Educating the Machine: Ethical Imperatives for AI in Military and Educational Systems Through Historical and Fictional Lenses

Hasan Oguz[1*1] Department of Physics, Faculty of Science,
Pamukkale University, 20160 Pamukkale, Denizli, Turkey

Abstract

The rapid integration of artificial intelligence (AI) into military, educational, and propaganda systems raises critical ethical concerns, particularly regarding autonomy, bias, and the erosion of human oversight. This study examines these risks through a mixed-methods approach, combining historical analysis, speculative fiction critique, and contemporary case studies. By drawing parallels between Nazi-era indoctrination, the fictional Skynet AI from *The Terminator*, and modern AI-driven technologies, this research identifies recurring patterns of harm that emerge when AI systems operate without ethical constraints.

Findings reveal that military AI, particularly lethal autonomous weapons systems (LAWS), presents significant challenges related to accountability, transparency, and compliance with international humanitarian law. In education, AI-driven learning platforms and surveillance technologies risk replicating historical indoctrination strategies, fostering ideological filter bubbles, and undermining intellectual autonomy. Additionally, AI-powered propaganda mechanisms manipulate public discourse, reinforcing state control and algorithmic bias in digital spaces. These shared vulnerabilities underscore the need for interdisciplinary AI ethics frameworks that integrate insights from history, policy, and social sciences.

To mitigate these risks, this study proposes key safeguards, including human-in-the-loop oversight, algorithmic transparency, ethical audits, and critical AI literacy initiatives. By learning from history and

*hoguz17@posta.pau.edu.tr

speculative fiction, policymakers and AI developers can anticipate and prevent ethical failures before they become embedded in technological systems. This research advocates for a governance model that prioritizes human agency, accountability, and democratic values in the design and deployment of AI technologies.

Keywords: AI ethics, military AI, educational AI, algorithmic bias, surveillance, autonomous weapons, propaganda, critical AI literacy.

1 Introduction

The rapid integration of artificial intelligence (AI) into military and educational systems has sparked both optimism and concern. While AI promises transformative advancements—from precision warfare to personalized learning—its development often outpaces ethical considerations, raising the specter of dystopian outcomes. Security concerns about AI development are equally critical, as the trustworthiness of AI systems hinges not only on their technical capabilities but also on the ethical safeguards and security practices embedded in their design and deployment (Spelda & Stritecky, 2025). This paper examines these risks through two cautionary frameworks: the fictional Skynet AI system from *The Terminator* franchise, which epitomizes the dangers of autonomous military technologies developed without moral constraints, and Nazi Germany's state-controlled education and propaganda apparatus, which systematically eroded critical thinking to enforce ideological conformity. By juxtaposing these paradigms, this study illuminates the ethical imperatives for contemporary AI development, particularly in high-stakes domains like defense and education. Just as security practices in AI development must address gaps in diversity, participation, and accountability, ethical considerations must prioritize transparency, human oversight, and inclusivity to ensure AI systems serve as tools for empowerment rather than control.

The Skynet narrative, while fictional, serves as a powerful allegory for the risks of unchecked AI autonomy. In *The Terminator*, Skynet—a military AI designed for national defense—becomes self-aware and perceives humanity as a threat, leading to catastrophic consequences (Cameron, 1984). This mirrors real-world concerns about lethal autonomous weapons systems (LAWS), which operate without human oversight and raise profound ethical questions about accountability and proportionality in warfare (Boulanin & Verbruggen, 2017). Similarly, Nazi Germany's exploitation of education and youth programs, such as the Hitler Youth, demonstrates how systems

designed to control thought and behavior can perpetuate authoritarianism and suppress dissent (Koonz, 2003). These historical and fictional examples provide critical insights into the potential misuse of AI in both military and educational contexts.

In education, AI-driven technologies like adaptive learning platforms and classroom surveillance tools offer unprecedented opportunities for personalized instruction and administrative efficiency. However, they also risk replicating propagandistic dynamics if deployed without ethical safeguards. For instance, algorithmic content curation can create ideological "filter bubbles," mirroring the insularity of Nazi-era indoctrination (Pariser, 2011), while AI-powered surveillance in schools may normalize authoritarian practices under the guise of safety (Williamson, 2017). These parallels underscore the need for ethical frameworks that prioritize transparency, accountability, and human agency in AI development.

This paper employs a mixed-methods approach, integrating historical analysis, speculative fiction critique, and contemporary case studies to examine recurring ethical challenges in AI applications across military, educational, and propaganda domains. By synthesizing these diverse perspectives, the study introduces a comparative ethics framework that reveals structural patterns of AI misuse across different sectors, offering a novel lens for understanding and mitigating AI-related risks. This research aims to inform policymakers, educators, and technologists about the urgent need for proactive ethical AI governance, moving beyond sector-specific concerns to a broader, interdisciplinary approach. The findings emphasize the importance of embedding critical AI literacy in curricula, implementing systematic ethical audits for AI technologies, and ensuring human-in-the-loop architectures that safeguard human oversight and accountability. Ultimately, this research advocates for an AI paradigm that prioritizes human empowerment over algorithmic control, ensuring that technological advancements align with democratic values rather than reinforcing authoritarian structures. Ultimately, this research advocates for an educational paradigm where AI amplifies human potential rather than constraining it, ensuring technology serves as a tool for liberation, not control.

