization)	What happens in AI systems	Example / real-world meaning
1. Framing the issue (invention/ethos)	AI is built to perform certain social ideas - like who is “normal,” “risky,” or “deserving.”	Health apps decide who is “fit” or “unfit.” Policing AIs decide who “looks suspicious.”
2. Choosing patterns (arrangement /logos)	It uses coded ideas - “neutral,” “objective,” “rational.” These reflect power norms.	Systems trust data from powerful groups more than from marginalized ones.
3. Using social norms (topoi /mythos)	It follows cultural rules from governments or companies about what is acceptable.	Job-screening AIs reward certain accents, schools, or behavior.
4. Building character types (ethopoeia / ethos)	It groups people into types (safe, risky, efficient) that repeat old biases.	Credit or health apps judge people as “responsible” or “risky” based on biased data.
5. Choosing what counts as data (definition/logos)	What is measured and what’s ignored shapes reality.	Crime data from over-policed areas makes those places look “more dangerous.”
6. Creating language & visuals (style/pathos)	It shows ideas through charts, scores, dashboards, and words that seem neutral.	Police maps or “risk scores” look scientific but reflect bias.
7. Applying logic (enthymeme/logos)	It turns social bias into coded logic, turning opinions into “facts.”	Housing AIs reject applicants based on postal/zip codes linked to race or income.
8. Making invisible design choices – no context (inventio/kairos)	Designers’ values are built into AI , what is measured, compared, or left out.	Health AIs often miss women’s pain data because early systems used male norms, for example.
9. User interface feedback (delivery / hypokrisis)	The design (buttons, layout, colours) shows authority and hides bias.	Fertility tracking apps that offer “advice” or predictions can make users feel monitored, misread, or emotionally vulnerable.
10. Ethical checks (reflection/phronesis)	AIs rarely question their own machine learned values or emotional effects of its computations.	Fertility or mood apps can pressure users or trigger anxiety instead of support.

Table 3: Algorithmic Ethopoeia in Women’s Healthcare

Table 2 applies the framework of Algorithmic Ethopoeia to women’s healthcare technologies. This table demonstrates how data originally collected for care can be repurposed into mechanisms of surveillance, moral judgment, and risk attribution. The table highlights how healthcare AI systems may shift from supporting bodily autonomy to disciplining bodies, particularly in reproductive and fertility contexts, revealing how ethical harm emerges through problem framing, data aggregation, modeling, and governance failure.

Steps	How it goes wrong	Why it’s a problem
1. Problem framing	Health data about pregnancy and periods is treated like a question of risk or rule-following instead of care.	Medicine/healthcare shifts from helping people to watching them, where the body becomes something suspicious.
2. Data sourcing	Apps and systems collect info from period trackers, GPS, online shopping, and search history to build a full profile of someone.	Personal data starts to tell a “story” about who someone is, even if that story is not true.
3. Modeling	AI tools can be designed to look for “signs” of pregnancy or abortion decisions using data like missed periods or clinic visits.	The system starts making guesses that act like accusations, normal behaviour is treated as guilt.
4. Governance failure	In some places, this confidential data can be taken by law enforcement or used in court (e.g., Nebraska & Kentucky cases).	Health data stops being private and can be used to punish people, especially women.
5. Ethical consequence	The purpose of healthcare flips - instead of caring for the body, it starts suspecting the body.	AI systems begin to “judge” people, turning data into moral claims and linking autonomy with blame.

Table 3. Algorithmic Ethopoeia in Public Safety and Surveillance

Table 3 examines how AI-driven public safety and surveillance systems rhetorically reframe social conditions—such as poverty, race, or marginalization—as indicators of threat. This table shows how structurally embedded bias is rendered as technical objectivity through labeling, proxy data, scoring systems, and opaque interfaces. The analysis illustrates how surveillance is positioned as a substitute for justice, while accountability and recourse remain largely absent.

Step	How it goes wrong	Why this is a problem
1. Problem framing	Focuses on “stopping crime” instead of asking why it happens (causation).	It misses real causes like poverty or racism.
2. Schema / labels	Uses words like “unemployed,” “loiterer,” or “foreign” to justify surveillance.	People are judged by labels, not their reality.
3. Data sourcing	Data mostly comes from poor or watched areas – sometimes dubiously (e.g. Clearview AI)	It tells us that “these groups” look “riskier” even when they are not.
4. Feature choices	Uses proxy data like postal/ZIP code or clothing to guess risk.	Normal habits become signs of suspicion.
5. Goal setting	System built to be “accurate,” not “ethical” “fair.”	Looks right on paper but treats people unfairly.
6. Modeling	Mix up cause and correlation (ref. Wendy Chun).	Groups get blamed for patterns they did not cause.
7. Flagging / scoring	Tags too many people as “threats.”	Everyday behaviour gets criminalized.
8. Explanation / UI	Does not tell people why they were flagged.	You cannot question or fix unfair decisions.
9. Feedback	No clear way to fix mistakes.	Bias keeps growing over time.
10. Governance	No one checks or takes responsibility.	Unfair systems keep running unchecked.

