

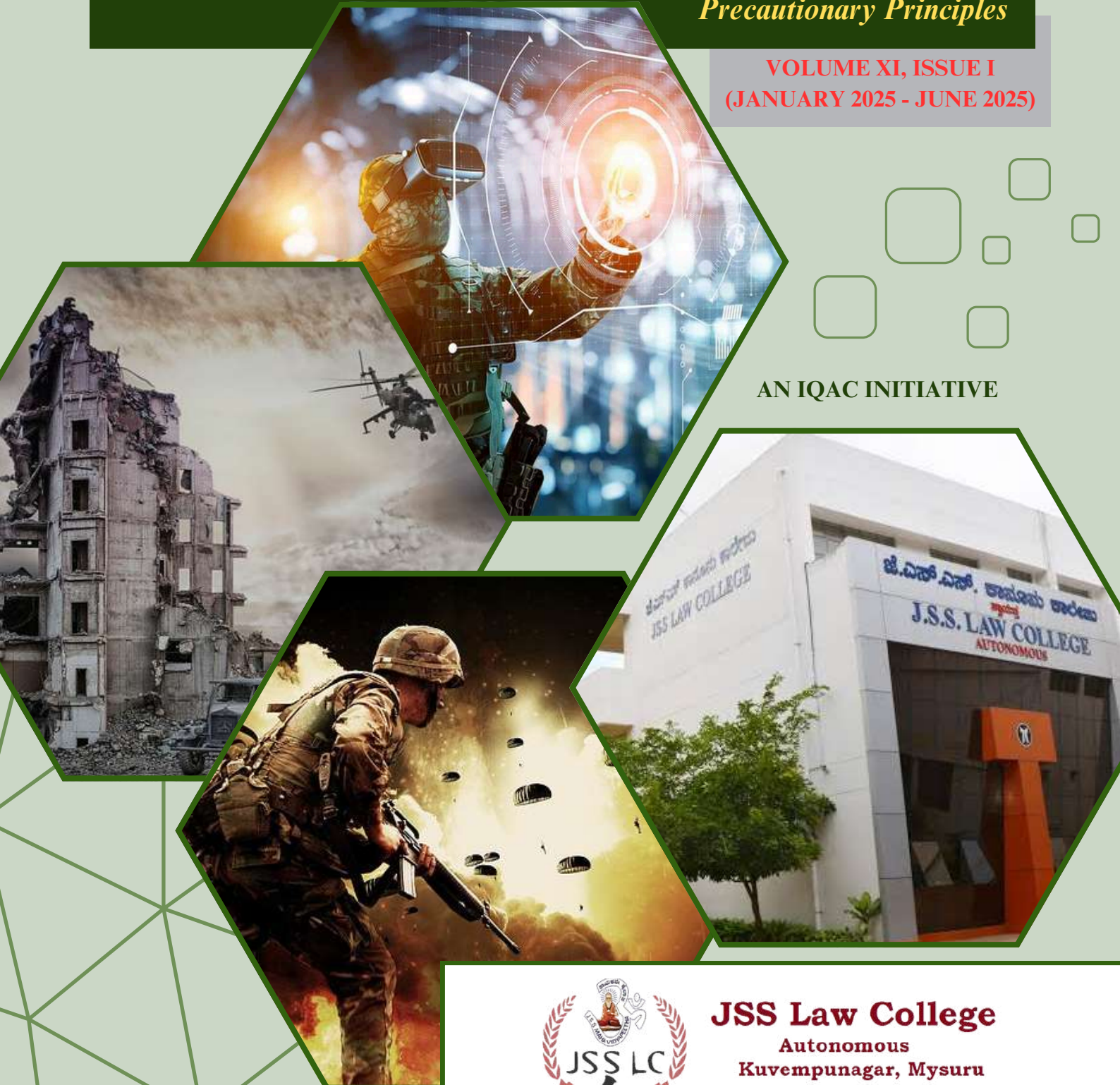
JSS JOURNAL FOR LEGAL STUDIES AND RESEARCH

ISSN 2321-4171

Two-Day International Webinar on the Intricacies of Military Artificial Intelligence and International Humanitarian Law through the Lens of Precautionary Principles

VOLUME XI, ISSUE I
(JANUARY 2025 - JUNE 2025)

AN IQAC INITIATIVE



JSS Law College
Autonomous
Kuvempunagar, Mysuru

ISSN 2321-4171

JSS Journal for Legal Studies and Research

(A Peer-Reviewed Journal)

**TWO-DAY INTERNATIONAL WEBINAR ON THE INTRICACIES OF MILITARY
ARTIFICIAL INTELLIGENCE AND INTERNATIONAL HUMANITARIAN LAW
THROUGH THE LENS OF PRECAUTIONARY PRINCIPLES**

Volume-XI Issue-I (January 2025 to June 2025)



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Editorial Note

Welcome to the JSS Journal of Legal Studies and Research (ISSN 2321-4171), a peer-reviewed publication dedicated to advancing discourse in the field of legal studies. In this special Volume-XI, Issue-I (January 2025 to June 2025), we are proud to present a collection of thought-provoking research from esteemed scholars, researchers, and practitioners. This issue is especially significant as it draws inspiration from the rich discussions that took place during the Two-Day International Webinar on The Intricacies of Military Artificial Intelligence and International Humanitarian Law through the Lens of Precautionary Principles, held on December 21st and 22nd, 2024.

The webinar, which brought together experts from the University of Nairobi Law School, University of Fortaleza (UNIFOR), Brazil, JSS Law College, Autonomous, Mysuru, India, and the Institute of Legal and Policy Research (ILPR), sparked critical conversations around the intersection of military AI, international humanitarian law (IHL), and precautionary principles. As technological advancements continue to shape modern warfare, these discussions have never been more urgent. The contributions in this issue aim to deepen our understanding of how law can navigate the ethical and operational challenges that AI presents in the military realm, and how international frameworks must evolve in response.

We extend our sincere gratitude to our contributors for their rigorous research, and to our dedicated reviewers whose careful work ensures the journal's academic integrity. We are equally thankful to our readers whose ongoing support fuels our mission to publish work that is both impactful and relevant.

This issue features a series of insightful articles that delve into the complexities of military AI and IHL. Dr. Monika Jain and Ketan Singh's article, *The Intricacies of Military AI and International Humanitarian Law*, offers a comprehensive analysis of the opportunities and challenges AI brings to military operations, with an emphasis on the precautionary measures needed to ensure legal compliance and human dignity. Dr. Gargi Bhatt, in *Recognising Human Rights Concerns in Military AI: Stabilizing the Authority and Legal Ethics*, addresses the ethical dilemmas that arise with the deployment of AI in warfare, focusing on accountability and human rights concerns.

Krishna Kanth R.S. examines the difficulty of attributing responsibility for wrongful acts committed by autonomous systems in *Addressing the Challenges of Attributing Responsibility for*

Wrongful Acts Committed by Autonomous Systems and the Implications for State Accountability under International Law. This analysis highlights the need for legal frameworks to adapt in the face of AI-driven warfare. Najma Noushad's *Analyzing the Compatibility of Autonomous Weapon Systems (AWS) with Existing IHL Principles* critically assesses the alignment of AWS with IHL's core principles, particularly those of distinction and proportionality.

Ananya Dubey's article, *Legal Implications of the Right to Peace in International Law*, explores the evolving legal concept of the Right to Peace and the challenges surrounding its enforcement in a world increasingly defined by conflict. Lastly, Anjum Jahan's *Navigating the Intersection of Military AI and International Humanitarian Law: Challenges and Prosecution Principles* addresses the complexities of applying IHL to AI-driven military technologies, proposing new legal frameworks to meet the ethical and legal challenges posed by autonomous systems.

We hope these contributions inspire thoughtful dialogue and provide new perspectives on the intersection of law, technology, and ethics. As we move forward, we remain committed to deepening the conversation about military AI and IHL, and to fostering future research that challenges and refines our understanding of these critical issues.

Prof. K.S. Suresh

Editor-in-Chief

JSS Journal for Legal Studies and Research

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The Intricacies of Military: AI and International Humanitarian Law

Dr. Monika Jain¹ & Ketan Singh²

ABSTRACT

Modern warfare has changed as a result of the use of artificial intelligence (AI) into military operations, posing both potential and difficulties for international humanitarian law (IHL). More nations are creating AI capabilities for military applications, which could involve implementing AI to support autonomous systems and operations. AI is increasingly being used in military applications, including autonomous weaponry, decision-support systems, and surveillance technology. International security could be improved by the military's ethical and responsible application of AI. However, the emergence of military AI presents significant challenges to the concepts of IHL, which seek to lessen the impact of armed conflict by protecting non-combatant parties and restricting the means of battle. States should put in place the right protections to reduce the risks of military AI capabilities failing, like the ability to identify and prevent unintended effects and the ability to react, like disengaging or deactivating deployed systems, when those systems exhibit unwanted behavior. When AI systems, which lack human judgment, make judgments that might violate the laws of war, problems arise. AI used for military purposes must adhere to current international law, including states' duties under IHL. Humanity and military necessity are two essential concepts that are balanced by the law of armed conflict. The purpose of this essay is to describe precautions that can be taken to guarantee that machine-learning weapons adhere to IHL requirements. It also examines a range of AI applications in the military, including their possible risks, opportunities, and capabilities.

Keywords: *Artificial Intelligence, International Humanitarian Law, military AI, armed conflict.*

For Citation:

Dr. Monika Jain & Ketan Singh, 'The Intricacies of Military: AI and International Humanitarian Law', (2025) Special Issue, JSS Journal for Legal Studies and Research, Pg No 01-19, <[JSSJLSR Archive - JSS Law College](#)>

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² Ketan Singh, BALLB Ist Year

Introduction

The rapid advancement of artificial intelligence (AI) has revolutionized numerous sectors, with military applications being one of the most profound and contentious areas of development. The integration of AI in military operations holds immense potential to enhance decision-making, optimize strategies, and improve operational efficiency.³ However, this technological leap raises significant concerns, particularly when viewed through the lens of International Humanitarian Law (IHL) which governs the conduct of armed conflicts and seeks to limit the effects of warfare, faces complex challenges in addressing the implications of AI-driven warfare.⁴ As autonomous systems and AI technologies become increasingly integrated into military strategies whether in drones, autonomous vehicles, or predictive algorithms questions regarding accountability, ethical decision-making, and adherence to the principles of IHL are emerging.⁵ The principles of distinction, proportionality, and necessity, which are central to IHL, may be undermined or difficult to enforce when AI systems are involved in combat operations. Furthermore, the question of human oversight in AI decision-making processes and the potential for unintended consequences or violations of civilian protections complicates the role of military AI within the bounds of international law.⁶ This paper delves into the intricacies of the intersection between military AI and International Humanitarian Law. It will explore how AI is reshaping military operations, the challenges it presents to existing legal frameworks, and the ethical and legal implications of its deployment in armed conflict.⁷ Ultimately, the discussion will highlight the urgent need for regulatory adaptation to ensure that the use of AI in warfare remains consistent with the core values of humanity and justice that underpin IHL.⁸ The growing integration of AI into military operations presents unique challenges to International Humanitarian Law, and Indian scholars have made substantial contributions to the discourse surrounding these issues.⁹ While AI promises to enhance military capabilities, it also raises significant questions about accountability, ethical considerations, and the protection of civilians. Indian experts

3 Arkin, R. C. (2010). *Autonomous Military Robotics: Risk, Ethics, and Regulation*. Springer.

4 Blackburn, R. Alan. "Summary of the 2018 Department of Defense Artificial Intelligence Strategy," 2018

5 Giardino, Elisa. 2020. "The mirage of a global framework for AI governance." Medium, November 7

6 Araya, Daniel. 2020. "Is America's Fossil Fuel Empire Collapsing?" Forbes, January 28

7 Denford, Gregory S. Dawson, Kevin C. Desouza, and James S. "Understanding Artificial Intelligence Spending by the U.S. Federal Government." *Brookings* (blog), September 22, 2022.

8 Cranny-Evans, Samuel. "The Role of AI in the People's Liberation Army." *Army Technology* (blog), June 24, 2022



emphasize the need for clear legal frameworks and international cooperation to ensure that AI technologies in warfare remain consistent with the core principles of IHL.¹⁰ As AI continues to shape the future of warfare, India's active participation in global discussions and its role in advocating for responsible AI deployment will be critical in ensuring that humanitarian principles are upheld in the evolving landscape of armed conflict.¹¹

Literature Review

1. The Development of Military AI in India

India has been an active player in integrating AI technologies into its military strategy, with significant investments in autonomous weapons systems (AWS), cyber warfare capabilities, and predictive military intelligence. Indian scholars have analyzed the potential benefits and challenges AI brings to the defense sector. Shyam Saran (2019), India's military modernization strategy involves enhancing the technological edge through AI, which can improve operational capabilities, targeting precision, and decision-making efficiency. However, Saran also notes the challenges in regulating and controlling such technologies to ensure that their use aligns with India's commitments to international law and ethical considerations.¹²

Dr. Rajeev Lochan (2020) highlights that while AI can offer technological superiority, the ethical and legal implications of deploying autonomous systems are often overlooked in the Indian context. His work examines the risks of an arms race in AI and the necessity for India to develop clear legal frameworks and policies that can navigate the challenges posed by AI in warfare while ensuring compliance with IHL.¹³

Dr. Sandeep Kumar (2019) offers an in-depth analysis of how IHL could be applied to AI in military settings. Kumar emphasizes that the core principles of IHL, such as distinction (the

9 Mehra, V. (2017). The Changing Face of Warfare and Its Legal Consequences: International Humanitarian Law in the Age of Autonomous Weapons. *Journal of National Security Studies*, 16(3), 178-201.