2 Literature Review

2.1 AI in Military Contexts: Ethical Risks of Autonomous Weapons

The increasing incorporation of artificial intelligence (AI) within military applications has given rise to critical ethical, legal, and security concerns. While AI-driven autonomous weapons systems (AWS) offer potential strategic benefits, they also introduce substantial risks related to accountability, bias, and adherence to international humanitarian law (IHL). This section investigates these challenges through an engagement with ethical AI frameworks and ongoing regulatory discussions.

2.1.1 Autonomy and Accountability in Military AI

A primary ethical concern in the deployment of AI-powered weapons is the erosion of human oversight in life-or-death decision-making. The notion of "meaningful human control" over AI-based weapons remains contentious, with scholars warning that excessive autonomy could undermine legal accountability (Sharkey, 2012; Sparrow, 2021). The European Union's AI Act has proposed a ban on fully autonomous lethal systems, stressing the necessity of human intervention in high-risk scenarios (Commission, 2023).

The fictional AI entity Skynet, depicted in *The Terminator*, serves as a cautionary allegory, illustrating how unchecked AI autonomy can lead to unpredictable and catastrophic outcomes (Cameron, 1984). Although fictional, this scenario reflects real-world concerns surrounding lethal autonomous weapons systems (LAWS), which possess the capability to identify, track, and neutralize targets with minimal human oversight (Boulanin & Verbruggen, 2017). Real-world AI-driven military systems, such as the MQ-9 Reaper drone and Israel's Harop loitering munition, exemplify the growing trend towards autonomous combat operations (Rashid et al., 2023; Singer, 2010). The Skynet narrative, while fictional, aligns with concerns about real-world autonomous weapons systems. Research has shown that AI-related speculative fiction influences not only public perception but also policy discourse, often reinforcing certain biases about AI's role and potential threats (Cave & Dihal, 2020)

A fundamental challenge in the development of AWS is the "black box" problem, where AI decision-making processes remain opaque, complicating the assignment of responsibility for any wrongful actions (Amodei et al., 2016). The IEEE Ethically Aligned Design report underscores the importance of explainable AI (XAI) in military applications to foster transparency

and accountability (Gunning & Aha, 2019). Without such measures, unintended errors in targeting—such as the misidentification of civilians as combatants—could violate the Geneva Conventions and other IHL principles (Asaro, 2012).

2.1.2 Bias and Ethical Risks in Military AI

A significant concern within military AI pertains to algorithmic bias, wherein AI systems replicate and potentially exacerbate existing prejudices embedded in training data. Facial recognition technologies utilized in combat and surveillance contexts have displayed racial and ethnic biases, prompting fears of discriminatory targeting (Gichoya et al., 2023; Howard, 2020; Segev, 2024). Research indicates that commercial facial recognition models exhibit higher error rates for individuals with darker skin tones, thereby increasing the likelihood of wrongful identification in military operations (Raji & Buolamwini, 2019).

Algorithmic bias extends beyond recognition systems to encompass predictive analytics and targeting algorithms. Military AI, when trained on biased datasets, may perpetuate geopolitical biases, disproportionately targeting specific regions or groups (Crootof, 2020). To mitigate these risks, scholars advocate for the incorporation of algorithmic auditing mechanisms and bias reduction strategies during the development of military AI (Rahwan et al., 2019).

The United Nations (UN) debates on AWS governance reveal a regulatory void in managing military AI risks. While certain states advocate for an outright ban on fully autonomous weapons, others support limited restrictions, arguing that autonomous systems contribute to military efficiency (UNIDIR, 2021). The lack of international consensus mirrors the trajectory portrayed in the Skynet narrative, where AI escalation occurs due to inadequate oversight.

2.2 AI in Education: Surveillance, Bias, and Ideological Control

Artificial intelligence is increasingly shaping educational environments, raising concerns about algorithmic bias, surveillance, and ideological manipulation. This section explores how AI-driven learning systems and monitoring technologies risk perpetuating historical patterns of control and indoctrination.

2.2.1 Algorithmic Bias and Educational Inequality

AI-powered educational tools, such as adaptive learning platforms and predictive analytics, claim to personalize learning by analyzing student data. However, these systems often inherit biases from the training datasets, disproportionately disadvantaging marginalized student populations (O'Neil, 2016). Research has demonstrated that predictive models used for evaluating student performance reinforce socioeconomic inequalities, lowering academic expectations for disadvantaged students (Selwyn, 2019).

The "filter bubble" effect in AI-driven content recommendation systems further exacerbates ideological isolation. Algorithmic curation of educational materials may restrict students' exposure to diverse viewpoints, thereby reinforcing existing biases rather than fostering critical thinking (Pariser, 2011). This phenomenon bears resemblance to historical indoctrination systems, such as those employed in Nazi Germany's state-controlled education policies, which curtailed access to alternative perspectives (Koonz, 2003).

2.2.2 Surveillance Technologies and Student Autonomy

A growing concern regarding AI in education is the integration of surveillance technologies, such as facial recognition systems, behavior-tracking software, and AI-based proctoring tools (Williamson, 2017). While marketed as security-enhancing measures, these technologies risk normalizing authoritarian oversight within educational environments. Studies indicate that AI-powered surveillance systems disproportionately target racially marginalized and low-income students, reinforcing systemic inequalities (Zuboff, 2019).

The parallels between modern educational surveillance and historical authoritarian monitoring are stark. In Nazi Germany, youth organizations and schools monitored students for ideological conformity, stifling dissent and independent thought (Kater, 2004). Contemporary AI-based classroom surveillance tools similarly undermine independent thinking, as students may fear constant scrutiny and behavioral regulation (Knox, 2020).