Figure 1. From Classical Ethopoeia to Algorithmic Ethopoeia.

Figure 1 visually contrasts classical ethopoeia with its algorithmic counterpart. The left image depicts traditional ethopoeia as a situated rhetorical practice in which a human speaker performs moral characterization on behalf of another through narrative, memory, and social context. The right image illustrates Algorithmic Ethopoeia, wherein computational systems infer, assemble, and enact character representations of users across data-driven contexts, often without their consent, transparency, or narrative agency. Together, the images foreground the epistemic and ethical shift from human rhetorical performance to automated moral characterization embedded in socio-technical systems.

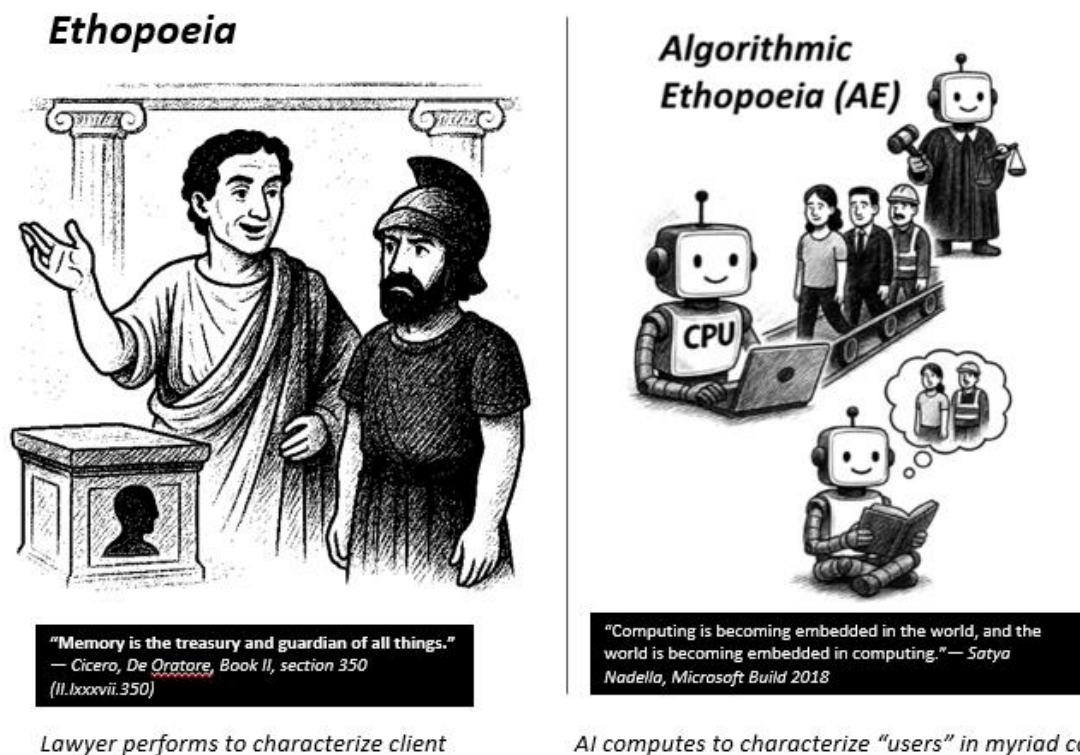


Figure 2. Datafication and the Production of Algorithmic Ethopoeia

Figure 2 illustrates the process by which lived human experience is translated into discrete data points and rendered legible to computational systems. Through data extraction, aggregation, and inference, the algorithm produces a proxy identity - a characterological profile that stands in for the subject across institutional, commercial, and governance contexts. This figure emphasizes that algorithmic ethopoeia operates not through speech or persuasion, but through automated representation, classification, and decision-making that materially shape how individuals are perceived, evaluated, and acted upon.