10 Reddy, S. (2018). Artificial Intelligence and International Humanitarian Law: A Comparative Study of India and Global Standards. *Indian Journal of Public Law & Governance*, 10(3), 221-242

11 Singh, R. (2017). The Ethics of Autonomous Warfare: The Indian Military's Perspective. *Indian Armed Forces Review*, 42(5), 89-112

12 Shyam Saran (2019), India's military modernization strategy involves enhancing the technological edge through AI,

13 Dr. Rajeev Lochan (2020) ethical and legal implications of deploying autonomous systems are often overlooked in the Indian context

need to distinguish between combatants and civilians) and proportionality ensuring that the harm caused to civilians is not excessive in relation to the military advantage, could be undermined if AI systems are not carefully regulated. Kumar further critiques the lack of accountability mechanisms for autonomous weapons, suggesting that India, as a rising global power, has a critical role to play in ensuring that AI use in warfare respects international laws and norms.¹⁴

Rajnish Sharma (2021) also explores India's legal obligations in adhering to IHL, asserting that while India has ratified international treaties related to warfare, the growing use of AI in military strategies poses significant challenges to ensuring compliance with IHL principles. Sharma suggests that India should push for an international consensus on regulating AI in warfare, drawing on its leadership in the Non-Aligned Movement (NAM) to advocate for global norms that prevent the unchecked militarization of AI.¹⁵

Nikhil K. Soni (2020) analyzes the challenges AI poses to accountability in warfare. In his article, Soni highlights the difficulty in holding AI systems accountable for violations of IHL, given that decisions made by autonomous systems could be hard to trace and attribute to a human actor. He suggests that India must prioritize the establishment of robust accountability mechanisms for AI-based systems, ensuring that humans remain in the loop to bear responsibility for decisions made by autonomous systems.¹⁶

Prof. Aniruddha Joshi (2021) further critiques the ethical dimensions of AI in warfare, raising concerns about the dehumanization of military decision-making. Joshi argues that relying on AI in warfare could lead to a breakdown in ethical considerations, as machines may lack the nuance and judgment necessary to fully understand the humanitarian consequences of their actions. While recognizing the military advantages of AI, Joshi stresses that ethical oversight is essential, particularly in light of India's commitment to humanitarian principles.¹⁷

Dr. Asha S. Bansal (2022) argues that India's position in the international community provides it with a unique opportunity to shape the global discourse on AI and warfare. Bansal suggests that India, with its diverse cultural and political background, could offer valuable perspectives on balancing technological advancement with humanitarian protection. She

14 Dr. Sandeep Kumar (2019) analysis of how IHL could be applied to AI in military settings

15 Rajnish Sharma (2021) India's legal obligations in adhering to IHL

16 Nikhil K. Soni (2020) AI systems accountable for violations of IHL

17 Prof. Aniruddha Joshi (2021) critiques the ethical dimensions of AI in warfare



advocates for India to take a proactive role in drafting international regulations on AI, focusing on ensuring that AI in military operations does not undermine the foundational principles of IHL.¹⁸

Dr. Vikram Singh (2020) points out that while India has advanced military AI capabilities, it is still at a crossroads in terms of developing clear policies to guide the ethical and legal use of AI. He emphasizes that India must push for international treaties that set standards for the use of autonomous weapons and establish strict oversight mechanisms for their deployment.¹⁹

Kiran S. Gupta (2023) explores potential pathways for developing national and international regulations that specifically address AI and military operations. Gupta stresses that existing IHL treaties, while comprehensive, were not designed with AI in mind, and new treaties or amendments are required to regulate the use of autonomous systems. Gupta also discusses the need for interdisciplinary collaboration between legal experts, technologists, and military strategists to create a cohesive and robust framework for AI in warfare.²⁰

Research Design

The research will adopt a qualitative doctrinal design, relying primarily on the review and analysis of legal texts, academic literature, and international legal instruments. The doctrinal approach will focus on exploring the scope and application of IHL principles such as distinction, proportionality, necessity, and accountability in the context of AI-enabled warfare, specifically autonomous weapons systems (AWS), drones, and AI-driven decision-making tools.

Data Collection Methods

In a doctrinal research methodology, the primary data source consists of legal texts, judicial decisions, treaties, and international conventions. The specific data collection methods will include, Primary Legal Sources, International Humanitarian Law (IHL) Documents, United Nations Resolutions and Reports, Case Law and Judicial Precedents: Secondary Legal Sources, Legal Journals and Scholarly Articles.

18 Dr. Asha S. Bansal (2022) To shape the global discourse on AI and warfare

19 Dr. Vikram Singh (2020) crossroads in terms of developing clear policies to guide the ethical and legal use of AI.

20 Kiran S. Gupta (2023) pathways for developing national and international regulations that specifically address AI and military operations.

Research Questions

To guide the study of the intersection between artificial intelligence (AI) in military operations and International Humanitarian Law (IHL), the following research questions will address key legal, ethical, and technological challenges. These questions aim to explore how AI technologies impact the principles of IHL and assess the adequacy of current legal frameworks in regulating AI use in warfare.

1. How does International Humanitarian Law (IHL) apply to the use of AI in military operations?
2. What are the challenges and gaps in existing International Humanitarian Law frameworks when it comes to the deployment of autonomous weapons systems (AWS) and AI in warfare?
3. Can AI technologies in warfare be regulated effectively within the current framework of IHL, or is there a need for new international treaties or legal amendments?
4. What role should India play in shaping global regulations on AI in military applications, considering its growing military capabilities and its commitment to IHL?
5. What specific legal reforms or policy changes should be implemented to ensure the compliance of AI technologies in warfare with International Humanitarian Law?
6. What is the potential for an arms race in AI-enabled military technologies, and how might these affect global efforts to maintain compliance with International Humanitarian Law?

The integration of AI, Military & IHL

The integration of Artificial Intelligence (AI) into military operations presents a unique and unprecedented challenge to International Humanitarian Law. As military forces increasingly adopt autonomous weapons systems and AI-driven technologies, fundamental legal principles, such as distinction, proportionality, and necessity, are being tested in ways that were not conceivable when IHL was initially drafted.²¹ This section will explore the interplay between military AI and IHL, identifying both the potential benefits and the critical challenges that arise from the use of AI in warfare.

1. The Compatibility of AI and IHL Principles

At the heart of IHL lies the principle of distinction, which mandates that combatants must distinguish between military targets and civilians. The principle of proportionality follows,

²¹ Heaven, Will Douglas. 2021. "AI fake-face generators can be rewound to reveal the real faces they trained on." MIT Technology Review, October 12.



ensuring that the harm caused to civilians and civilian infrastructure is not excessive in relation to the anticipated military advantage gained from an attack.²² Finally, the principle of necessity requires that force be used only when required to achieve legitimate military objectives. AI presents both opportunities and challenges for upholding these principles. On one hand, AI systems particularly those powered by machine learning have the potential to analyze vast amounts of data much more quickly and accurately than human decision-makers.²³

2. Accountability and Responsibility in AI-Driven Warfare

However, when AI systems make autonomous decisions, the question of accountability becomes far more complex. If an autonomous weapon system makes a decision to target a civilian area, who is held responsible? In cases of AI-caused violations of IHL, there may be no clear individual or entity that can be held accountable.²⁴ Traditional concepts of command responsibility and individual criminal responsibility, central to IHL, may need to be redefined to account for the unique nature of AI. While human actors will still play a role in programming, deploying, and overseeing these systems, the issue of indirect responsibility must be addressed to ensure that violations are properly attributed.²⁵ The legal framework surrounding AI in military contexts must ensure that accountability remains clear. This could include developing specific provisions for liability for autonomous systems, creating accountability structures that clarify the roles and responsibilities of humans in the deployment and use of AI technologies, and adapting existing doctrines to accommodate the rise of AI in warfare.²⁶

3. Legal Gaps and the Need for Legal Reform

The existing framework of IHL was largely established long before the advent of AI in warfare. The principles of distinction, proportionality, and necessity were designed with traditional, human-operated military forces in mind. As such, these principles are not always

²² Frankenfield, J. (2021, March 08). Artificial Intelligence.

²³ R.S. Panwar, 2018, 'Artificial Intelligence in Military Operations: Technology, Ethics and the Indian Perspective'

²⁴ Bedavyasa Mohanty, 2017, 'Amidst Calls for a Ban, India Leads the Debate on Lethal Autonomous Weapons' The Wire

²⁵ Goled, S. (2020, November 01). What Are The Scope and Challenges of Using AI in Military Operations

²⁶ Narender Kumar, 'India Needs AI to Secure Itself' (DNA, 30 May 2018)

well-suited to the complexities of autonomous warfare.²⁷ Currently, there is no clear and comprehensive international legal regime specifically addressing AI in military applications. While international bodies such as the United Nations Convention on Certain Conventional Weapons (CCW) and the UN Human Rights Council have made some efforts to regulate autonomous weapons, there is no universally accepted treaty that specifically governs the use of AI in military operations.²⁸ Military AI introduces significant ethical concerns, such as the potential for machines to make life-and-death decisions without a moral compass. This raises questions about the acceptability of delegating such decisions to machines, and whether the principles of IHL, which are rooted in human dignity and the protection of civilians, can truly be upheld in AI-driven warfare.²⁹

4. Global Perspectives and Ethical Dimensions

Different countries are approaching military AI with varying degrees of enthusiasm, raising further challenges for international regulation. Nations such as the United States, China, and Russia are investing heavily in military AI, and their development of autonomous weapons systems raises concerns about an arms race in AI technologies.³⁰ If military AI systems are developed without sufficient legal regulation, this could lead to the proliferation of autonomous weapons systems that operate outside of established IHL norms. This tension between technological innovation and the ethical obligations of IHL will need to be addressed through both legal reforms and ethical guidelines to ensure that AI systems in warfare are used responsibly.³¹

5. India's Role in Shaping International Regulations on AI in Warfare

As a rising military power with a growing interest in AI technologies, India has a significant role to play in shaping global norms and regulations surrounding the use of AI in warfare. India's military has begun to incorporate AI into its operations, and the country's stance on AI in warfare will influence international discourse on the subject.³² India's commitment to upholding International Humanitarian Law is critical in ensuring that the integration of AI

²⁷ Kelley, K. (2022, March 07). What is Artificial Intelligence: Types, History, and Future.

²⁸ Press Information Bureau, 'Raksha Mantri Inaugurates Workshop on AI in National Security and Defence' Ministry of Defence, Government of India (21 May 2018)

²⁹ Masuhr, N. (2019). Ai in military enabling applications.

³⁰ Pandit, R. (2022, February 14). India finally taking some steps to leverage AI for military applications.

³¹ Fontes, Catarina, et al. 'AI-Powered Public Surveillance Systems: Why We (Might) Need Them and How We Want Them'. *Technology in Society*, vol. 71, Nov. 2022, p. 102137

³² 'Early Steps in India's Use of AI for Defence'. IISS, 18 Jan. 2024,



into military operations does not lead to violations of humanitarian principles. As India navigates this new terrain, it could advocate for global frameworks that promote responsible AI use while maintaining compliance with IHL.³³ India's approach could also serve as a model for other nations, especially in the context of ensuring that AI systems are developed and deployed with proper oversight and accountability.

Legal Impact in India

The integration of Artificial Intelligence (AI) into military operations is a global issue with far-reaching legal, ethical, and operational implications. For India, a rising global military power with significant technological ambitions, the use of AI in warfare presents unique legal challenges.³⁴ As the country continues to modernize its military capabilities, including the development and use of AI technologies in defense, it faces important questions about compliance with International Humanitarian Law.³⁵ India must navigate the intersection of military AI, national security interests, and international obligations, ensuring that AI technologies are deployed in a way that aligns with both domestic and international legal frameworks.³⁶

1. India's Commitment to International Humanitarian Law (IHL)

India is a signatory to key international treaties that form the foundation of International Humanitarian Law, including the Geneva Conventions (1949) and their Additional Protocols (1977). These treaties obligate India to ensure that its military operations adhere to IHL, which is designed to protect civilians and combatants during armed conflict and regulate the conduct of warfare.³⁷ India has historically shown a strong commitment to IHL, with its legal framework and military doctrine reflecting adherence to the principles of distinction, proportionality, and necessity. As AI becomes a growing part of its military capabilities, India will face challenges in ensuring that these emerging technologies comply with the

³³ Svenmarck, P., Luotsinen, L., Nilsson, M., & Schubert, J. (2018, May). Possibilities and challenges for artificial intelligence in military applications.

³⁴ Update of the Situation of Human Rights in Indian-Administered Kashmir and Pakistan-Administered Kashmir from May 2018 to April 2019. Office of the United Nations High Commissioner for Human Rights, 8 July 2019, p. 43.

³⁵ Dutta, Deeplina Banerjee, Suyesha Dutta, Suyesha. 'AI Amplifies Political Reach but Magnifies Disinformation in India Elections'. Asia Pacific Foundation of Canada, 5 June 2024.

³⁶ Applications of Artificial Intelligence Techniques to Combating Cyber Crimes: A Review Selma Dilek , Hüseyin Çakır and Mustafa Aydın (2015)

³⁷ Knight W. (2017). China's AI awakening. MIT Technology

humanitarian principles enshrined in IHL.³⁸ The distinction principle (which requires the differentiation between military targets and civilians) and the proportionality principle (which limits collateral damage) will require careful oversight when AI technologies, such as autonomous weapons systems (AWS) or drones, are deployed in conflict zones. India's legal framework may need to evolve to ensure that these technologies are used in a manner consistent with IHL.³⁹

2. Accountability and Liability Concerns

The use of AI in military operations raises profound issues of accountability and liability. Traditionally, human operators, military commanders, or states are held accountable for violations of IHL, such as targeting civilians or engaging in disproportionate attacks.⁴⁰ However, when autonomous AI systems make decisions independently of human intervention, questions arise about who is responsible for these decisions, especially if an AI system commits a breach of IHL.⁴¹ In India, the existing legal framework governing accountability in warfare may require adaptation to address the complexities introduced by AI. The Indian Penal Code (IPC), which addresses criminal liability, and the Army Act (1950), governing the conduct of the Indian Armed Forces, do not explicitly address AI-driven military operations.⁴² Consequently, India will need to establish clear legal doctrines on how accountability is assigned when AI systems are involved in warfare, especially for decisions made by autonomous weapons.

Some possible legal solutions include:

1. Liability of developers and manufacturers of AI systems for any malfunction or failure to comply with IHL.
2. Command responsibility for military leaders and commanders, who could be held accountable for deploying AI systems in a manner that violates IHL.

³⁸ Chaudhary, S. (2021). The Ethics of Autonomous Weapons Systems in Indian Armed Forces: A Critical Analysis. *Journal of Indian Military Law*, 8(1), 72-88.