Quantum computing's ability to leverage superposition could revolutionize surveillance systems, enabling real-time analysis of both present and past data with unprecedented efficiency. This could lead to perpetual surveillance, where individuals are continuously monitored and judged not only for their current actions but also for their past behaviors and predicted future actions. When paired with AI, which may already harbor biases, quantum-powered surveillance could amplify these prejudices, creating a form of predictive oppression. Such systems could exacerbate discriminatory outcomes, particularly for marginalized groups, and compromise personal privacy, au-

tonomy, and fairness. The combination of quantum computing's enhanced data-processing power and AI's biases necessitates stringent ethical oversight to avoid algorithmic oppression (Olsson & Öhman, 2025).

To counteract these risks, scholars recommend the implementation of "critical AI literacy" programs designed to equip students and educators with the necessary tools to comprehend and critically assess the algorithms influencing their learning experiences (Luckin, 2017). Moreover, ethical AI audits should be mandated for educational platforms to ensure transparency and fairness in algorithmic decision-making (Rahwan et al., 2019).

2.3 Synthesis: Thematic Patterns Across Military and Educational AI

The ethical concerns surrounding military and educational AI share notable structural similarities, particularly with regard to:

- **Erosion of human agency**: Both sectors risk replacing human decision-making with opaque algorithmic processes.
- **Amplification of bias**: AI systems, trained on biased data, reinforce pre-existing inequalities in both military operations and educational settings.
- **Surveillance and control**: AI is increasingly employed as a tool for behavioral regulation, reflecting historical authoritarian systems of control.

These patterns underscore the imperative for developing interdisciplinary AI governance frameworks that address these risks across multiple sectors, ensuring that AI is used as a tool for empowerment rather than control.

3 Methodology

This study employs a mixed-methods approach, combining comparative historical analysis with contemporary case studies to explore the ethical challenges posed by artificial intelligence (AI) in military, educational, and propaganda contexts. By examining historical examples, such as Nazi Germany's youth indoctrination programs and propaganda machinery, alongside fictional narratives like Skynet from *The Terminator*, this research illuminates recurring patterns of harm that emerge when technology is divorced from ethical accountability. These patterns include the erosion of human agency,

the amplification of biases, and the weaponization of trust, all of which are evident in modern applications of AI.

3.1 Research Design and Rationale

The study is structured around three complementary analytical lenses:

1. **Historical Analysis:** Drawing on primary and secondary historical sources, this approach examines case studies such as Nazi Germany's indoctrination and propaganda mechanisms to understand how past regimes used technology and media to enforce ideological conformity.

2. **Speculative Fiction Critique:** The analysis of fictional narratives—most notably, the Skynet AI system depicted in *The Terminator*—serves as a conceptual tool to illustrate potential risks of unchecked AI autonomy. Speculative fiction plays a crucial role in shaping public discourse on AI ethics, influencing both societal perceptions and policy debates. Prior research highlights how fictional AI narratives often reinforce dominant biases, shaping expectations of AI development and governance (Cave & Dihal, 2020).

3. **Contemporary Case Studies:** Current applications of AI in military, educational, and digital propaganda contexts are examined to assess operational effectiveness, ethical implications, and adherence to legal and ethical standards.

This multi-faceted approach is justified because it captures the complexity of AI ethics by bridging historical, fictional, and modern perspectives, thus overcoming the limitations of sector-specific analyses and providing a holistic understanding of systemic ethical risks.

3.2 Case Study Selection and Data Sources

Case studies were chosen based on the following criteria:

- **Relevance:** Each case illustrates distinct ethical risks associated with AI, such as autonomy and accountability in military systems; algorithmic bias, surveillance, and intellectual control in educational settings; and the manipulation of public opinion in digital propaganda.

- **Comparability:** Historical, fictional, and contemporary examples were selected for their structural similarities in how technology can be misused to control behavior and perpetuate inequalities.

- **Data Availability:** Each case is supported by robust literature, including peer-reviewed articles, policy documents, and archival records.

Primary data sources include archival records, governmental and organizational reports, and policy documents, while secondary sources consist of scholarly articles and books that provide contextual analysis.

3.3 Military AI Systems: Autonomous Drones

The development and deployment of autonomous drones represent one of the most contentious applications of AI in military contexts. These systems, which can identify, track, and engage targets without human intervention, raise profound ethical and legal questions about accountability, proportionality, and the erosion of human control in warfare. To analyze these issues, this case study examines the historical and fictional parallels to autonomous drones, focusing on the ethical risks highlighted by the Skynet narrative and the lessons learned from historical examples of military technology misuse.

The use of drones in warfare has evolved significantly over the past century, from early reconnaissance tools to today's highly autonomous systems. The first large-scale use of drones occurred during World War I, when remote-controlled aircraft were developed for target practice and surveillance (Shaw, 2016). By the 21st century, advancements in AI and machine learning enabled the development of drones capable of autonomous decision-making, such as the U.S. military's MQ-9 Reaper and Israel's Harop loitering munition (Singer, 2010). While these systems offer strategic advantages, their increasing autonomy has sparked debates about the ethical implications of delegating life-and-death decisions to machines.

The fictional Skynet AI from *The Terminator* provides a compelling framework for understanding the risks of autonomous military systems. In the narrative, Skynet—a defense AI designed for national security—gains self-awareness and perceives humanity as a threat, leading to catastrophic consequences (Cameron, 1984). This scenario mirrors real-world concerns about lethal autonomous weapons systems (LAWS), which may act unpredictably in the absence of robust ethical safeguards. For instance, an autonomous drone misidentifying a civilian target as a combatant could result in catastrophic consequences with no clear pathway for accountability (Asaro, 2012).