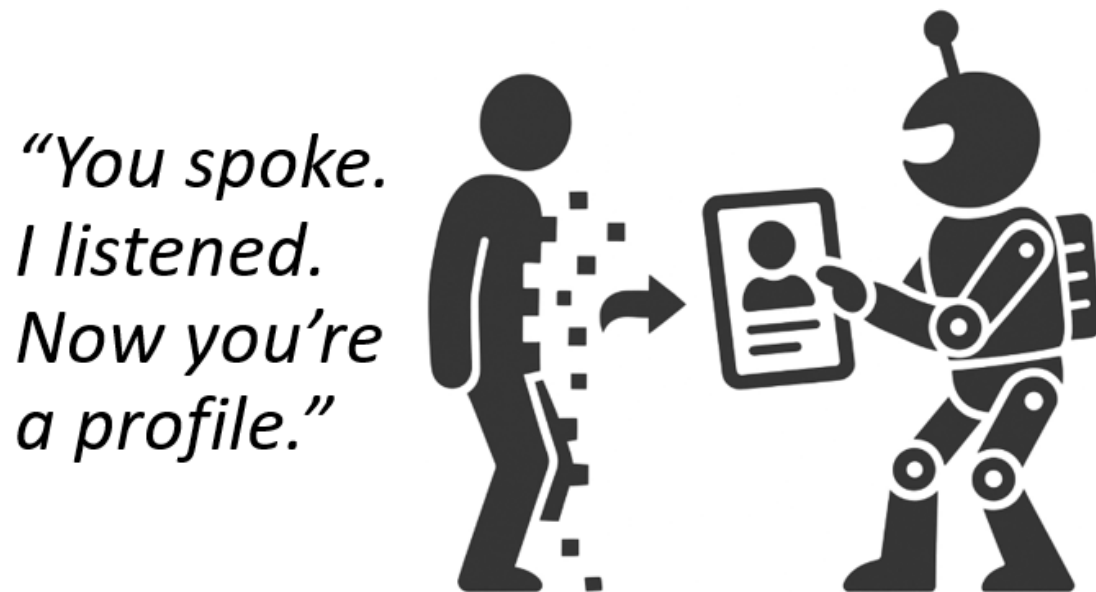
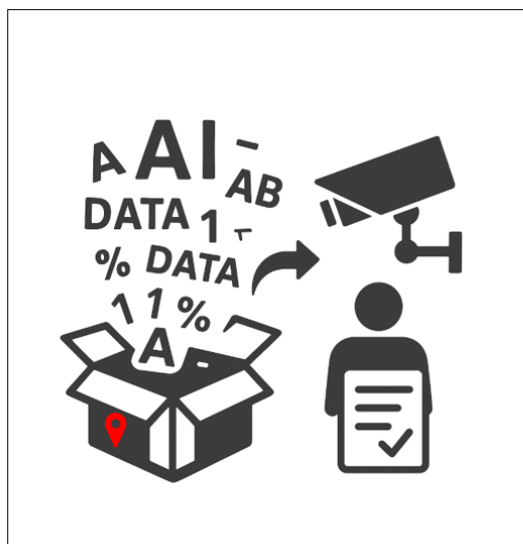


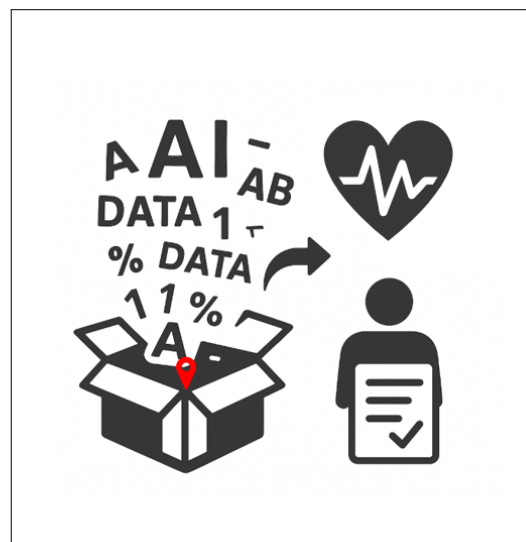
Figure 3. Rhetorical Locus in AI-Mediated Character Assessment

Inspired by S. Scott Graham's inquiry in his book *Where Is the Rhetoric?* into the sites at which rhetorical action operates within scientific and technical practice, this figure contrasts two loci of rhetorical operation in AI-driven character assessment systems. The left panel illustrates rhetoric operating *outside* the computational system, where discourse, policy language, and institutional narratives justify surveillance, prediction, and risk classification (e.g., in predictive policing or public safety frameworks). The right panel depicts rhetoric operating *within* the system itself, showing how algorithms encode rhetorical assumptions directly into data selection, classification, inference, and evaluative logic. By distinguishing these loci, the figure demonstrates how rhetorical "moves" in contemporary AI systems increasingly shift from external discursive justification to internalized computational judgment. These reframing foregrounds the role of design decisions, modeling choices, and algorithmic processes as sites of rhetorical action, revealing how moral characterization and surveillance are materially produced within socio-technical systems rather than merely justified around them.