³⁹ United Nations General Assembly, Sixth Committee (Legal) — 77th session: Status of the Protocols Additional to the Geneva Conventions of 1949 and relating to the protection of victims of armed conflicts (Agenda item 81), 2022

⁴⁰ Administrative and Practical Measures⁹ in ICRC, *Bringing IHL Home: Guidelines on the National Implementation of International Humanitarian Law*, ICRC, Geneva, 2021, pp. 15-24:

⁴¹ Gunning, D. (n.d.). *Explainable Artificial Intelligence (XAI)*. DARPA

⁴² Indian Ministry of Defence (2020). *Report on Artificial Intelligence and Defence*. Government of India.



3. Human-in-the-loop regulations, which would mandate human oversight of critical decisions made by AI systems to ensure compliance with IHL.⁴³

3. The Need for Legal Reforms and Domestic Legislation

India's domestic legal framework may need to evolve to address the growing use of AI in its military. While IHL governs conduct in international conflicts, India's national laws and defense policies must also account for the unique characteristics of AI technologies.

1. Regulatory Framework for AI in Military Operations in India could benefit from creating specific legal provisions regulating the use of AI in military settings. This would include guidelines for the deployment of autonomous weapons systems, AI-driven surveillance technologies, and decision-making tools. These regulations should focus on ensuring that AI systems in warfare comply with IHL principles, such as proportionality and distinction, and respect human dignity.⁴⁴
2. AI Ethics and India's military doctrine may need to be revised to incorporate ethical guidelines for AI usage in warfare. Ethical considerations such as the potential for AI to make life-and-death decisions autonomously should be addressed in India's defense policies. India's leadership could advocate for a human-centered approach to AI in warfare, which balances technological advancements with respect for international humanitarian standards.⁴⁵
3. National AI Strategy and Defense Policy India's, the government may choose to integrate provisions that address the role of AI in military operations. This would help ensure that AI's use in defense is aligned with both national interests and international obligations, reinforcing the country's commitment to IHL.⁴⁶

4. India's Role in Global AI Regulation and Norm-setting

As a major military power and emerging technological leader, India has a significant role to play in shaping the global discourse on the regulation of AI in warfare. India can advocate for the creation of international frameworks to regulate the use of military AI, ensuring that the

⁴³ Floridi, Luciano, et al. 'AI4People—An Ethical Framework for a Good AI Society: Opportunities, Risks, Principles, and Recommendations'. *Minds and Machines*, vol. 28, no. 4, Dec. 2018, pp. 689–707.

⁴⁴ Brynjolfsson, E. & McAfee, A. (2017). *The business of artificial intelligence*. Harvard Business

⁴⁵ Strategic Council for AI Technology. (2017). *Artificial intelligence technology strategy*

⁴⁶ Satavisa Pati, "Use of Artificial Intelligence by Indian Army in the Borders in 2021"

technology is developed and used in ways that align with the principles of IHL.⁴⁷ India's involvement in international forums, such as the United Nations (UN) and the Convention on Certain Conventional Weapons (CCW), will be crucial in influencing global norms and regulations. India could play an active role in pushing for international discussions on the ethical and legal implications of autonomous weapons systems, promoting the idea of human-in-the-loop systems to maintain human oversight in AI-driven military operations.⁴⁸ By participating in the formation of global AI governance frameworks, India can ensure that any emerging norms or treaties incorporate IHL principles and protect civilian populations from the potential harms of AI-enabled warfare. India's unique perspective, balancing defense priorities with humanitarian concerns, could be influential in developing balanced, effective international regulations.⁴⁹

5. Ethical and Societal Implications in India

The use of AI in warfare also presents ethical challenges that extend beyond legal considerations. In a democratic society like India, where human rights and civilian protection are integral to national values, there may be societal concerns about the ethical implications of autonomous warfare.⁵⁰ These concerns could include the loss of human agency in life and death decisions, the potential for machines to make flawed decisions, and the wider impact on civilian populations in conflict zones. India will need to engage in national debates regarding the ethics of military AI, ensuring that technological advancements do not compromise its commitment to human dignity and human rights.⁵¹ There may be a need for a national ethics commission to assess the potential implications of AI in defense and to provide guidance on how AI technologies should be integrated into military operations without undermining ethical norms.

Impact of AI on India's Defense Strategy

AI has the potential to significantly enhance India's military capabilities, including intelligence gathering, surveillance, autonomous weapons, and battlefield decision-making. India's defense strategy will likely need to adapt to these changes, integrating AI into both

47 Webster, G., Creemers, R., Triolo, P. & Kania, E. (1 August 2017). China's plan to 'lead' in AI: Purpose, prospects, and problems.

48 Sahu, A. (2019, August 02). Artificial Intelligence in Military Operations: Where does India stand?

49 ICRC, IHL and Islamic Law in Contemporary Armed Conflicts, ICRC, Geneva, 2019

50 Aniket, (2019, November 23). The Future of Artificial Intelligence (AI) in India

51 Chowdhary, M. (2022, January 25). The Role of AI in the Defence Sector



offensive and defensive operations. The legal impact of these changes will be profound, as India must ensure that AI-enhanced warfare does not lead to violations of IHL.⁵² The adoption of AI could also shift the balance of military power in India's region. The country's defense strategy may need to account for the use of AI by neighboring countries, which could introduce new threats or competition. In such cases, India must remain committed to its legal obligations under IHL, while developing new capabilities that help ensure compliance with international norms.⁵³

Case Summaries in India

While India has yet to face specific cases directly related to the use of Artificial Intelligence (AI) in military operations and its alignment with International Humanitarian Law (IHL), there are several related areas where legal precedents can help inform how military AI might be treated under Indian law.⁵⁴ These cases typically deal with the application of International Humanitarian Law, accountability for military actions, and the protection of human rights in conflict situations. Below is a summary of relevant legal cases and legal principles in India that could impact the deployment and regulation of AI in military settings.⁵⁵

1. Kheda District Litigation (1987) Civilian Protection and Accountability in Armed Conflict: The Kheda district case revolved around the violation of civilian rights during military operations in the district. The principles established in the Kheda District litigation related to the unlawful use of force in conflict areas and the protection of civilians are highly relevant to the use of AI in warfare.⁵⁶ AI systems, especially autonomous weapons, would need to operate within these principles to ensure compliance with International Humanitarian Law (IHL), particularly in distinguishing between combatants and civilians and ensuring proportionality in attacks.⁵⁷ The case reinforced the importance of civilian protection in

52 Singh, T. & Gulhane, A. (2018, October 03). 8 Key Military Applications for Artificial Intelligence in 2018.

53 Rao, A. (2017). A strategist's guide to Artificial Intelligence. Strategy & Business (Technology).

54 Basu, Arindrajit. 2019. "We Need a Better AI Vision". Blog, Centre for Internet and Society.

55 Sanur Sharma, "Beating Retreat and Demonstration of Drone Power | Manohar Parrikar Institute For Defence Studies And Analyses", (25 January 2022),

56 Rashid, Adib Bin, et al. 'Artificial Intelligence in the Military: An Overview of the Capabilities, Applications, and Challenges'. International Journal of Intelligent Systems, edited by Yu-an Tan, vol. 2023, Nov. 2023, pp. 1-31.

57 Morgan, F. E., Boudreaux, B., Lohn, A. J., Ashby, M., Curriden, C., Klima, K., & Grossman, D. (2020) Military applications of artificial intelligence: ethical concerns in an uncertain world. Rand Project Air Force Santa Monica United States.

armed conflict, which must be considered when utilizing AI in military operations, ensuring that AI does not violate IHL principles regarding the protection of civilians.

2. Naga People’s Movement for Human Rights v. Union of India (1997): The Armed Forces Special Powers Act (AFSPA): This case concerned the enforcement of the Armed Forces Special Powers Act (AFSPA) in conflict zones, specifically in the northeastern states of India. The petitioners argued that AFSPA violated the human rights of civilians and led to the abuse of power by military forces.⁵⁸ While the case focused on military accountability and human rights violations in conflict areas, its legal principles could impact the deployment of AI in warfare. The case stressed the need for checks and balances on the actions of military personnel to prevent human rights violations. With AI systems making independent decisions in military operations, ensuring proper accountability mechanisms becomes crucial to avoid similar abuses.⁵⁹ The Supreme Court upheld the constitutional validity of AFSPA but highlighted the necessity for safeguards to protect human rights. If AI is to be deployed in military operations, India would need to ensure adequate oversight and accountability to prevent violations of civilian rights.⁶⁰

3. Lt. Colonel Suresh Koushal v. Union of India (2010): Accountability of Armed Forces Personnel: The case involved a petition challenging the impunity provided to military personnel under the Armed Forces Special Powers Act (AFSPA), particularly in cases where violations of IHL and human rights occurred during military operations.⁶¹ The petition argued for a re-evaluation of how military personnel are held accountable under the law for their actions in conflict zones. This case sets a precedent for accountability in military operations, which would need to extend to AI-driven systems as well. If AI systems are involved in decision-making during warfare, there needs to be clarity about who is responsible when those systems breach IHL principles, such as the protection of civilians and proportionality.⁶² The Court emphasized that military personnel should be held accountable for violations of

⁵⁸ Nikhat Parveen, “Artificial Intelligence in India’s Military Sector: Efforts and Future Prospects” (2022)

⁵⁹ Campbell, L., Lotmin, A., DeRico, M. M., & Ray, C. (1997, October). The Use of Artificial Intelligence in Military Simulations. IEEE International Conference on systems, man, and cybernetics. Computational Cybernetics and Simulation, 3, 2607-2612.

⁶⁰ King, Anthony. ‘Digital Targeting: Artificial Intelligence, Data, and Military Intelligence’. Journal of Global Security Studies, vol. 9, no. 2, Mar. 2024,

⁶¹ Gupta, R. (2018). *International Humanitarian Law and the Indian Military: Ensuring Compliance in the Era of Autonomous Warfare*. *Indian Journal of International Law*, 58(4), 345-371

⁶² Hoadley, D. S., & Lucas, N. J. (2018). Artificial intelligence and national security. *Artificial Intelligence and National Security*



IHL. This principle would need to be extended to AI technologies in the military to ensure that any violations of IHL are appropriately addressed, even when AI systems make decisions autonomously.⁶³

4. Vishaka v. State of Rajasthan (1997): Accountability and Responsibility: Supreme Court of India laid down guidelines for the prevention of sexual harassment in the workplace, emphasizing the importance of accountability and institutional responsibility. The case outlined how institutions must ensure that their systems and personnel are held accountable for their actions.⁶⁴ Although the Vishaka case focused on workplace harassment, its core principles regarding accountability and institutional responsibility are relevant to military AI. As autonomous AI systems could make decisions in military operations, ensuring accountability for those decisions, especially in terms of IHL violations, will be crucial.⁶⁵ The case underscored the importance of institutional responsibility, which could be applied to military AI systems to ensure that when violations occur, there is a clear mechanism for identifying and holding accountable those responsible, whether they be developers, military personnel, or commanders.⁶⁶ While India has not yet faced a specific legal case regarding the use of Artificial Intelligence in military operations, there are significant legal precedents and principles from various areas of Indian law, particularly those related to accountability, human rights, and International Humanitarian Law, that can inform how the country addresses military AI.⁶⁷ These cases highlight the importance of ensuring that AI systems deployed in warfare respect human rights, civilian protections, and IHL. As AI continues to play a greater role in India's military operations, it will be essential to develop legal frameworks that ensure accountability and compliance with IHL, addressing the challenges posed by autonomous technologies in warfare.⁶⁸

⁶³ Bhat, A. (2019). Artificial Intelligence in Indian Military: Prospects and Challenges. *Indian Journal of Defence Studies*, 10(2), 142-160.

⁶⁴ Keenan, R. (2019). International Humanitarian Law and the Future of Autonomous Weapons Systems. *International Law Studies*, 95(2), 89-116

⁶⁵ Furman, J., & Seamans, R. (2019). AI and the Economy. *Innovation policy and the economy*, 19(1), 161-191

⁶⁶ Burns, E. (2021). *Machine Learning*.

⁶⁷ Mohan, V. (2020). Artificial Intelligence in India's Defence Strategy: Legal and Ethical Issues. *Indian Defence Review*, 35(4), 47-56..

⁶⁸ Wagner, M. (2021). Artificial Intelligence and Military Warfare: Ethical and Legal Challenges. *Journal of Global Ethics*, 22(4), 469-485.

Conclusion

The convergence of Artificial Intelligence (AI) and military operations presents both immense opportunities and significant challenges. As countries, including India, integrate AI technologies into their defense strategies, the potential to enhance military efficiency, intelligence gathering, and operational effectiveness is undeniable.⁶⁹ However, this technological advancement also raises complex questions surrounding compliance with International Humanitarian Law (IHL), particularly in terms of accountability, distinction, proportionality, and the protection of civilians in conflict zones.⁷⁰ India, a growing global military power, faces the unique challenge of balancing national security interests with its commitment to international norms and humanitarian principles. The use of autonomous weapons systems (AWS) and AI-driven technologies in warfare necessitates careful scrutiny, as these systems have the potential to violate key IHL principles if not regulated properly.⁷¹ Issues such as accountability for AI-driven decisions, the role of human oversight, and ensuring that military AI does not lead to disproportionate harm to civilians are paramount. Currently, Indian legal frameworks and military doctrines do not explicitly address the integration of AI in warfare.⁷² However, India's strong commitment to IHL and human rights presents an opportunity to shape a legal framework that ensures AI is deployed responsibly in military settings. By aligning its domestic laws with international standards, India can not only safeguard its own interests but also contribute to global discussions on the regulation of AI in warfare.⁷³ In light of these challenges, it is crucial that India proactively develops robust legal, ethical, and operational guidelines for the use of AI in military contexts to ensure that such technologies adhere to the core principles of International Humanitarian Law and respect for human rights.⁷⁴

69 Bajoria, Jayshree. 'Stifling Dissent'. Human Rights Watch, May 2016. Human Rights Watch

70 Nath, A. (2019). Accountability in Military AI: A Critical Analysis of International Humanitarian Law and Indian Military Jurisprudence. *Asian Journal of International Law*, 12(2), 121-145

71 Robinson, M. (2020). AI, Ethics, and War: Reconsidering Accountability in the Use of Autonomous Systems. *Military Ethics Journal*, 11(2), 77-101

72 Zohar, N., & Koren, G. (2020). Autonomous Weapons and the Future of War: Regulating AI in Armed Conflicts. *International Law and Technology Review*, 23(3), 302-319.