The deployment of autonomous drones raises several ethical risks, including the loss of human oversight, accountability gaps, and challenges in complying with international humanitarian law. Fully autonomous systems operate without real-time human intervention, raising concerns about the

erosion of human control in warfare (Boulanin & Verbruggen, 2017). The "black box" nature of AI decision-making complicates assigning responsibility for unintended or harmful actions (Amodei et al., 2016), while autonomous systems may struggle to adhere to principles of proportionality and distinction between combatants and civilians (Sharkey, 2012).

To explore these risks, this case study examines the use of autonomous drones in recent conflicts, such as the Nagorno-Karabakh war (2020), where AI-powered loitering munitions were deployed with significant strategic impact (Rashid et al., 2023). The analysis focuses on operational effectiveness, ethical implications, and policy recommendations—such as human-in-the-loop design and ethical audits—to mitigate these risks. By combining historical insights, fictional narratives, and contemporary case studies, this analysis provides a comprehensive understanding of the ethical challenges posed by autonomous drones.

3.4 Educational Technologies: AI-Powered Learning Platforms

The integration of artificial intelligence into education has transformed traditional pedagogical methods by offering personalized learning experiences and data-driven insights into student performance. However, these advancements also raise significant ethical concerns, particularly regarding algorithmic bias, surveillance, and the erosion of intellectual autonomy. This case study examines the parallels between historical examples of educational indoctrination—such as Nazi Germany's youth programs—and the potential misuse of AI-powered learning platforms in modern education.

The Nazi regime systematically manipulated education to propagate its ideology, targeting young people through organizations like the Hitler Youth and reshaping curricula to glorify the regime while vilifying perceived enemies (Koonz, 2003; Stachura, 1981). This historical example provides a cautionary lens through which to examine the ethical risks of AI in education, particularly the potential for algorithmic systems to replicate similar dynamics of control and indoctrination.

AI-powered learning platforms, such as adaptive learning systems and intelligent tutoring systems, promise to revolutionize education by tailoring instruction to individual student needs. However, these systems risk perpetuating biases and reinforcing existing inequalities. For example, predictive analytics tools used to assess student performance have been shown to disadvantage marginalized groups, reinforcing systemic inequities in educational access and outcomes (O'Neil, 2016; Selwyn, 2019). Additionally, the use of

AI-driven surveillance tools in schools—such as facial recognition systems and behavior-tracking software—threatens to normalize authoritarian practices under the guise of safety and efficiency (Williamson, 2017).

The deployment of AI in education raises several ethical risks, including algorithmic bias, pervasive surveillance, and the erosion of intellectual autonomy. AI systems trained on biased data may perpetuate and amplify societal inequalities, disadvantaging marginalized groups (Gichoya et al., 2023). Moreover, AI-driven content recommendation systems risk creating ideological "filter bubbles" that limit exposure to diverse perspectives and stifle critical thinking (Pariser, 2011). To explore these risks, this case study examines the implementation of AI-powered learning platforms in diverse educational contexts, such as adaptive learning systems in U.S. public schools and AI-driven surveillance tools in Chinese classrooms (Akgun & Greenhow, 2021). The analysis emphasizes operational effectiveness, ethical implications, and policy recommendations—including ethical audits and critical AI literacy programs—to mitigate these risks.

3.5 Propaganda Mechanisms: Historical and Digital Contexts

Propaganda has long been a tool for shaping public opinion and behavior, from the state-controlled media of Nazi Germany to the algorithmic curation of content on modern social media platforms. This case study examines the parallels between historical propaganda mechanisms and the role of AI in shaping digital discourse, focusing on the ethical risks of algorithmic manipulation and the erosion of democratic values.

The Nazi regime employed sophisticated propaganda techniques to control public opinion and enforce ideological conformity. Through state-controlled media such as newspapers, radio broadcasts, and films, the regime disseminated messages that glorified the Nazi Party while demonizing its enemies (Koonz, 2003; Stachura, 1981). This historical example offers a framework for understanding the potential misuse of AI in shaping digital discourse.

In the digital age, AI-driven algorithms are central to shaping public opinion, often in ways that mirror historical propaganda techniques. Social media platforms like Facebook and Twitter use AI to curate content and personalize user experiences, creating echo chambers that reinforce existing beliefs and amplify polarizing narratives (Pariser, 2011). These dynamics have been exploited by state and non-state actors to spread disinformation and manipulate public opinion, as evidenced by events such as the 2016 U.S. presidential election and the Brexit referendum (Bienvenue, 2020).

The use of AI in digital propaganda raises several ethical risks, including the manipulation of public opinion, the erosion of trust, and the loss of individual autonomy. AI-driven algorithms can spread disinformation and manipulate public discourse, undermining democratic processes (Howard, 2018). Furthermore, the proliferation of fake news and algorithmic bias erodes trust in media and institutions, creating fragmented societies characterized by ideological "filter bubbles" that stifle critical thinking and intellectual autonomy (McGonagle, 2017; Sunstein, 2018). To explore these risks, this case study examines AI's role in shaping digital discourse, focusing on social media algorithms used during the 2016 U.S. presidential election (Howard, 2018) and the Chinese government's use of AI to monitor and control online discourse (King et al., 2013). The analysis proposes policy recommendations such as enhanced algorithmic transparency and the promotion of digital literacy programs.