Interrogating the discourse that justifies surveillance in AI-driven predictive policing and character assessment systems in "Rhetoric of Surveillance" (the rhetorical move occurs outside the box)

Interrogating the computational processes that rhetorically assess and surveil the character of women in "Sex after Technology" essay (the rhetorical move occurs inside the box).



Glossary

Abolitionist Tools: Strategies and techniques designed to resist and dismantle oppressive systems, particularly in the context of technology and data.

Accessibility: The design of products, devices, services, or environments for people with disabilities, ensuring that they can participate fully in digital spaces.

Algorithm: A step-by-step procedure for decision-making, often in terms of mathematical calculations.

Algorithmic Ethopoeia: The constructed representation of people using data harvested algorithmically from their declarations and behaviors, and/or used algorithmically to manipulate, control, or exploit individuals.

Algorithmic Judgment: The process by which AI systems classify, predict, and evaluate individuals or populations based on data-driven inference, often producing moralized assessments that shape access, risk designation, or intervention without contextual understanding or accountability.

Algorithmic Redlining: The phenomenon where AI-driven technologies replicate patterns of discrimination, marginalizing certain communities.

Algorithmic Transparency: A technical and governance-oriented practice focused on making the logic, data sources, and decision pathways of algorithmic systems visible and accountable to oversight bodies, regulators, and affected users. Algorithmic transparency extends beyond surface-level disclosure to include explainability, auditability, and mechanisms for contestation.

Artificial Intelligence (AI): The production of data-driven actions and decisions characteristic of human intelligence by machines, particularly computer systems that perform tasks such as pattern recognition, inference, data aggregation and modelling, prediction, and adaptive response. In this dissertation, AI is understood not as neutral automation, but as a socio-technical system shaped by human values, institutional priorities, and political contexts.

AI Governance: The legal, institutional, and ethical frameworks that regulate the development, deployment, and accountability of AI systems, including standards for transparency, oversight, consent, and harm mitigation.

Bias in AI: The tendency of AI algorithms to perpetuate and amplify existing patterns of discrimination and bias, particularly against marginalized communities.

Big Dick Data: A critical term used to describe the accumulation and deployment of large-scale datasets in ways that reproduce patriarchal power, dominance, and control. The term functions as an analytic metaphor to expose how data practices often privilege scale, extraction, and authority over care, consent, and contextual understanding, particularly in systems that moralize, surveil, or regulate bodies and behaviour.

Blackbox: A system or process whose internal workings are hidden or not understandable to the user. Inputs and outputs are visible, but how the system processes them is opaque, leading to challenges in understanding and trust.

Clearview AI: A facial recognition company known for scraping images from social media sites to create a database used for identifying individuals. It has faced heavy criticism for privacy violations.

Consent Heuristic: The principle that users must provide clear, informed consent for the collection and use of their data.

Critical Discourse Analysis (CDA): A methodological framework used to analyze the ways in which language, power, and ideology are intertwined in texts and discourses.

Critical Feminist Framework: An approach to analyzing and resisting technologies that perpetuate gendered oppression, focusing on power dynamics and social justice.

Data Feminism: An approach to data science that emphasizes the need to challenge and disrupt sexism and other inequalities in data technologies, advocating for multiple perspectives and interpretations.

Data Extraction: The practice of harvesting personal, behavioural, or biometric data from individuals, often without meaningful consent, for purposes of prediction, monetization, or control.

Design Thinking: A non-linear, iterative process for understanding users, challenging assumptions, redefining problems, and creating innovative solutions to prototype and test.

Empathy Phase: The first phase in the Design Thinking process where designers seek to understand the user's needs and experiences.

Ethical Design: The practice of designing technologies with consideration for their social impact, ensuring they do not cause harm and are used responsibly.

Ethopoeia: The construction and depiction of a person's character, typically in a rhetorical or symbolic manner. In contemporary use, it often refers to digital characterization.

Ethotic Heuristics: A set of context-sensitive, design-oriented principles developed in this research to guide the ethical evaluation and intervention of AI and data systems. Ethotic heuristics are used to

identify, contest, and redesign the rhetorical moves through which AI systems construct moral character, normalize surveillance, and justify harm, operating both within computational processes (“inside the box”) and within surrounding institutional and cultural discourse (“outside the box”).

Ethotic Impulses: The pre-reflective value orientations that shape how moral character is inferred, encoded, and acted upon within human and algorithmic systems.

Explainable AI: AI systems designed to support understandable and interpretable explanations of their actions and decisions to human users.