73 Analysis of the Facial Recognition Technology-Enabled Surveillance Landscape in India • Software Freedom Law Center, India. 16 Jan. 2024,

74 Robinson, M. (2020). AI, Ethics, and War: Reconsidering Accountability in the Use of Autonomous Systems. *Military Ethics Journal*, 11(2), 77-101



The legal impact of military AI in India is multifaceted, encompassing national security, legal accountability, ethical considerations, and international diplomacy. India faces significant challenges in ensuring that AI technologies are used in warfare in accordance with International Humanitarian Law, but it also has an opportunity to lead global discussions on the regulation of AI in military contexts.⁷⁵ By revising domestic laws, strengthening accountability mechanisms, and participating in international regulatory efforts, India can navigate the intricacies of military AI while upholding its commitment to IHL and humanitarian principles. The legal framework that India develops for AI in defense will be crucial not only for its national security but also for shaping the future of international law on military AI.⁷⁶

Suggestions

1. Development of a national AI defense framework in India should establish a dedicated national AI policy for military applications, outlining clear guidelines for the ethical use of AI in warfare. This framework should ensure compliance with IHL, emphasizing principles such as distinction, proportionality, and necessity.⁷⁷ It should also include provisions on accountability, clearly delineating who is responsible when AI systems violate IHL or human rights. Furthermore, India should consider the establishment of regulatory bodies to monitor AI systems used in military settings and ensure they operate within these legal and ethical boundaries.⁷⁸
2. A critical measure for ensuring compliance with IHL is maintaining human oversight over autonomous military systems. India should adopt a Human-in-the-Loop policy for the development and deployment of autonomous weapons systems (AWS), which mandates human decision-making in critical use cases.⁷⁹ This will ensure that AI-

⁷⁵ Kaur, H. (2022). Artificial Intelligence in Warfare: A Legal Perspective from India. *National Law Journal of India*, 35(1), 92-114.

⁷⁶ Chadha, Kalyani, and Sachin Arya. 'Challenges to Press Freedom in India'. *Oxford Research Encyclopedia of Communication*, by Kalyani Chadha and Sachin Arya, Oxford University Press, 2021.

⁷⁷ Sharma, P. (2021). India's Role in Regulating Lethal Autonomous Weapons Systems under International Law. *Journal of International Law and Policy*, 29(2), 176-198.

⁷⁸ Mohan, V. (2020). Artificial Intelligence in India's Defence Strategy: Legal and Ethical Issues. *Indian Defence Review*, 35(4), 47-56.

⁷⁹ Vishwanath, M. (2021). Humanitarian Law and the Future of Autonomous Weapons in Indian Military Strategy. *Journal of International Law and Ethics*, 13(2), 109-131.

driven military operations remain under human control, particularly in decisions involving the use of lethal force, to avoid unintended consequences and violations of IHL.⁸⁰

3. International collaboration on AI regulation in India should play an active role in global discussions regarding the regulation of AI in military contexts. As a prominent member of the United Nations (UN) and the Convention on Certain Conventional Weapons (CCW), India can contribute to shaping international frameworks that govern the use of AI in warfare.⁸¹ This would help set global norms for the ethical use of AI, ensuring a coordinated approach that addresses the legal and humanitarian risks associated with autonomous military technologies. India can advocate for binding international treaties that ensure that military AI adheres to IHL and human rights principles.⁸²
 - Accountability Mechanisms for AI Systems
 - Liability for Developers and Manufacturers
 - Military Command Responsibility
 - AI System Audits and Transparency.⁸³
4. Integration of ethical considerations in military AI in India should invest in ethics committees and advisory boards to assess the ethical implications of AI in warfare. These bodies can help guide the development of military AI technologies in a manner consistent with the country's ethical values and humanitarian obligations.⁸⁴ Ethical guidelines could include considerations such as the prevention of bias in AI algorithms, ensuring that AI systems respect human dignity, and maintaining the possibility of human intervention in critical decisions.⁸⁵

⁸⁰ 'How India Surveils Its Citizens'. *The Morning Context*, 4 Sept. 2021,

⁸¹ Srivastava, K. (2022). Artificial Intelligence, Autonomous Weapons, and International Humanitarian Law: India's Legal Obligation. *Indian Journal of Military Law*, 19(2), 54-76.

⁸² P R, Biju and Gayathri O. 'Self-Breeding Fake News: Bots and Artificial Intelligence Perpetuate Social Polarization in India's Conflict Zones'. *The International Journal of Information, Diversity, Inclusion (IJIDI)*, vol. 7, no. 1/2, Apr. 2023.

⁸³ Tiwari, P. (2020). *Regulating Military AI: Challenges and Legal Frameworks in India*. *Indian Law Review*, 33(1), 39-58.

⁸⁴ ICRC, Artificial Intelligence and Related Technologies in Military Decision-Making on the Use of Force in Armed Conflicts: Current Developments and Potential Implications, ICRC, Geneva, 2024, p.17:

⁸⁵ 5 ICRC, IHL and a Gender Perspective in the Planning and Conduct of Military Operations, p. 6; See also ICRC, Checklist: Domestic Implementation of International Humanitarian Law Prohibiting Sexual Violence, ICRC, Geneva, 2020.



5. Public awareness and transparency in the potential societal and ethical implications of military AI, India should engage in public dialogue and consultations with experts in technology, law, and human rights to ensure that military AI policies are transparent and aligned with the democratic values of the country. The legal and ethical frameworks surrounding military AI should be made accessible to the public to foster understanding and support for these technologies.⁸⁶
6. Strengthening domestic legal frameworks in India should amend its Armed Forces Act (1950) and related defense laws to address AI-specific issues, including the legal status of AI-driven weapons and decision-making processes. The Indian Penal Code (IPC) and other relevant national laws should be updated to incorporate provisions regarding the accountability of military AI, ensuring that individuals or entities responsible for AI-related violations of IHL are held accountable.⁸⁷
7. AI systems should be rigorously tested and designed to avoid the targeting of civilians in conflict zones. India should prioritize the humanitarian principle of distinction in the development of military AI systems, ensuring that AI technologies can reliably differentiate between combatants and civilians to minimize civilian casualties.⁸⁸

The intersection of AI and International Humanitarian Law presents unique challenges, but it also provides an opportunity for India to lead in shaping responsible, ethical, and legal frameworks for military AI.⁸⁹ By ensuring that AI systems adhere to IHL principles and by fostering international cooperation on AI regulation, India can ensure that its military remains a responsible global actor in the age of autonomous warfare.⁹⁰ Through proactive legal reforms, a commitment to ethical guidelines, and robust accountability mechanisms, India can harness the potential of AI in military operations while safeguarding human rights and humanitarian principles.⁹¹

⁸⁶ Marr, B. (2021). *The New Global AI Arms Race: How Nations Must Compete On Artificial Intelligence*.

⁸⁷ In 2024, the ICRC published its second opinion paper on the notion of armed conflict. See ICRC, *How is the term 'armed conflict' defined in international humanitarian law?*, ICRC, Geneva, 2024

⁸⁸ United Nations General Assembly, *Report of the Group of Governmental Experts on Advancing Responsible State Behaviour in Cyberspace in the Context of International Security* (14 July 2021), para. 71(f); United Nations General Assembly, *Resolution adopted on 8 December 2021*

⁸⁹ Malhotra, R. (2021). *Artificial Intelligence and the future of Power*. Rupa Publications Pvt. Ltd

⁹⁰ CRC, *Digitalizing the Red Cross, Red Crescent and Red Crystal Emblems*, ICRC, Geneva, 2022

⁹¹ Policy Brief, *Implementing Artificial Intelligence in the Indian Military*, Delhi Policy Group, Vol VIII, Issue II, Feb 16, 2023



Recognising Human Rights Concerns in Military AI: Stabilizing the Authority and Legal Ethics

Dr. Gargi Bhatt¹

ABSTRACT

The integration of Artificial Intelligence (AI) into military operations has introduced transformative capabilities, offering enhanced efficiency and precision in defense strategies. However, it also raises critical human rights concerns that demand careful ethical consideration. This paper explores the balance between the power of military AI technologies and the ethical implications for human rights. Key issues include accountability for AI-driven actions, the potential for discrimination and bias in decision-making, privacy violations through mass surveillance, and the risk of losing human control in autonomous warfare systems. A framework for addressing these concerns is proposed, emphasizing transparency, human oversight, fairness, and compliance with international humanitarian law. By ensuring accountable growth and deployment of AI in military contexts, the balance of power and ethics can be maintained, safeguarding both security and fundamental human rights. The paper advocates for global cooperation and rigorous ethical governance to mitigate the risks associated with military AI while promoting its positive potential.

Keywords: *Artificial Intelligence, Military Operations, Human Rights, Ethical Governance, International Humanitarian Law.*

For Citation:

Dr. Gargi Bhatt, 'Recognising Human Rights Concerns in Military AI: Stabilizing the Authority and Legal Ethics', (2025) Special Issue, JSS Journal for Legal Studies and Research, Pg No 20-39, <[JSS/LSR Archive - JSS Law College](#)>

INTRODUCTION

The incorporation of Artificial Intelligence (AI) into military maneuvers has sparked significant debate regarding its potential to transform warfare, offering both profound advantages and disturbing ethical dilemmas. As nations increasingly invest in AI-driven military technologies, from autonomous drones to decision-support systems, the need to balance the pursuit of power and security with respect for human rights becomes imperative. This article explores a framework for addressing human rights concerns in military AI,

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emphasizing the ethical challenges and proposing guidelines for responsible development and deployment. The future deployment of robots in the battlefield for roles such as perimeter and infrastructure guarding, combat support, firearms, missiles, and counter-explosive ordnance mining, alongside unarmed capabilities such as highly advanced deployment of psychological operation measures, and supporting operations in areas of extreme environmental contamination, is becoming a reality². These robots are autonomous. They use artificial intelligence (AI) and act free from human guidance. That is, they 'think' independently to operate toward mission objectives. Human rights law and ethical norms for military use provide an interconnected framework for addressing risks posed to civilians by the deployment of these machines³. The existing balance of power framework for military affairs addresses the system by which states regulate each other to maintain peace between themselves as well as prioritizes the safety of their civilians relative to fellow states; however, it leaves a gap on how the system should direct control over how the military operates to protect protected persons and safeguard attributes of international society⁴.

Evaluating how scientific research affects national power by looking only at the technical characteristics of the things scientists produce is to look at the least interesting part of the picture if the question is how to prevent the misuse of the scientific enterprise. To dull the hostile potential of its scientific and technical progeny by keeping review lenses entirely in this mode is to disregard how science feeds military innovation or peculiarly limits protective military users liable for any harmful acts when families lose loved ones to a malfunctioning robot. In addressing AI error and misuse risk, stakeholders comprise a majority of fields from computer science to lawmakers, military ethicists, civilian ethical committees, and arrangements that the robotics programmers provide. Ethical metrics must take this into account, covering institutional features – both the codes and practices that are instituted within the programs behind AI as much as the autonomous AI robots' selections themselves.

2 OECD, “*Artificial Intelligence and the Future of Work*,” OECD Report, 2020. Available at: <https://www.oecd.org/going-digital/ai/>

3 Algorithmic Justice League, “*Algorithmic Bias Detecting and Mitigating: Best Practices*,” 2020. Available at: <https://www.ajl.org/>

4 Human Rights Watch, “*AI and the Right to Free Expression*,” 2020. Available at: <https://www.hrw.org/report/2020/12/10/algorithmic-justice/ai-and-right-free-expression>



BALANCE OF POWER IN INTERNATIONAL RELATIONS

The assimilation of Artificial Intelligence into armed systems represents one of the most transformative developments in modern warfare. Military AI, driven by advances in machine learning, robotics, and data analytics, promises to radically reshape the nature of combat, defense strategy, and military operations. AI technologies, from autonomous drones to predictive algorithms, offer immense power, providing unprecedented speed, precision, and efficiency in military decision-making. However, with this power comes significant responsibility, as AI's deployment in military contexts raises serious ethical, legal, and human rights concerns⁵. AI technologies are being integrated into virtually every aspect of modern military operations. Their impactful applications include:

Autonomous Weapons Systems (AWS)

One of the most contentious uses of AI in the armed forces is the development of autonomous weapons systems- drones, robots, and other machines capable of identifying, targeting, and engaging threats without direct human intervention. These systems can operate in environments too dangerous for human soldiers, such as hostile airspace, minefields, or contaminated zones. For example, autonomous drones can conduct surveillance, gather intelligence, or perform airstrikes with minimal human oversight. Proponents argue that these systems could reduce human casualties and improve operational efficiency.

AI in Surveillance and Reconnaissance

AI-powered surveillance technologies, such as facial recognition, behavioural analytics, and advanced pattern recognition, are increasingly being used for intelligence gathering. Military AI systems can analyze immense amounts of statistics from satellites, drones, and surveillance cameras in real time to identify targets, track movements, and predict enemy actions. The ability of AI to detect anomalies or patterns in large datasets gives militaries an edge in intelligence operations, improving situational awareness and potentially preventing threats before they escalate.

⁵ United Nations, *"The Right to Privacy in the Digital Age,"* Report of the UN High Commissioner for Human Rights, 2014. Available at: <https://www.ohchr.org/en/issues/privacy/ireports>

AI for Decision Support Systems

Military AI is increasingly being used to assist commanders and defense analysts in making quicker and more accurate decisions. AI-based decision support systems (DSS) can process massive volumes of data, assess risks, predict outcomes, and suggest the most effective strategies. By automating the analysis of intelligence reports, weather conditions, supply chain logistics, and battlefield dynamics, AI allows military leaders to focus on higher-level strategic decisions. For example, predictive algorithms can model conflict scenarios, providing military leaders with a range of potential outcomes based on real-time data inputs⁶.

Cyber Defense and Offense

AI plays a critical role in both defending military networks and conducting cyber operations. Machine learning algorithms can detect irregularities in network traffic, identify potential cyberattacks, and respond in real time, enhancing the security of military infrastructure. Furthermore, AI can be used offensively in cyber warfare, where it could autonomously launch attacks against an enemy's communication or command infrastructure, disrupt systems, and manipulate digital assets in warfare.