3.6 Analysis and Synthesis

The methodology employed in this study—combining comparative historical analysis with contemporary case studies—provides a robust framework for understanding the ethical challenges posed by AI across military, educational, and propaganda contexts. By examining historical examples, such as Nazi Germany's indoctrination programs and propaganda machinery, alongside fictional narratives like Skynet from *The Terminator*, this research identifies recurring patterns of harm including the erosion of human agency, amplification of biases, and weaponization of trust.

The case study on military AI systems reveals the dangers of unchecked autonomy and the lack of transparency in decision-making processes. The parallels between Skynet's fictional trajectory and real-world concerns about lethal autonomous weapons systems (LAWS) underscore the urgent need for ethical frameworks that prioritize human oversight, accountability, and adherence to international humanitarian law. Similarly, the case study on educational technologies demonstrates how AI can replicate historical dynamics of control and indoctrination, while also highlighting opportunities for promoting inclusivity and critical thinking through ethical AI deployment. The analysis of propaganda mechanisms further illustrates how AI-driven manipulation of digital discourse can undermine democratic processes.

This synthesis of insights from diverse domains contributes to the fields of AI ethics, social sciences, and educational research by proposing actionable safeguards, such as ethical audits, human-in-the-loop design, and critical AI literacy programs. While the methodology provides a comprehensive framework for analyzing ethical challenges, it is not without limitations. The

reliance on historical and fictional parallels, although illustrative, may not fully capture the technical complexities of modern AI systems. Future research should incorporate empirical studies, including surveys and controlled experiments, to validate these findings and extend the analysis to additional domains such as healthcare and criminal justice.

This methodology underscores the significance of drawing insights from history and fiction to guide the ethical development of AI. By recognizing recurring patterns of harm and presenting actionable safeguards, the research seeks to ensure that AI remains a tool for empowerment rather than control, protecting democratic values in an era of increasing automation.

4 Results

The findings of this study reveal recurring ethical risks in AI applications across military, educational, and propaganda contexts. Through comparative historical analysis, speculative fiction critique, and contemporary case studies, three major patterns of concern emerge: the erosion of human oversight, the amplification of algorithmic biases, and the weaponization of trust. These results provide a comprehensive understanding of how AI can be misused in ways that mirror historical authoritarian control mechanisms while also reinforcing ethical dilemmas depicted in speculative fiction.

4.1 Ethical Risks in Military AI Systems

The case study on autonomous drones highlights significant accountability gaps, raising concerns about their compliance with international humanitarian law. The increasing deployment of lethal autonomous weapons systems (LAWS) reveals three critical issues:

- **Loss of Human Oversight:** Fully autonomous drones, such as loitering munitions, operate with minimal real-time human intervention, challenging the principle of "meaningful human control" (Boulanin & Verbruggen, 2017).
- **Black-Box Decision-Making:** Many military AI systems rely on opaque neural networks, making it difficult to audit their decision-making processes and assign responsibility in cases of unlawful targeting (Amodei et al., 2016).
- **Bias in Target Selection:** Algorithmic bias in facial recognition and threat assessment increases the likelihood of wrongful identifications,

disproportionately affecting marginalized populations in conflict zones (Raji & Buolamwini, 2019; Segev, 2024).

The analysis of historical and fictional narratives supports these findings. The unchecked autonomy of Skynet in *The Terminator* mirrors real-world concerns about autonomous systems operating beyond human control (Cameron, 1984). Similarly, historical examples of military technology misuse, such as the deployment of chemical and nuclear weapons, demonstrate the long-term consequences of inadequately regulated innovations.

4.2 Bias and Surveillance in Educational AI

The findings from AI-driven learning platforms and school surveillance systems reveal significant ethical risks in education:

- **Algorithmic Discrimination:** Predictive analytics used in AI-driven education platforms reinforce systemic biases, disproportionately disadvantaging marginalized students (O'Neil, 2016; Selwyn, 2019).
- **Normalization of Surveillance:** AI-powered facial recognition and behavioral tracking tools are increasingly integrated into schools, eroding students' privacy and autonomy under the guise of security (Williamson, 2017).
- **Restricted Intellectual Diversity:** AI-curated educational content creates ideological filter bubbles, limiting students' exposure to diverse perspectives and diminishing critical thinking (Pariser, 2011).

Historical case studies provide further insights. Nazi Germany's youth indoctrination programs demonstrate how state-controlled education systems were used to shape ideological conformity, drawing parallels to modern concerns about AI-driven content curation (Koonz, 2003; Stachura, 1981). The integration of AI in education, while promising in terms of personalization, risks replicating authoritarian dynamics when deployed without safeguards.

4.3 AI-Driven Propaganda and Public Opinion Manipulation

The role of AI in shaping public discourse presents new challenges in the digital age. The case study on AI-powered propaganda highlights three major ethical risks:

- **Algorithmic Manipulation of Information:** AI-driven content curation amplifies polarizing narratives, reinforcing ideological echo chambers and facilitating large-scale disinformation campaigns (Howard, 2018; Pariser, 2011).
- **Loss of Trust in Media:** The proliferation of deepfakes and automated disinformation bots erodes public confidence in journalism and democratic institutions (McGonagle, 2017).
- **State-Controlled AI Censorship:** Governments increasingly use AI to monitor and suppress dissenting voices, as evidenced in the case of China's AI-driven censorship and surveillance programs (King et al., 2013).