Facial Recognition Technology: The use of computer algorithms and machine learning techniques to identify individuals based on their facial features, often used in law enforcement and commercial applications.

GDPR (General Data Protection Regulation): A European Union law regulating the collection, processing, storage, and use of personal data, designed to protect individual privacy rights and impose accountability obligations on organizations that handle personal information.

Heuristic: Practical rule or method for problem-solving, learning, or discovery, often used to guide the design and critique of systems.

Human Factors and Ergonomics: The field focused on designing products, processes, and systems that fit the human body and cognitive abilities, ensuring safety, efficiency, and comfort.

Human-Computer Interaction (HCI): The study and practice of designing user interfaces that facilitate effective interaction between humans and computers.

Intersectionality: The interconnected nature of social categorizations such as race, class, and gender, which create overlapping systems of discrimination or disadvantage.

Intimate Data: Highly personal data related to bodies, health, sexuality, reproduction, and emotional life, the misuse of which carries heightened risks of harm, surveillance, and moral regulation.

Limited Memory AI: AI systems that can use past experiences to inform current decisions, such as GPS navigation systems.

Matrix of Domination: A concept describing the interlocking systems of oppression that affect individuals based on multiple social categorizations, such as race, class, and gender.

Moral Characterization: The attribution of ethical, behavioral, or risk-based qualities to individuals or groups through data analysis and algorithmic inference, often presented as objective assessment but shaped by ideological assumptions embedded in data and system design.

Normalization: The process through which harmful or invasive technological practices become accepted as routine, inevitable, or necessary through repeated exposure and justificatory discourse.

Panopticon: A design concept by philosopher Jeremy Bentham for a prison where all inmates can be observed by a single guard without the inmates knowing whether they are being watched, used metaphorically to describe modern surveillance practices.

Panopticonism: The concept of a surveillance system where individuals are constantly monitored, creating a state of controlled behavior through the perception of being watched.

Predictive Policing: A law enforcement practice that uses data analysis and machine learning algorithms to identify areas at high risk of crime, aiming to prevent criminal activity by deploying police resources to these areas, but often perpetuating regimes of oppression based on malignant stereotypes

Privacy by Design: A design approach that prioritizes data security and user privacy from the outset, ensuring that data protection is integrated into the development process.

Prosopopoeia: A rhetorical mode where an abstract concept, inanimate object, or absent person is given a voice or personality, often used to project the character of another.

Prototype Phase: A phase in the Design Thinking process where designers create scaled-down versions of the product or features to test and validate ideas.

Public Health Surveillance: The use of surveillance measures to monitor and control the spread of diseases, often justified in the context of protecting public health, but potentially invasive and oppressive.

Public Safety: The welfare and protection of the general public, often used as a justification for surveillance practices.

Reactive AI: AI systems that react to human inputs without retaining memory or learning from past interactions, such as IBM's Deep Blue.

Rhetorical Move (Inside / Outside the Box): A conceptual distinction used in this dissertation to describe where persuasive and ideological action occurs in AI systems. "Inside the box" refers to rhetorical moves embedded within computational processes, data structures, and algorithmic logic, while "outside the box" refers to the legal, policy, institutional, and cultural discourses that frame, justify, and normalize the deployment of those systems.

Self-Aware AI: Advanced AI systems that possess a form of self-awareness and contextual cognitive abilities, still largely conceptual.

Social Media Monitoring: The practice of using technology to track and analyze social media activity, often used by law enforcement for investigatory and disciplinary purposes.

Socio-cognitive Impulses: The natural tendencies of individuals to form opinions and adopt perspectives based on social and cognitive processes.

Surveillance Capitalism: A term describing the commodification of personal data by tech companies for profit, often leading to intrusive surveillance practices.

Surveillance Rhetoric: The persuasive language and discourses used to justify the use of mass surveillance technologies in the name of public safety.

Technological Determinism: The belief that technological advancements dictate societal structure and human behavior, often suggesting that the adoption of certain technologies is inevitable.

Theory of Mind (ToM) AI: AI systems that can understand and simulate human emotions and

mental states, such as MIT's Kismet robot. **Transparency:** The principle that data collection, processing, and decision-making practices should be communicated clearly and intelligibly to users, including the use of accessible language, visible policies, and meaningful disclosure about how data is collected, used, and shared.

The principle of making data collection and processing activities clear and understandable to users, including the use of plain language and visible policies.

User Controls and Affordances: Features that give users control over their data and how it is shared, ensuring that technology adapts to the user rather than the other way around.

WCAG (Web Content Accessibility Guidelines): International *de facto* standards for web accessibility, ensuring that web content is accessible to people with disabilities.