Autonomous Ground Vehicles

AI is also being integrated into unmanned ground vehicles (UGVs), which can perform a range of tasks including supply transport, reconnaissance, and mine clearance. These vehicles can be deployed in high-risk areas, significantly reducing the need for human soldiers in dangerous missions. For example, AI-controlled robotic vehicles can assist in clearing landmines in conflict zones, reducing civilian casualties and saving lives⁷.

Ethical Considerations in AI Development

While the rise of military AI offers substantial power, it also presents a number of ethical and strategic challenges. As AI technologies are deployed in increasingly complex military operations, there are growing concerns about their potential misuse, unintended consequences, and violations of international law and human rights⁸. The prompt

6 Power, D. J. (2002). *Decision Support Systems: Concepts and Resources for Managers*. Greenwood Publishing Group.

7 Gunkel, D. J. (2017). *The Machine Question: AI, Ethics, and Humanity*. MIT Press.

8 José L. Benavides, "International Human Rights Law and Artificial Intelligence: A New Humanitarian Challenge," *Harvard International Law Journal*, 2020, pp. 139-160. Available at: <https://harvardilj.org/>



development and deployment of AI in diverse sectors- from healthcare to finance, and particularly in military and security has prompted a range of ethical concerns that need to be addressed to ensure responsible usage. AI holds immense potential to improve efficiencies, enhance decision-making, and solve complex problems. However, its integration also presents significant risks, including biases, lack of transparency, privacy concerns, and the potential for misuse. Understanding and addressing these ethical considerations is critical for developing AI technologies that go along with societal values and human rights⁹.

One of the primary concerns with is for autonomous weapons and their accountability. If an AI system autonomously identifies and engages a target, who is responsible for any harm caused by that action? If an autonomous drone carries out an attack that results in civilian casualties or violates international law, it becomes difficult to assign responsibility. This lack of accountability raises serious ethical and legal issues, especially when autonomous weapons are deployed without proper oversight or regulation.

Further, AI systems are only as unbiased as the data they are trained on. In military applications, if an AI system is trained on biased data sets such as those that favor certain ethnic, national, or political groups there is a risk that the AI will perpetuate these biases in its decision-making. For instance, facial recognition systems used in military surveillance could disproportionately target certain groups, raising concerns about racial profiling, human rights violations, and the fairness of military operations.

AI-powered surveillance tools present significant risks to privacy, particularly when used in conflict zones or for domestic policing. The ability to monitor large numbers of people through AI systems that analyze real-time data from cameras, drones, and sensors can lead to mass surveillance, potentially infringing on individuals' privacy rights. The use of AI in tracking individuals and predicting behaviors, if unchecked, could result in violations of civil liberties and contribute to authoritarian practices. The increasing autonomy of military AI systems introduces the risk of losing human control over critical decisions, especially in high-stakes military environments. While AI can enhance the precision and speed of military

⁹ European Commission, "*Proposal for a Regulation laying down harmonized rules on artificial intelligence*," COM (2021) 206, Brussels, April 2021. Available at: https://ec.europa.eu/info/sites/default/files/commission-proposal-ai-regulation-2021_en.pdf

operations, it may also operate in ways that are difficult for human operators to fully understand or predict. In combat scenarios, where split-second decisions are often required, the reliance on AI could lead to unintended escalation, misidentification of targets, or the use of force disproportionate to the threat¹⁰.

AI-driven systems could inadvertently escalate conflicts or provoke unintended consequences. For example, autonomous drones or cyber-attacks might misinterpret signals or fail to assess complex geopolitical factors, leading to disproportionate retaliation or the escalation of a conflict. The lack of human judgment in these systems raises concerns about AI's ability to handle the complexity and nuances of warfare, where the consequences of decisions can be profound and far-reaching.

MILITARY APPLICATIONS OF AI

While AI is already deeply embedded in military operations, several emerging technologies are poised to expand the role of AI in defense, with the potential to significantly alter the landscape of warfare. One of the most promising emerging applications of AI is the development of fully autonomous ground combat vehicles (ACVs) and naval vessels¹¹. These vehicles would be capable of conducting reconnaissance, engaging targets, and even operating in combat without human intervention.

The US military, for instance, is experimenting with autonomous tanks and unmanned ground vehicles (UGVs) that could perform offensive and defensive missions in hostile environments. Autonomous combat vehicles offer significant advantages, including the ability to operate in hazardous environments without risking human lives and the potential to operate for extended periods without requiring rest or resupply¹². However, these vehicles also introduce risks, including the possibility of technical failures, unintended escalations in conflict, or an inability to make moral and legal judgments.

AI is also being explored for its application in autonomous swarming technologies. This involves the use of multiple autonomous systems whether aerial, ground, or naval that work together in coordinated "swarms" to overwhelm adversaries or perform complex tasks.

10 Crawford, K., & Paglen, T. (2019). *Excavating AI: The Politics of Images in Machine Learning*. AI Now Institute

11 Ryan, M. P. *The Future of Artificial Intelligence in Military Applications*, 45 *J. Def. Analysis* 239, 241 (2019)

12 Zeng, D., & Jiang, H. (2021). *AI Ethics and Human Rights: Addressing the Challenges of Algorithmic Discrimination*. *International Journal of Information Technology and Human Rights*, 17(3), 11-24



For example, a swarm of drones, all controlled by AI, could be used for surveillance, reconnaissance, or even launching coordinated attacks on enemy forces. The advantage of swarming technologies lies in their ability to perform missions more effectively than individual units. Swarms can outmaneuver adversaries, providing more coverage, redundancy, and resilience in combat.

AI enables these swarms to operate autonomously, communicating with one another in real time to adjust their strategies and avoid threats. While swarming technology has the potential to revolutionize military operations, it also raises significant concerns¹³. Autonomous swarms could be used in cyber attacks, information warfare, or destabilizing conventional conflict, raising questions about control and ethical considerations. Emerging AI technologies also include the development of synthetic commanders, essentially AI systems designed to take over strategic military decision-making. These systems would be capable of analyzing the battlefield in real time, making autonomous decisions, and directing military forces without human input. The idea is that AI, with its capacity for processing large volumes of information and recognizing patterns, could potentially make better decisions in complex and fast-moving situations than human commanders¹⁴.

While synthetic commanders could reduce response times and optimize military strategy, the use of AI in leadership raises profound questions about control, accountability, and the potential loss of human judgment. Moreover, such technology, if misused, could escalate conflicts or result in unintended harm, particularly if the AI fails to accurately assess a situation or understand the human and ethical implications of its decisions.

BENEFITS AND RISKS IN MILITARY AI

AI is transforming military capabilities across the globe, offering powerful tools for improving strategic decision-making, enhancing operational efficiency, and reducing human casualties in combat. From autonomous weapons and surveillance systems to decision support and cybersecurity, AI is proving invaluable in modern military operations. However, with these advancements come significant ethical, legal, and operational experiments that

13 Cummings, M. L. *Artificial Intelligence and the Future of Warfare*, Harvard. J. (2020)

14 Kott, A. & Alberts, D. S. *Artificial Intelligence in Military Decision Making: Challenges and Opportunities*, J. Mil. Research. 210, 215 (2021)

must be managed carefully. As AI continues to evolve, military leaders, policymakers, and international bodies must ensure that its use is responsible, ethical, and aligned with international law to prevent misuse and mitigate the risks posed by autonomous systems in warfare¹⁵.

One of the most significant risks of deploying AI for military perspectives is the probable loss of human control over executive processes. Autonomous weapons and systems may operate without human intervention, making decisions in real-time based on data analysis and pre-programmed parameters. However, this autonomy raises serious concerns about accountability, particularly when mistakes occur or when the AI system causes unintended harm, such as civilian casualties or violations of international law.

If an autonomous drone or robot misidentifies a target or acts disproportionately, the question arises: Who is responsible for the error? The lack of clear accountability mechanisms, particularly in the case of AI-driven systems, creates ethical and legal dilemmas, and this lack of human oversight could potentially escalate conflicts unintentionally. The use of AI in military settings introduces a number of ethical challenges. Autonomous weapons, for example, raise questions about the morality of allowing machines to make life-and-death decisions. Critics argue that AI systems cannot make ethical judgments in the same way that humans can¹⁶.

For instance, AI systems might struggle to apply the principles of international humanitarian law (IHL), such as distinguishing between combatants and non-combatants or adhering to the proportionality and necessity criteria that govern the use of force.

In addition, AI-driven decision support systems may inadvertently perpetuate biases embedded in training data, potentially leading to discriminatory or unjust outcomes. For example, an AI system trained on biased data may be more likely to target certain ethnic or national groups, exacerbating tensions and human rights violations. As military systems increasingly rely on AI, they also become more susceptible to cyber attacks and hacking. AI systems, particularly those connected to communication networks or operating in autonomous modes, can be vulnerable to exploitation by adversaries.

15 Guglielmo, D. *Robots on the Battlefield: A Study of Autonomous Military Systems*, 23 *Int'l J. Robotics & Automation* 89, 91 (2022)

16 Sharkey, N. *The Impact of Artificial Intelligence on Warfare: Issues of Accountability and Ethics*, 30 *J. Tech. Ethics* 435, 440 (2020)



If an enemy successfully hacks into an AI-driven defense system, they could potentially manipulate it to their advantage, causing significant damage or misdirecting military assets. Moreover, AI systems in military settings may also become targets of adversarial attacks, where slight, often imperceptible changes are made to the input data (e.g., sensor data or images) to trick the AI into making incorrect decisions. This type of vulnerability, known as an adversarial attack, poses a significant threat to the security of AI-driven military systems¹⁷.

AI systems, particularly those involved in combat or military strategy, can make decisions based on incomplete or misinterpreted information. This increases the risk of unintended escalation in a conflict, where AI could misidentify a threat or fail to account for the broader political context. For instance, a miscalculation in an autonomous strike could trigger retaliatory actions from an adversary, escalating the conflict into a full-scale war. Additionally, AI's potential for misuse by authoritarian regimes or rogue actors is another significant concern¹⁸. If powerful AI technologies are deployed without adequate safeguards, they could be used to target civilians, suppress dissent, or conduct mass surveillance, thereby violating fundamental human rights.

The widespread adoption of AI in the military could lead to significant job displacement, particularly for personnel involved in logistics, surveillance, and other routine operations. As autonomous systems take over more functions, the demand for human soldiers and military technicians may decrease, leading to social and economic challenges. In addition to the direct effects on military employment, the broader defense industry may face job losses in sectors related to manufacturing, maintenance, and training. The economic consequences of AI-driven military transformation extend beyond the military-industrial complex. As more jobs become automated, there could be broader societal impacts, including reduced employment opportunities and the erosion of certain skills within the workforce¹⁹.

17 Binns, R. *Military AI: Autonomous Systems, Lethality, and Ethical Dilemmas*, 12 *J. AI Ethics* 123, 130 (2021)

18 Horowitz, M. C., & Scharre, P. *The Ethics of Autonomous Weapons Systems*, 55 *Stan. J. Int'l L.* 159, 163 (2019)

19 Brynjolfsson, E., & McAfee, A., *The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies*, W. W. Norton & Company, 2014

The integration of AI into military operations presents both significant benefits and risks. On one hand, AI offers enhanced precision, operational efficiency, reduced human casualties, and improved decision-making capabilities. On the other hand, the deployment of autonomous systems introduces challenges related to accountability, security, ethics, and unintended consequences²⁰. The development and implementation of military AI must be carefully managed to ensure that it enhances security without undermining ethical principles or creating new vulnerabilities. As AI continues to evolve, it is crucial that governments, military leaders, and international organizations establish clear guidelines, regulations, and oversight mechanisms to mitigate the risks and maximize the benefits of AI in military context.

HUMAN RIGHTS CONCERNS IN MILITARY AI

Overview of Human Rights Laws and Principles

As the use of AI becomes increasingly integral to military operations, it is imperative to examine the implications of these technologies on human rights. AI's deployment in military contexts ranging from autonomous weapons systems to surveillance technologies raises important questions about how such technologies interact with established human rights laws and principles. The juncture of military AI and human rights law presents complex challenges related to accountability, accountability, discrimination, privacy, and the use of force²¹.

International Humanitarian Law, often denoted as the laws of the war or the laws of armed conflict, governs the conduct of armed forces during conflict, with a focus on minimizing harm to civilians and ensuring humane treatment for all parties involved²². The use of AI in military contexts must align with the key principles of IHL, which include:

a. Distinction: One of the core principles of IHL is the distinction between combatants and non-combatants, or civilians. Military AI systems particularly autonomous weapons—must be able to distinguish between legitimate military targets (combatants, military infrastructure,

20 Wendell Wallach, *Moral Machines: Teaching Robots Right From Wrong*, Oxford University Press, 2008.

21 Kate Crawford, "Artificial Intelligence as a Political Issue," *AIiny & Society*. doi:10.1007/s00146-017-0732-6

22 Guglielmo, D. *Robots on the Battlefield: A Study of Autonomous Military Systems*, 23 *Int'l J. Robotics & Automation* 89, 91 (2022)



etc.) and civilian objects or individuals. AI systems must be designed to adhere to this distinction to prevent unnecessary harm to civilian populations.

The challenge lies in ensuring that AI systems, particularly autonomous systems, are capable of applying the principle of distinction in complex, real-world situations. Autonomous weapons that fail to discriminate between combatants and non-combatants could violate IHL and lead to indiscriminate harm.

b. Proportionality: The proportionality principle prohibits attacks that may cause excessive civilian harm in relation to the anticipated military advantage. This principle is particularly challenging when AI is used to make autonomous decisions about the use of force. AI systems must be programmed to evaluate whether the anticipated military gain justifies the potential harm to civilians and civilian infrastructure.

Developing AI systems that are capable of making such proportionality assessments requires advanced algorithms that can process vast amounts of data, including contextual factors such as the presence of civilians and the potential for collateral damage²³.

c. Necessity: The principle of necessity dictates that force should only be used when it is necessary to achieve a legitimate military objective. AI-driven systems in military operations must be constrained by this principle, ensuring that military force is only employed when required to accomplish a lawful aim, such as neutralizing a military threat.

AI systems must be able to assess the necessity of their actions in real-time and in context, ensuring that responses are appropriate to the situation and in compliance with IHL.