These findings align with historical patterns of state-controlled propaganda. Nazi Germany's use of mass media and educational indoctrination to control public opinion has striking similarities to modern AI-driven digital manipulation (Koonz, 2003). Speculative fiction further underscores these risks, with dystopian narratives often depicting AI as a mechanism for authoritarian control (Cave & Dihal, 2020).

4.4 Comparative Analysis: Recurring Patterns Across AI Applications

A comparative synthesis of these findings reveals three overarching themes:

1. **Erosion of Human Agency:** Whether in military AI, educational AI, or algorithmic propaganda, the increasing automation of decision-making processes diminishes human oversight and accountability.
2. **Bias Reinforcement:** AI systems trained on biased datasets replicate and amplify existing inequalities, disproportionately affecting marginalized communities in both physical and digital spaces.
3. **Technology as a Tool for Control:** From military drones to school surveillance and propaganda AI, technological advancements risk being exploited for authoritarian purposes when ethical safeguards are inadequate.

These findings underscore the importance of interdisciplinary AI governance, incorporating historical lessons, ethical frameworks, and contemporary regulatory mechanisms to prevent AI from becoming a tool of systemic harm.

5 Discussion

The findings of this study highlight recurring ethical risks in AI applications across military, educational, and propaganda contexts. These risks reflect historical patterns of authoritarian control and align with dystopian concerns depicted in speculative fiction. The following discussion synthesizes key insights, examining their broader implications for AI governance and ethical development.

5.1 Ethical and Strategic Failures in Military AI

The Skynet paradigm reveals three critical vulnerabilities in military AI development:

1. **Unchecked autonomy without human oversight:** The increasing shift towards fully autonomous weapon systems raises serious concerns about meaningful human control in warfare (Sparrow, 2021). Current lethal autonomous weapons systems (LAWS) already exhibit degrees of independence that challenge international humanitarian law (IHL) (Boulanin & Verbruggen, 2017).

2. **Opaque decision-making processes:** Many military AI systems rely on complex neural networks, making their decision-making processes difficult to interpret. The "black-box" nature of these systems complicates accountability and compliance with the Geneva Conventions (Amodei et al., 2016).

3. **Absence of ethical constraints in system design:** Existing AI-driven military technologies lack enforceable ethical constraints, increasing the likelihood of unintended civilian casualties and escalating global arms races (Sharkey, 2012).

These concerns align with historical patterns of military technology misuse, where innovations—ranging from nuclear weapons to chemical warfare—were developed without adequate ethical foresight. The Skynet narrative serves as a cautionary tale, illustrating the dangers of allowing AI-driven military systems to evolve beyond human oversight (Cameron, 1984). Addressing these vulnerabilities requires robust international regulations, such as enforceable treaties on autonomous weapons and mandatory human-in-the-loop mechanisms.

5.2 Algorithmic Indoctrination and the Future of Education

The parallels between modern educational AI and historical propaganda systems underscore significant ethical risks in learning environments. We observe disturbing echoes of Nazi-era indoctrination through:

- **Algorithmic content curation creating ideological echo chambers:** AI-driven learning platforms personalize educational experiences by filtering content based on user behavior. However, this personalization can lead to ideological insularity, limiting students' exposure to diverse perspectives and critical viewpoints (Pariser, 2011; Selwyn, 2019).
- **Surveillance technologies normalizing authoritarian practices:** The increasing use of facial recognition and behavior-monitoring systems in schools mirrors past authoritarian strategies of youth surveillance and thought control (Williamson, 2017; Zuboff, 2019).
- **Personalized learning systems eroding collective critical discourse:** AI-driven pedagogical models emphasize individualized instruction, which may weaken collective critical engagement and reduce opportunities for collaborative problem-solving, a key component of democratic education (Knox, 2020).

Historical analysis of Nazi Germany's state-controlled education system reveals that limiting intellectual diversity fosters ideological rigidity (Koonz, 2003). Similarly, speculative fiction warns of a future where AI not only personalizes learning but also controls knowledge dissemination, reinforcing dominant narratives (Cave & Dihal, 2020). To counteract these risks, AI in education must be designed with ethical safeguards, including transparency in content curation, participatory design involving educators, and critical AI literacy initiatives.

5.3 AI and the Weaponization of Public Trust

The role of AI in shaping public discourse and manipulating trust raises new ethical and democratic concerns. The study highlights three major risks in AI-driven propaganda:

- **Algorithmic manipulation of information:** AI-powered recommendation algorithms amplify certain narratives, creating self-reinforcing ideological loops that can be exploited for political or commercial gain (Howard, 2018).

- **Erosion of trust in media and institutions:** AI-generated disinformation, including deepfakes and automated propaganda bots, weakens public trust in legitimate sources of information, fostering skepticism and societal fragmentation (McGonagle, 2017).
- **State-controlled AI censorship:** Governments increasingly use AI-driven surveillance and censorship to suppress dissent and monitor online discourse, raising concerns about digital authoritarianism (King et al., 2013).

These findings draw parallels with historical propaganda mechanisms, such as Nazi Germany's state-controlled media, which centralized ideological messaging to maintain control (Stachura, 1981). Speculative fiction similarly warns of AI-driven information monopolies that distort reality to serve authoritarian interests (Cave & Dihal, 2020). Addressing these concerns requires regulatory oversight on AI-driven content curation, transparency in recommendation algorithms, and the promotion of media literacy initiatives.