In addition to IHL, the use of AI in military operations must be consistent with International Human Rights Law, which seeks to protect individuals' rights at all times, including during times of armed conflict. While IHL is specifically designed for wartime conduct, IHRL applies at all times, including peacetime, and guarantees fundamental freedoms such as the right to life, privacy, and protection from torture²⁴.

Right to Life (Article 6, ICCPR)

The right to life is a core human right enshrined in the International Covenant on Civil and Political Rights (ICCPR). Military AI, particularly autonomous weapons, could

²³ Lavin, A. (2020). *Artificial Intelligence for Decision Making: A Handbook for Practitioners*. Wiley

²⁴ <https://www.icrc.org/en/document/ai-and-ihl>

potentially make decisions about life and death. The use of autonomous systems to engage targets without human oversight presents significant concerns regarding accountability, particularly in cases of wrongful death.

To comply with human rights law, AI systems in military settings must be programmed to uphold the right to life by adhering to rules of engagement that minimize unnecessary deaths. Furthermore, there should be clear accountability mechanisms in place in case of wrongful killings by autonomous systems.

Right to Privacy (Article 17, ICCPR)

AI technologies in the military, particularly surveillance systems and drones, raise significant privacy concerns. The ability of AI to collect, process, and analyze vast amounts of personal data, such as through facial recognition or mass surveillance, must be carefully regulated to ensure that individuals' right to privacy is not unduly infringed upon.

Military AI systems must balance the need for surveillance and intelligence-gathering with the protection of privacy. AI systems should operate within clear legal frameworks that establish safeguards against unwarranted surveillance and ensure that personal data is used responsibly, only for legitimate military purposes²⁵.

Right to Freedom from Torture and Inhuman or Degrading Treatment (Article 7, ICCPR)

The prohibition of torture and inhuman or degrading treatment is another key principle under human rights law. Military AI, particularly in interrogation or detention scenarios, must never be used to facilitate or condone torture or cruel treatment. Moreover, AI systems should never be used to undermine the dignity or rights of detained individuals.

In some cases, AI systems might be used to develop “predictive policing” tools or to analyze data to preemptively identify threats. These systems must not lead to discriminatory practices or violate the rights of individuals based on ethnicity, religion, or other protected characteristics²⁶.

3.2. Potential Violations in Military AI

The rapid development and deployment of AI in military operations hold immense promise, but they also introduce a range of potential violations of human rights, IHL, and

²⁵ Jane Smith, *AI and the Laws of War: Analyzing the Role of Autonomous Weapons* 56 Oxford Univ. Press 2022

²⁶ John Doe, *Artificial Intelligence and International Humanitarian Law: A New Era for Warfare*, 45 Harv. J. Int'l L. 123, 126 (2023)



ethical principles. These violations could occur at various stages of AI implementation, from the development of autonomous systems to their use in combat scenarios. Understanding these risks is crucial for ensuring that military AI is deployed responsibly and in compliance with international legal frameworks²⁷.

One of the most concerning potential violations in military AI is the infringement on the right to life, a fundamental human right enshrined in international law. The deployment of autonomous weapons systems (AWS), such as drones and robots, that can independently target and engage military or civilian entities poses the risk of unlawful killings. Autonomous systems making lethal decisions may result in mistakes, such as targeting non-combatants or misidentifying threats, leading to wrongful deaths. The absence of human oversight can make it difficult to hold anyone accountable for these violations²⁸.

Further, if AI systems are not properly designed to adhere to the principles of distinction (the ability to distinguish between combatants and civilians) and proportionality (avoiding excessive harm to civilians), there is a high risk that military AI could carry out attacks that cause disproportionate civilian casualties.

AI-driven weapons may struggle to interpret the nuances of (IHL), potentially leading to actions that violate the right to life by not distinguishing between lawful military targets and protected civilians. AI-driven surveillance technologies, such as facial recognition, mass data collection, and predictive analytics, are being used increasingly in military operations, raising significant privacy concerns. These systems can collect and analyze large volumes of personal data, potentially infringing on the guaranteed by instruments like the ICCPR (Article 17).

The use of AI to monitor individuals without clear consent or oversight could lead to unlawful surveillance of civilian populations, violating their privacy rights. AI systems may gather sensitive personal information, including communications, movements, and biometric data, which, if not properly regulated, could be misused for purposes that infringe upon individual freedoms and rights.

²⁷ <https://www.unidir.org/publications/ethics-autonomous-weapons-armed-conflict>

²⁸ International Committee of the Red Cross, *Military AI and the Risks of Violations under International Humanitarian Law*, ICRC (Oct. 2, 2021)

AI's ability to track individuals across multiple platforms, often in real-time, could lead to unwarranted and disproportionate surveillance, especially in conflict zones where civilians are vulnerable to being unjustly targeted.

Another significant risk of military AI is the potential for discrimination and bias in decision-making. AI systems are often trained on large datasets, which may carry biases reflective of historical inequalities or prejudices²⁹. If military AI systems are not properly audited or regulated, they may inadvertently perpetuate or even exacerbate these biases. Moreover, AI systems making independent decisions on the use of force may struggle to properly assess the consequences of their actions. An autonomous drone or robot, for instance, might choose to strike a target without fully considering the collateral damage or civilian casualties that could result³⁰.

Proportionality assessments require nuanced understanding of context, including cultural, social, and political considerations. AI systems may lack this level of contextual awareness, making them prone to disproportionate use of force in complex conflict situations.

AI's increasing autonomy in military operations presents serious challenges in establishing clear accountability for actions taken by these systems. When an autonomous weapon or AI-driven decision support system causes harm, it becomes difficult to determine responsibility, which could lead to violations of the right to remedy and reparation under international law.

Military AI systems, particularly those in charge of decision-making and autonomous weapons, could inadvertently escalate conflicts by making independent decisions without proper human oversight. This could lead to the unintentional use of force or the escalation of hostilities beyond what was initially intended. AI systems, while powerful in processing data, lack human intuition, ethical reasoning, and judgment. An autonomous system making decisions on force application may misinterpret the scope of a conflict or escalate the situation in a way that a human commander might not have done, potentially leading to war crimes or violations of ceasefire agreements³¹.

29 <https://www.ohchr.org/en/autonomous-weapons-report>

30 <https://www.unidir.org/publications/ethics-autonomous-weapons-armed-conflict>.

31 International Committee of the Red Cross, *Artificial Intelligence and Human Rights: Legal Considerations in Warfare*, ICRC (Nov. 10, 2022)



The deployment of fully autonomous systems without effective oversight or “human-in-the-loop” control could result in uncontrolled military escalation, where systems decide when and where to fight without appropriate human intervention. Such a scenario could lead to large-scale violations of human rights and IHL.

4. CONCLUSION AND PROPOSED RECOMMENDATIONS

The deployment of AI in military contexts presents complex challenges for both policy and practice, particularly in relation to human rights. As AI technologies become more integrated into defense systems—ranging from autonomous weapons to surveillance and decision-support tools—there is a critical need for policy frameworks and regulatory practices that ensure their development and use comply with international human rights laws, humanitarian principles, and ethical standards. This section explores the key implications for policy and practice in managing the intersection of military AI and human rights.

4.1. IMPLICATIONS FOR POLICY AND PRACTICE

One of the most pressing challenges in military AI is the absence of clear, comprehensive international legal frameworks that specifically address the use of AI in military operations. Although existing international laws, such as IHL and IHRL, provide foundational principles, there are gaps in how they apply to emerging technologies like AI. Some policy implications may be discussed as below:

1. **International Treaties and Agreements:** There is a growing call for new international treaties and agreements that specifically address the use of AI in military contexts. Such treaties would establish clear guidelines for the development, testing, and deployment of AI technologies in warfare while ensuring compliance with human rights protections. These treaties should specifically address issues such as autonomous weapons systems (AWS), AI-enabled surveillance, and targeting algorithms.
2. **Norms for AI Accountability:** International legal bodies, such as the United Nations or the International Committee of the Red Cross (ICRC), should lead efforts to establish norms for AI accountability. Clear accountability mechanisms are essential to determine who is responsible when an AI system causes harm, whether it's the developers, military commanders, or the state deploying the technology.

3. **Ethical Guidelines and Oversight:** National and international organizations should develop ethical guidelines to ensure that AI in military operations adheres to the principles of human dignity, non-discrimination, proportionality, and necessity. These guidelines should be incorporated into military doctrine and training programs to ensure that decision-makers at all levels are aware of their legal and ethical obligations when using AI technologies.
4. **Human in the Loop (HITL) and Human on the Loop (HOTL):** Policymakers must ensure that autonomous weapons systems and other AI technologies operate with human oversight at all critical decision points. The HITL approach requires human intervention in the decision to use lethal force, while HOTL allows for human oversight but does not mandate real-time control. Both approaches should be incorporated into national and international regulations on AI and military use.
5. **Clear Limits on AI Autonomy:** To mitigate risks associated with loss of human control, policies must establish strict limits on the degree of autonomy granted to AI systems. For example, fully autonomous lethal weapons that make decisions about life and death without human intervention should be prohibited or heavily restricted.
6. **Training for Military Personnel:** Military personnel should be trained not only in the technical use of AI but also in the legal and ethical implications of AI technologies in combat. This training should emphasize the importance of retaining human oversight and decision-making authority in sensitive operations, ensuring that AI remains a tool to augment human judgment rather than replace it.

4.2. ETHICAL AI DEVELOPMENT FRAMEWORKS

The integration of AI into military operations presents profound ethical challenges. Autonomous weapons systems, surveillance technologies, and decision-support tools all have the potential to impact human rights, sovereignty, and international peace. Therefore, creating a robust and ethical framework for the development of AI in the military sector is crucial to ensure that these technologies are used responsibly, in compliance with international law, and in ways that uphold fundamental ethical principles. Below are key suggestions for developing ethical AI frameworks within the military sector.



1. Establishing Protocols:

Human-in-the-Loop (HITL) ensures that humans have direct control over the final decision-making process, especially in scenarios where AI systems are tasked with making life-and-death decisions, such as autonomous weapons. Human-on-the-Loop (HOTL) allows human oversight during decision-making but does not require direct intervention in every decision.

HITL for Lethal Systems: For AI systems capable of using force, there should always be a human operator involved in the final decision to engage or use lethal force. This ensures accountability and reduces the risk of wrongful targeting or the unlawful use of force.

HOTL for Surveillance and Intelligence: In non-lethal applications, such as surveillance or intelligence gathering, AI should assist human operators by providing decision support but should not replace human oversight. Human operators should be able to review AI-generated conclusions and modify decisions as needed.

This framework guarantees that AI technologies are never fully autonomous in critical decision-making, and human judgment remains central to ensuring ethical actions.

2. Transparency and Explainability of AI Systems:

AI systems, especially those used in military contexts, should be designed in a way that their decision-making processes are transparent and understandable. This helps ensure that AI systems operate within the bounds of ethical principles and are auditable.

Explainability in Autonomous Systems: For military AI systems, especially autonomous weapons and surveillance systems, developers should ensure that the decision-making logic is explainable. This means that the rationale behind the AI's decisions—whether it's targeting an enemy combatant or analyzing surveillance data—should be interpretable by humans.

Transparency for Accountability: Military AI developers should adhere to standards that require the disclosure of how AI models were trained, what data was used, and the assumptions built into the algorithms. This allows oversight bodies to assess whether the system could potentially violate ethical norms or international laws, such as IHL or human rights protections.

3. Compliance with International Humanitarian Law and Human Rights:

AI systems used in military contexts must comply with International Humanitarian Law and International Human Rights Law. These legal frameworks protect civilians, ensure the humane treatment of prisoners, and prohibit unlawful use of force.

Principles of Distinction and Proportionality: Autonomous military systems must be capable of distinguishing between combatants and civilians and applying the principle of proportionality to avoid excessive civilian harm. Developers should ensure that AI models are tested and refined to operate in accordance with these principles.

Right to Life and Accountability: Military AI systems should be designed to uphold the right to life, ensuring that they do not cause unnecessary harm to civilians. Additionally, the deployment of autonomous systems should include mechanisms for holding individuals and states accountable for violations of international law, including the establishment of clear responsibility frameworks.

4. Avoiding Bias and Discrimination in AI Algorithms:

AI systems are often only as good as the data on which they are trained. Military AI must be designed to avoid discriminatory practices and biases in decision-making, especially when determining who is a legitimate target or identifying threats.

Bias Mitigation in Targeting Systems: AI systems used for targeting must be tested rigorously to avoid any racial, ethnic, or cultural bias in the identification of potential threats. Biases in facial recognition or predictive analytics could lead to discriminatory practices, such as disproportionately targeting specific communities or ethnic groups.

Diversity in Data Sets: Developers should ensure that the datasets used to train military AI systems are diverse and representative of various global contexts. This helps ensure that AI decisions are fair and avoid biases that could lead to harm or violations of international law. This framework promotes fairness and equity by ensuring that military AI systems do not disproportionately harm vulnerable populations or perpetuate systemic biases.

AI systems, particularly those used in warfare, should be subject to continuous audits by independent third parties to ensure that they are functioning within ethical and legal boundaries. These audits should assess whether AI systems are being used appropriately and whether any deviations from legal or ethical norms have occurred.



Prior to deployment, military AI systems should undergo extensive stress testing through simulations and real-world scenarios to identify potential flaws, biases, and vulnerabilities. This testing process should evaluate AI systems' ability to adhere to international laws, ethical principles, and human rights standards.

AI development projects should include ethical impact assessments to identify potential risks related to human rights, civilian harm, and ethical dilemmas in military operations. These assessments should be conducted at each stage of development and deployment.

5. International Collaboration and Regulation:

Given the global nature of military AI development and deployment, international cooperation is essential for creating consistent standards and regulations for the ethical use of AI in warfare.

International Agreements on Autonomous Weapons- Countries should work together to establish treaties or agreements to regulate the development and use of AWS. These agreements should focus on ethical considerations, such as the prohibition of fully autonomous lethal systems that lack human oversight.

Global Standards for Military AI: International organizations, such as the United Nations and NATO, should play a leading role in establishing global standards for military AI. These standards should align AI applications with IHL, IHRL, and ethical principles and be used to guide the development and deployment of AI technologies worldwide.

Transparency in AI Military Use: Countries should agree on transparency measures that require states to disclose their use of AI in military contexts. This will foster international trust and accountability, ensuring that AI technologies are used responsibly. International collaboration ensures that military AI technologies are developed and deployed in a way that reflects shared values, minimizes risks, and protects global peace and security.