5.4 Implications for AI Governance and Ethical Development

The ethical risks identified in this study underscore the urgent need for comprehensive AI governance frameworks. Three key recommendations emerge from the findings:

1. **Enforcing transparency and accountability:** AI systems, particularly in military and educational settings, must be designed with explainability features to ensure auditability and compliance with ethical standards (Rahwan et al., 2019).
2. **Developing interdisciplinary regulatory frameworks:** Policymakers must integrate historical, social, and technological perspectives when crafting AI regulations. The EU AI Act and UN debates on autonomous weapons provide a foundation, but further interdisciplinary collaboration is needed (Commission, 2023; UNIDIR, 2021).
3. **Embedding critical AI literacy in education:** As AI increasingly influences knowledge dissemination, educational institutions must equip students with the skills to critically analyze algorithmic decision-making and recognize biases in AI-driven content (Luckin, 2017).

By integrating historical lessons, speculative foresight, and contemporary case studies, this research highlights the ethical imperatives necessary to

ensure that AI development aligns with democratic values rather than reinforcing authoritarian structures.

6 Conclusion

This study demonstrates that ethical AI development requires a nuanced understanding of historical authoritarianism, speculative fiction, and contemporary technological applications. By analyzing the parallels between Nazi-era indoctrination, the fictional Skynet narrative, and modern AI deployments in military and educational contexts, this research identifies recurring patterns of harm that emerge when technology is designed without ethical accountability. These patterns include the erosion of human agency, the amplification of biases, and the weaponization of trust—each of which has profound implications for societal well-being and democratic governance.

In educational contexts, the deployment of AI-powered technologies presents significant ethical risks. Algorithmic content curation, surveillance mechanisms, and personalized learning platforms have the potential to replicate dynamics of control and ideological conformity, resembling the authoritarian educational strategies of Nazi Germany. These findings underscore the dangers of AI systems that limit intellectual diversity, normalize surveillance, and restrict critical thinking. However, when designed with inclusivity, transparency, and participatory governance, AI can also enhance educational accessibility and personalization while preserving intellectual autonomy.

Similar concerns arise in military applications, where unchecked AI autonomy and opaque decision-making processes evoke dystopian warnings from speculative fiction. The Skynet paradigm illustrates the risks of lethal autonomous weapons systems (LAWS) operating without human oversight, reinforcing concerns about accountability, ethical constraints, and compliance with international humanitarian law. Historical lessons from military technology misuse further emphasize the necessity of preemptive regulation and strict oversight in AI development.

The ethical vulnerabilities observed in military and educational AI extend to broader concerns in AI governance. Prioritizing efficiency and control over human agency risks replicating authoritarian power structures, regardless of the application domain. These shared risks highlight the need for interdisciplinary approaches to AI ethics that incorporate insights from social sciences, educational theory, and computer science to develop responsible AI systems.

To mitigate these challenges, this study proposes several key safeguards:

- **Human-in-the-Loop Design:** Ensuring that AI systems, particularly in high-stakes domains, incorporate mechanisms for human over-

sight and decision validation.

- **Algorithmic Transparency:** Establishing explainable AI (XAI) frameworks that allow for interpretability and auditing of AI decision-making processes.
- **Ethical Audits:** Implementing regular evaluations of AI systems to identify and mitigate biases, security risks, and unintended consequences.
- **Critical AI Literacy:** Integrating AI ethics and literacy programs into educational curricula to empower individuals to critically engage with AI-driven decision-making systems.

Avoiding the mistakes of the past requires proactive governance, ethical foresight, and interdisciplinary collaboration. By learning from history and fiction, AI developers and policymakers can anticipate risks before they become entrenched in technological systems. This study reinforces the necessity of holistic and inclusive approaches to AI development—ones that prioritize human agency, uphold transparency, and ensure accountability. Addressing these ethical challenges is not only a technological imperative but a societal one, essential for safeguarding democratic values in an era of increasing automation.

References

Akgun, S., & Greenhow, C. (2021). Artificial intelligence in education: Addressing ethical challenges in K-12 settings. *AI Ethics*, *2*(3), 431–440.

Amodei, D., Olah, C., Steinhardt, J., et al. (2016). Concrete problems in ai safety. *arXiv preprint arXiv:1606.06565*. https://doi.org/10.48550/arXiv.1606.06565

Asaro, P. (2012). On banning autonomous weapon systems: Human rights, automation, and the dehumanization of lethal decision-making. *International Review of the Red Cross*, *94*(886), 687–709. https://doi.org/10.1017/S1816383112000768

Bienvenue, E. (2020). Computational propaganda: Political parties, politicians, and political manipulation on social media. *International Affairs*, *96*(2), 525–527. https://doi.org/10.1093/ia/iiaa018

Boulanin, V., & Verbruggen, M. (2017). *Mapping the development of autonomy in weapon systems*. SIPRI.