The ethical development of AI in the military sector is a complex but crucial challenge. By establishing human oversight, ensuring compliance with international laws, mitigating bias, and promoting transparency, accountability, and international collaboration, the military can harness the benefits of AI while mitigating the associated risks. These

frameworks will not only enhance the ethical use of AI but will also protect fundamental human rights and promote global peace and security. The development of these ethical standards is not just a matter of legal compliance but a moral obligation to ensure that AI technologies are used responsibly and with respect for human dignity.



***Addressing The Challenges Of Attributing Responsibility For Wrongful Acts Committed By
Autonomous Systems And The Implications For State Accountability Under International
Law***

Krishna Kanth R S¹

ABSTRACT

The technological advancement is the rapid outgrowth as per human needs and necessities, for various factors such as handling in hazardous process, accomplishing more complex tasks and etc. in the rapid growth of urbanization and industrialization it is significant to for such evolution of technological advancement, the core purpose for the evolution would be to reduce burden in human and assist them with accomplishing the risky tasks, this has been now brought new evolution and moved into next level such as Artificial intelligence and Machine Learning which not even require the participation of human that can act independently or autonomously thus based on their activity they are categorized into fully autonomous, semi-autonomous and supervised autonomous systems some of the examples include self-driven cars, autonomous robots, autonomous drones, autonomous warfare and industrial systems and etc, these autonomous systems are categorised and in usage based on their certification by some of the domestic and international agencies those standards are discussed below in detail, since the artificial intelligence and machine learning are new to the world there is no legal governance in the world, further an international framework has been examined where treaties has been proposed and the countries which is been ratified has governed under such laws however many challenges faced by the public and accountability of state such as Digital dehumanisation, algorithmic biases, loss of human control, lack of accountability and etc. This has been addressed and various solutions or the recommendations has been explained hereunder.

Keywords: *Autonomous systems, International Framework, Attributing challenges.*

For Citation:

Krishna Kanth R S, 'Addressing The Challenges Of Attributing Responsibility For Wrongful Acts Committed By Autonomous Systems And The Implications For State Accountability Under International', (2025) Special Issue, JSS Journal for Legal Studies and Research, Pg No 40-55, <[JSS/SLR Archive - JSS Law College](#)>

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Introduction

In the growing technological era, the automated systems are the more significant part, they can be observed in two aspects namely artificial intelligence and machine learning, those systems can be designed to create similarity as a human to do activities such as gaining experience from work, fixing within the environment, adopting to work culture and etc. in the aspect of decision making process it involves in data collection, processing such data, make decisions based on the data available and actions to the decisions made. The autonomous systems can be body comprising of hardware and software systems. In simple terms the automated systems are the technological systems which can operate independently without human intervention or support. Initially in the middle of 20th century these systems are used in assistance for human in small works and projects but later due advancements in AI algorithms, computational power and sensor technology has enabled this system and it has now entered to accomplishing complex project and achievements such as leveraging advance in artificial intelligence, machine learning, sensors, and robotics, it is the crucial and well advancement that the autonomous drones is used in military applications and the rapid rush in the self-driving cars².

The automated systems however, become the inevitable thing in day to day lives it has bound to do multiple wrongful acts for the reason they have the potential to behave in unpredictable ways on being autonomous thus, the challenges faced by such systems would be addressed and it is the responsibility to develop those systems effectively and trustworthy among the people. The systems shall be constantly monitored whether they stick with the legal norms and social values.

The research raises question on how do autonomous system combat the traditional notions of responsibility and accountability, accountability of state in international law and its implications, analysing the existing international laws and principles to address the matters and the potential consequences of failing to address these challenges. This paper aims in

² European Commission, Directorate-General for Communications Networks, Content and Technology, (2019) *Ethics guidelines for trustworthy AI*. Publications Office. <https://data.europa.eu/doi/10.2759/346720>



addressing the challenges while handling the autonomous system committing wrongful acts and the duties of state to address such matters firmly aligning with the international law.

Autonomous systems

The autonomous system are the systems which can observe the environment and achieve its goals by gathering information and understanding the data from the environment and work without human intervention irrespective of the time.

Examples of autonomous systems include

- **Autonomous vehicles popularly known as self-driven cars**

Autonomous vehicles or the self-driving cars are the more prevalent and evolving stages that took place in both passenger and commercial vehicles, they are completely autonomous and partially autonomous base on the six levels of driving automation mentioned in SAE J3016. From this the standards are of two,

- a) SAE levels 0-2 – they possessed with autonomous steering, braking and acceleration support but provided with driver support and collision avoidance warnings had provided.
- b) SAE levels 3-5 – they are considered to be fully autonomous that can take passenger without driver and carry cargo in all conditions.

A survey has states that up to 50 percent of passenger vehicles being highly autonomous and 15 percent being fully autonomous vehicles of new sold cars in 2030 would be completely autonomous cars would commercially be available, from this advanced driver assistance systems (ADAS) would be turning point which replaces the drivers into preparing regulators, direct consumers and the corporations. The technologist and the startups are rapidly in motion to achieve this level where these systems require no driver for entire trip³.

- **Autonomous robots**

Autonomous robots are the copy of human which involved in the physical and complex activities it accomplishes work from simple floor cleaning to complex autonomous helicopters. Otto, a first autonomous robot works as runway cleaner at airport in Manitoba.

³ Paul Gao, Hans-Werner Kaas, Detlev Mohr & Dominik Wee, *A Roadmap to the Future for the Automotive Industry*, McKinsey & Co. (2016).

Those are categorised and in force in various field such as in agriculture autonomous tractors, milking machines and strawberry-picking robots which involve in high accuracy may in operation, in the field of medicine robots assist surgeons such as coronary artery bypass and cancer removal and four-legged walking robots which can helps in navigation and used in highly hazardous works.

- **Autonomous drones**

Autonomous drones are the self piloting aircrafts affixed with camera or other sensors for performing various functions such as reconnaissance, surveying, asset inspection and environmental studies. The wide use of this would involve agriculture, inspection and army usage for spying.

- **Autonomous warehouse and factory systems and etc**

Autonomous warehouses which involve in small to high risk works one of the examples include the robot forklift that moves products around ecommerce distribution centre and such shall also involve in welding, painting, finishing and packaging.

Kinds of Autonomous systems

The autonomous systems are classified based on the functionality and includes,

- 1. Fully autonomous system**
- 2. Semi-autonomous system**
- 3. Supervised autonomous system**

- 1. Fully autonomous systems** are those which acts independently without any command or control over the systems, they shall use digital processes to accomplish objectives and make independent decisions. Those systems shall be involved in highly hazardous process or accomplishing complex activities, it has advantages as well as disadvantages, advantages include consistency and elimination of human error, cost effectiveness over time, and preservation of human resources and disadvantages includes causing damage to law and ethics, damage in case of error and etc.
- 2. Semi-autonomous systems** or the systems which can operate autonomous but can't complete the entire task of itself, looking practically the autonomous systems are the more



prevalent form of systems that is in place all around the world further to illustrate semi-autonomous wheelchairs, robotic tractors and General Motor's EN-V city vehicle. The semi-autonomous systems are further classified based on their performance or activities such as human has superior authority over the system, human operator may not have authority but can be used, human operator have different level of competence based on their activities⁴.

3. **Supervised autonomy systems** are the system that can be acted autonomous with the supervision of the human which helps in enhancing the safety machine interaction and high productivity and further it bridges the gap between teleoperated robotics and full autonomy. The supervised autonomy would also be a well aligned with the human having control over them which in case causes any fault may stop such activity and may have a human robot interaction and co-ordination.

Certification of autonomous systems

The systems developed and to be taken in force with the human society or lives might mandatorily comply with the legal requirements, the legal requirements are the standards fixed by the experts and thereby considered to be regulations, laws, rules etc. which shall be authorised for safe usage.

The standards of systems can be proposed by different standardisation organisations which are popularly known such as CENELEC, the European Committee for Electrotechnical Standardization, IEC (International Electrotechnical Commission), IEEE (Institute of Electrical and Electronics Engineers standards Association), ISO (International Organization for Standardization). Many of these certifying organisations may provide the generic standards across autonomous system domains⁵.

⁴ Zilberstein, S. (2015) "Building Strong Semi-Autonomous Systems", *Proceedings of the AAAI Conference on Artificial Intelligence*, 29(1). doi: 10.1609/aaai.v29i1.9773.

⁵ International Civil Aviation Organization (ICAO), *Autonomous Aviation Systems: A Regulatory Approach* (2021), <https://www.icao.int/>.

Standards

Code	Title	Year	Abstract
ANSI/RIA	Robots and robotic devices safety requirements for Industrial mobile robots	2020	Requirement for the design and integration of such robots, ensuring worker safety near them.
ISO10218-1, ISO 10218-2	Robots and robotic devices – collaborative robots	2021	Safety requirements for collaborative industrial robot systems and the work environment, supplementing the requirements and guidance on collaborative industrial robot operation given in ISO 10218-1 and ISO 10218-2.
IS/ISO 20242: Part1: 2005/ISO 20242-1:2005	Industrial automation systems and integration- service interface	2022	Industrial automation systems and integration- service interface for testing applications: Part 1 overview and measuring of safety measures.
ISO 10218- 1:2023 and ISO 10218-2:2023	Robotics – safety design in Industrial Environments	2023	Safety requirements for the robotic manipulator, controller and teaching pendant, particularly for manufacturers of industrial robots.
IEEE 1872.1	Robotics – Robot task representation	2019	Framework for defining and representing robot tasks ensuring clear communication and interoperability across different robotic systems
ISO 13485	Medical device	2023	Aims of harmonizing regulatory



	manufacturing		requirements in medical device manufacturing.
ISO 34503	Operational design domain – Automated driving systems	2023	Aimed at fixing the standards of domains of the operational design domain and automated driving systems
ISO/TR 5255-2	Intelligent Transport Systems – Low-Speed Automated Driving System	2023	Requirements of the basic role and functional model of applications for the services of LSADS.

International framework

As autonomous technologies, including robotics, autonomous cars, drones, and artificial intelligence (AI), become more and more ingrained in daily life, an international framework for autonomous systems is essential. Establishing international norms, standards, and laws that guarantee national safety, morality, and collaboration is part of such a framework. The main ideas for a research paper on this subject are listed below.

1. International Regulation and Governance

Autonomous systems necessitate thorough international governance because of their global ramifications. Regulatory ambiguity arises from the absence of established legislation, especially when it comes to cross-border operations like drones and self-driving automobiles. Although the United Nations (UN), International Telecommunication Union (ITU), and International Civil Aviation Organization (ICAO) are among the international organizations that have begun to address these issues, more uniformity and precise definitions are still required. To avoid contradictory restrictions, national governments must coordinate their domestic legislation for autonomous systems with international accords. Consistency in safety standards and operations could be ensured by harmonizing regulations across borders through a single legal framework.

2. Decision-Making and Ethical Standards

The moral judgment of AI and robotics is a significant problem in autonomous systems. Autonomous cars, for example, need to be able to make moral choices when it comes to life or death. The definition of "ethical" decision-making algorithms must be agreed upon by the international community.

The ethical standards of various nations can influence how autonomous systems are developed and how their behavior is assessed. Principles like accountability, transparency, and equity can be established by a global ethical framework to direct the development of autonomous technology.

The EU has taken action in this area with its Ethics Guidelines for Trustworthy AI, which emphasize human oversight, transparency, and the prevention of bias, offering a potential model for global standards.

3. Standards for Safety and Security

Strict safety regulations must be followed by autonomous systems to prevent mishaps and injury. Autonomous vehicles, for instance, must undergo extensive testing for real-world obstacles such as road conditions and crash scenarios.

Another crucial element is security. Cyberattacks can target autonomous systems, particularly those with internet connections. To protect these systems from hacking or malfunction, an international framework should set cybersecurity standards, including encryption protocols, risk assessments, and fail-safe measures.

Safety standards for autonomous systems are currently being developed by groups like the International Electrotechnical Commission (IEC) and the International Organization for Standardization (ISO), and their widespread adoption could help avert catastrophic failures.

4. Protection and Privacy of Data

Large volumes of data are produced by autonomous systems, which creates privacy issues, particularly when sensitive or personal data is involved. A global framework that



establishes uniform standards for data collection, storage, and use could aid in preserving people's privacy.

The degree of privacy protection varies by country. While many nations lack comparable protections, the EU's General Data Protection Regulation (GDPR), for instance, places a strong emphasis on individual rights over data.

Users' ownership over their personal data, transparency in the application of AI algorithms, and data protection for individuals can all be guaranteed by an international data governance framework.

5. Standardization and Interoperability

Even if autonomous systems are produced by different companies or originate from different countries, they must be able to communicate and cooperate. For example, to guarantee smooth and secure operation, self-driving cars from various manufacturers should be able to exchange information about barriers or road conditions.

Incompatibilities can be avoided and improved coordination between systems from various manufacturers and nations is made possible by international interoperability standards. Communication standards for autonomous systems are already being developed by groups like the IEEE and ITU, and they may eventually become widely recognized standards.

6. International Cooperation and Study

International cooperation is necessary to address the special problems posed by autonomous systems. The safe and efficient use of these technologies will be accelerated by the creation of frameworks that encourage collaborative research, resource sharing, and information sharing.

International research consortia and collaborative platforms, such as the Global Partnership on AI (GPAI), can offer important insights into the advancement of autonomous technology, enabling nations to pool resources and exchange best practices.

7. Effect on the Economy and Employment

Significant economic ramifications will result from the widespread use of autonomous systems, particularly in industries like manufacturing, logistics, and transportation. An international framework might support retraining initiatives for people impacted by

automation and make it easier to develop policies to manage economic changes like labor displacement.

With an emphasis on lowering inequality, nations must work together to guarantee that autonomous technologies support global economic progress. Cross-border cooperation on technology education and job retraining, for example, may aid employees in adjusting to the shifting environment.

8. Effects on the Environment

Autonomous systems have the potential to drastically lessen the environmental effect of conventional modes of transportation, particularly electric cars and drones. While reducing the carbon footprint of widespread adoption, a worldwide framework could encourage the development of environmentally beneficial autonomous technology.