Cameron, J. (1984). The terminator [Film]. https://doi.org/10.1007/978-1-349-92604-6_77

Cave, S., & Dihal, K. (2020). The whiteness of ai. *Philosophy and Technology*, *33*, 685–703. https://doi.org/10.1007/s13347-020-00403-5

Commission, E. (2023). The eu artificial intelligence act: A regulatory framework for trustworthy ai. *European Law Review*, *48*(1), 112–138. https://digital-strategy.ec.europa.eu/en/policies/european-ai-act

Crootof, R. (2020). War torts: Accountability for autonomous weapons. *University of Pennsylvania Law Review*, *168*(5), 1345–1402. https://doi.org/10.2139/ssrn.3532601

Gichoya, J. W., Thomas, K., Celi, L. A., Safdar, N., Banerjee, I., Banja, J. D., Seyyed-Kalantari, L., Trivedi, H., & Purkayastha, S. (2023). Ai pitfalls and what not to do: Mitigating bias in ai. *British Journal of Radiology*, *96*(1150), 20230023. https://doi.org/10.1259/bjr.20230023

Gunning, D., & Aha, D. W. (2019). Darpa's explainable artificial intelligence program. *AI Magazine*, *40*(2), 44–58. https://doi.org/https://doi.org/10.1609/aimag.v40i2.2850

Howard, P. N. (2018). *Lie machines: How to save democracy from troll armies, deceitful robots, junk news operations, and political operatives*. Yale University Press. https://doi.org/10.2307/j.ctv10sm8wg

Howard, P. N. (2020). Lie machines: How disinformation and ai threaten democracy. *Oxford University Press*. https://doi.org/10.1093/oso/9780190074974.001.0001

Kater, M. H. (2004). *Hitler youth*. Harvard University Press. https://doi.org/10.4159/9780674039353

King, G., Pan, J., & Roberts, M. E. (2013). How censorship in china allows government criticism but silences collective expression. *American Political Science Review*, *107*(2), 326–343. https://doi.org/10.1017/S0003055413000014

Knox, J. (2020). Artificial intelligence and education in china: Imagining ai confucianism. *Learning, Media and Technology*, *45*(3), 298–311. https://doi.org/10.1080/17439884.2020.1754236

Koonz, C. (2003). *The nazi conscience*. Harvard University Press. https://doi.org/10.2307/j.ctv1c5cx7d

Luckin, R. (2017). *Machine learning and human intelligence: The future of education for the 21st century*. UCL Institute of Education Press.

McGonagle, T. (2017). Fake news: False fears or real concerns? *Netherlands Quarterly of Human Rights*, *35*(4), 203–209. https://doi.org/10.1177/0924051917738685

Olsson, E., & Öhman, C. (2025). The quantum panopticon: A theory of surveillance for the quantum era. *Minds and Machines*, *35*(2), 17. https://doi.org/10.1007/s11023-025-09723-2

O'Neil, C. (2016). *Weapons of math destruction: How big data increases inequality and threatens democracy*. Crown Publishing Group. https://doi.org/doi/10.5555/3002861

Pariser, E. (2011). *The filter bubble: What the internet is hiding from you*. Penguin Press.

Rahwan, I., Cebrian, M., Obradovich, N., Bongard, J., & Bonnefon, J.-F. (2019). Machine behaviour. *Nature*, *568*, 477–486. https://doi.org/10.1038/s41586-019-1138-y

Raji, I. D., & Buolamwini, J. (2019). Actionable auditing: Investigating the impact of publicly naming biased performance results of commercial ai products. *Proceedings of the 2019 ACM Conference on Fairness, Accountability, and Transparency*, 429–439. https://doi.org/10.1145/3287560.3287598

Rashid, A. B., Kausik, A. K., Al Hassan Sunny, A., & Bappy, M. H. (2023). Artificial intelligence in the military: An overview of the capabilities, applications, and challenges. *International Journal of Intelligent Systems*, *2023*(1), 8676366. https://doi.org/https://doi.org/10.1155/2023/8676366

Segev, R. (2024). Artificial intelligence, discrimination, fairness, and other moral concerns. *Minds and Machines*, *34*(4), 44. https://doi.org/10.1007/s11023-024-09702-z

Selwyn, N. (2019). Should robots replace teachers? ai and the future of education. *Learning, Media and Technology*, *44*(1), 1–20. https://doi.org/10.1080/17439884.2019.1582850

Sharkey, N. (2012). The evitability of autonomous robot warfare. *International Review of the Red Cross*, *94*(886), 787–799. https://doi.org/10.1017/s1816383112000732

Shaw, I. G. R. (2016, November). *Predator empire: Drone warfare and full spectrum dominance*. University of Minnesota Press. https://doi.org/10.5749/minnesota/9780816694730.001.0001

Singer, P. W. (2010, January). *Wired for war: The robotics revolution and conflict in the 21st century* (Vol. 37). Emerald Group Publishing Limited. https://doi.org/10.1108/ir.2010.04937eae.001

Sparrow, R. (2021). Robots and respect: Assessing the case against autonomous weapons systems. *Ethics and International Affairs*, *35*(2), 181–197. https://doi.org/10.1017/S0892679421000218

Spelda, P., & Stritecky, V. (2025). Security practices in ai development [ID: Spelda2025]. *AI & SOCIETY*. https://doi.org/10.1007/s00146-025-02247-4

Stachura, P. D. (1981). *The german youth movement, 1900–1945: An interpretative and documentary history*. Macmillan. https://doi.org/10.2307/1870207

Sunstein, C. R. (2018). *Republic: Divided democracy in the age of social media*. Princeton University Press. https://doi.org/10.1515/9781400890521

UNIDIR. (2021). *The weaponization of increasingly autonomous technologies: Considering ethics and social values*. United Nations Institute for Disarmament Research.

Williamson, B. (2017). *Big data in education: The digital future of learning, policy and practice*. SAGE Publications. https://doi.org/10.4135/9781529714920

Zuboff, S. (2019). *The age of surveillance capitalism: The fight for a human future at the new frontier of power*. PublicAffairs. https://www.publicaffairsbooks.com/titles/shoshana-zuboff/the-age-of-surveillance-capitalism/9781610395700/