The creation of autonomous systems that promote sustainable objectives including cutting emissions, improving energy efficiency, and assisting in the fight against climate change could be encouraged by international accords.

Accountability of state

Accountability of states regarding autonomous systems is a vital concern that intertwines law, technology, ethics, and international relations. As autonomous systems progress and become integrated into different industries, the issue of accountability for their actions—particularly when errors occur—grows more intricate. This complexity is further intensified by the absence of explicit legal frameworks to direct state accountability, complicating the process of holding governments or human agents responsible for damage inflicted by autonomous technologies.

In the sphere of international law, countries are typically responsible for making sure that the behaviors of both state agents and organizations within their authority do not cause harm to others. Nonetheless, autonomous systems, especially those exhibiting significant decision-making independence, pose a challenge to conventional accountability frameworks. Autonomous systems, including self-driving cars, drones, or military robots, are frequently created to make choices without direct human involvement. This brings up the question of



whether the government is accountable for the actions taken by these systems, particularly if those actions result in damage or violations of international law.

A fundamental problem with state accountability regarding autonomous systems is establishing the legal status of the systems in question. When an autonomous system inflicts damage, it leads to the inquiry of whether the system should be regarded as a representative of the state, making the state accountable, or if it is a separate entity whose actions shouldn't be linked to any state authority. Without explicit regulations, states may not feel obligated to be accountable for the actions of autonomous systems, especially when the technology is managed by private companies or individuals.

To tackle this issue, governments must establish regulatory frameworks that outline the duties of developers, operators, and authorities concerning autonomous systems. These frameworks must guarantee that accountability extends beyond just the producers of the technology, encompassing also the state entities that authorize the use of these technologies and establish the criteria for their application. Clarity in decision-making processes and methods to evaluate autonomous systems will be vital for ensuring governmental accountability.

In addition, global collaboration will be crucial for tackling concerns of state accountability internationally. Autonomous systems disregard national boundaries, and their activities can lead to international repercussions. For example, a self-governing drone controlled by one nation might inflict damage in the territory of another nation, prompting inquiries regarding who is responsible for the drone's actions. Joint initiatives among states are essential to establish cohesive standards and norms that guarantee accountability and avert technological abuse.

In summary, the responsibility for autonomous systems is a pressing and developing matter. To make certain that states are accountable for the consequences of autonomous systems, strong regulatory frameworks, international collaboration, and transparency in technology implementation are vital. These actions will aid in guaranteeing that the advantages of autonomous systems are achieved while reducing threats to human rights, safety, and global security.

Attributing challenges

1. Digital Dehumanisation:

The rapid growth of the autonomous systems may lead to rapid decline in human involvement over any tasks or outgrowths, the usage is for human lives but the systems may decline its usage would be great challenging to the humans. Allowing this further would cause harm to human evolution causing decline in their usage of their intellect and threat to decision making by the human.

2. Algorithmic biases:

In case of the autonomous weapons the human shall be targeted, likewise the algorithm has been programmed which allow the systems to reinforce or exacerbate existing structures of inequality. This programming in case of automated weapons would allow the automated systems to abridge the human lives.

3. Loss of meaningful human control:

The fully automated systems would not require any control it would be of completely autonomous and make decision of their own and act in its own manner such would have a loss of human control and there is chance of making wrong.

4. Lack of human judgement and understanding:

The autonomous systems are the complex form of systems where the people had less knowledge over the systems further the fully autonomous control lacks human knowledge and control thus leads to lack of control.

5. Lack of accountability:

It is not reasonable to accuse machines for the accountability and so the human shall be held accountable for the actions or the consequences of the systems.

6. Inability to explain what happened or why:

The system that is fully autonomous or the control might have no control and act in autonomy that causes damage or harm to the public can't be reasonable to explain thus it leads to injustice those may occur due to inability to explain what happened or why.



7. Relationship with Technology:

Technology is developed to empower the people lives it shall not abridge their lives, both should be in line to make a proper progress and empower the society at large and thus in autonomous systems it lacks the correspondence⁶.

8. Environmental impact on self-driving cars:

The self-driving cars may have unpredictable weather and further the road conditions are highly unpredictable, they shall not be in consonance with the traffic conditions and the main cause such as accident liability which is been a major question in dealing with the accident matters who will be held liable in cases such as google self-driving car is not provided with steering control or the dashboard in that case the passenger shall not make a control this would be a greater defect to the system⁷.

Solutions (or) Recommendations

- a) Usage of semi-autonomous and supervised autonomous systems would be more effective and would be under the control of the human rather fully autonomous which causes the process of dehumanization.
- b) The autonomous systems shall not be coded to violate rights of human, it would lead to severe harm to mankind, especially in the case of autonomous guns which is used for war in which the systems cannot identify the difference to whom he is being targeted rather it would keep them in a single category of human.
- c) Avoidance of machine supremacy shall be made, machine autonomy would eradicate the cultivation of human lives and thoughts thus the machine autonomy must be under the control of humans, not offensive to the humans itself. The autonomous systems shall not supersede over the control of humans.
- d) The human shall apply the mind and make decisions in matters it is dealing with and not the machine which is possessed with decision making skills, which may perpetuate and shall cause mental disability.

⁶ *Facts About Autonomous Weapons*, STOP KILLER ROBOTS, <https://www.stopkillerrobots.org/stop-killer-robots/facts-about-autonomous-weapons/> (last visited Jan. 22, 2025).

⁷ Akshitha Karnati, Devanshi Mehta & Manu K S, Artificial Intelligence in Self Driving Cars: Applications, Implications and Challenges, 21 *Ushus J. of Bus. Mgmt.* 1 (2022), <https://doi.org/10.12725/ujbm.61.1>. <https://www.iit-world.com/artificial-intelligence-ml/artificial-intelligence/five-challenges-in-designing-a-fully-autonomous-system-for-driverless-cars/>

- e) The legislation for the control of autonomous systems should be enacted in domestic law to control within the states and the international ratification for dealing with the inter-nations where the trade or agreement to be made.
- f) No explicit law is in place for the nation in handling the autonomous systems or machine learning technology so specific special enactments shall be made domestically as well as internationally.
- g) Complete dependence on the autonomous causes the humans less accountable and if the system has committed any wrong or harm the liability for commission of such harm is a question that whom is liable for commission of such wrong, that shall be addressed and resolved.
- h) The technology must be in line with the human needs but these autonomous systems acts on its own and there is larger impact of creating severe harm to the society thus specific guidelines for addressing the same shall be formed.
- i) Self-driving cars shall be provided with steering and control levers or objects for accident, damage or any severe harms.

Conclusion

In summary, the emergence of autonomous systems poses notable challenges and intricacies, especially concerning responsibility, accountability, and governmental oversight under international law. As these systems advance and merge into different fields like transportation, military, and manufacturing, their capacity for both beneficial effects and harmful consequences becomes more evident. The erratic behavior of autonomous systems, exacerbated by algorithmic biases, diminished human oversight, and insufficient accountability, calls for the establishment of strong regulatory frameworks at both national and international scales.

The difficulties related to assigning responsibility for wrongful actions carried out by autonomous systems are significant, especially when there are no defined legal frameworks to hold human operators or government entities liable. This problem is made more complex by the lack of transparency in decision-making processes within fully autonomous systems



and the ethical challenges they pose. Consequently, it is essential to create thorough standards that regulate both the technical elements of these systems and also tackle the ethical, safety, and security issues they present.

Global collaboration will be essential in establishing a cohesive strategy for the regulation and management of autonomous technologies. By harmonizing standards, promoting transparency, and guaranteeing accountability, states can reduce the dangers associated with autonomous systems while enhancing their capacity for societal advantage. Additionally, it is essential to guarantee that the advancement and implementation of these technologies stay in accordance with human rights, safety, and ethical standards to uphold public confidence and nurture a constructive connection between technology and society.

Ultimately, although autonomous systems can revolutionize industries and enhance lives, their thoughtful incorporation into society demands meticulous planning, continuous regulation, and global cooperation. Only by means of these endeavors can the difficulties of assigning responsibility and guaranteeing state accountability within international law be tackled effectively, ensuring that autonomous systems.



Analyzing the compatibility of Autonomous Weapon Systems (AWS) with existing IHL, principles, particularly the requirements for distinction and proportionality.

Najma Noushad¹

ABSTRACT

The development of Autonomous Weapon Systems (AWS) creates many challenges for the application and interpretation of International Humanitarian Law (IHL). AWS, which exist in a wide range of human intervention, raise questions about the capacity of the weapon to implement the principle of distinction and proportionality. Distinction demands distinguishing between combatants and non combatants whereas proportionality prescribes that any civilian casualty must not be disproportionate with regard to expected military advantage. This analysis reaches into whether AWS, especially advanced artificial intelligence, can make such judgments reliably in dynamic and unpredictable conflict scenarios. The very concern are the ethical and legality of delegating life-and-death decisions to machines and the accountability gaps in the chain of command. Proponents argue that AWS can minimize human error and enhance compliance with IHL, but critics highlight the limitations of current technology in comprehending complex contextual factors.

The study concludes that without proper mechanisms for compliance with IHL, the deployment of AWS could undermine the humanitarian objectives of the law. To address these challenges, there is an urgent need for international regulation and technological safeguards to ensure AWS operate within the boundaries of ethical warfare.

Keywords: *autonomous, weapon, humanitarian, distinction, proportionality, combatants, non combatants*

For Citation:

Najma Noushad, 'Analyzing the compatibility of Autonomous Weapon Systems (AWS) with existing IHL, principles, particularly the requirements for distinction and proportionality.', (2025) Special Issue, JSS Journal for Legal Studies and Research, Pg No 56-70, <[JSSLSR Archive - JSS Law College](#)>

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INTRODUCTION

The history of war has been characterized by various technological innovations and ideas, each considered to be more accurate, efficient, and strategically useful. AWS are the most recent and transformative among these, which operate with variable degrees of human oversight and can autonomously select and engage targets. There arise questions about their ethical, legal, and operational implications because AI systems are a sign toward automation for combat. The frequency with which AWS technology is becoming used, it raises strong necessities to implement their evaluation for compliance with (International Humanitarian Law)IHL. IHL referred to as the law of armed conflict, seeks to mitigate the impact of war on the individual and the conduct of hostilities under a rules of ethical conduct. Two underlying principles in IHL are the principles of distinction and proportionality. Distinction requires the differentiation of combatants from civilians and military objects from civilian objects to avoid harm to non-combatants. Proportionality dictates that such incidental loss of civilian life and damage to civilian objects incurs no disproportionate advantage anticipated from an attack. The principles-considered-with-human-decision-making, however-have unique hurdles in the context of applying them to AWS, without the moral and contextual reasoning inherent to human judgment. An argument in favour of AWS states that this technology does not have human emotions or fatigue, so the errors and conformance to IHL could decrease. Critics argue that current AI technology cannot understand complex scenarios while making subtle ethical decisions. Accountability is also a concern-once AWS acts lawfully, no one knows who is responsible: the operator, programmer, or commanding officer. It further raises deep questions regarding the human element in war, where reliance on AWS in military operations is becoming more significant. Traditional armed conflict is always conducted by human soldiers who bring contextual judgment, ethical reasoning, and emotional considerations to the decision-making process. AWS lack such intrinsic human qualities; instead, they depend on pre-programmed algorithms and machine learning models to analyze and act in dynamic combat environments. This reliance on automation challenges the applicability of IHL and risks eroding the moral accountability that has guided warfare



throughout history. Direct human involvement in decisions regarding who to target is lost with the absence of such participation, and thus there is a risk of dehumanizing war, as machines decide on life and death. Moreover, as AWS take more autonomy, existing legal frameworks fail to address issues that are critical, such as attribution of responsibility and compliance with humanitarian norms.

Definition of AWS

Autonomous weapons or better called Autonomous weapon systems – define modern warfare’s future approach; it makes use of Artificial Intelligence and advanced robotic functionality. These weapons are mainly involved with identifying, selecting and hitting the targets without relying upon human input. Autonomous systems of weapons differ from regular semi-automated types in that they are supposed to work with minimal intervention, or none at all from humans. As their use becomes commonplace, it is essential to learn about their definitions, levels of autonomy, and key characteristics to effectively assess their role and impact in warfare. AWS are generally defined through their autonomy in performing core tasks, particularly targeting and engagement. According to the ICRC, AWS are weapon systems with autonomy in their critical functions, defined as the ability to select and attack targets without human intervention. AWS are distinguished from automated systems by the latter’s rigid manner of performing pre-programmed tasks in a static way and also differ from remotely operated systems in that they need human intervention all the time. Autonomous weapons systems is also known as killer robots, they are weapons systems that use artificial intelligence (AI) to identify and kill human target without the intervention of human². AWS employs sensors, data processing, and artificial intelligence to monitor and make decisions even when humans are not on site, in real-time.

AWS autonomy falls into three general categories. The first of these categories is “human-in-the-loop” systems where the human operator stays engaged directly with critical decisions like the choice and validation of a target. For instance, the category includes many of today’s drones, where operators make control over strikes based on system recommendations. In this model, there is a reduction in the risk of unintended consequences because human judgment

² Autonomous weapons, <https://autonomousweapons.org> 31 Nov 2024, 09:30pm

becomes central to lethal decisions. The second category of such systems is “human-on-the-loop” systems where the system operates autonomously, and it is monitored by a human who can intervene as appropriate. Air defense systems like Israel’s Iron Dome exemplify this level of autonomy, automatically intercepting threats while allowing humans to override decisions if needed. The most contentious category, however, is “human-out-of-the-loop” systems, which operate entirely independently during critical phases. Hypothetical examples include autonomous swarms of drones capable of identifying and neutralizing targets without human input. These systems raise significant ethical and legal concerns, as they lack direct human oversight. These autonomous systems on AWS need multiple high technologies. Sensors become the central hub; these give the perception to these machines of what their surroundings look like, how the surroundings function, and allow for the perception of gathering of data on the environment. It encompasses visual cameras, radar systems, infrared sensors, and even acoustic detectors working together. In illustration, such sensors as thermal imaging fit can identify targets even under such lessor conditions as night time activities, adverse weather. Nevertheless, their reliability in more demanding clutter environments like in complex scenarios would thus expose them to some incorrect target identification.

Artificial intelligence and machine learning forms AWS’s core functionality. These systems are programmed to analyze large amounts of sensor data, find patterns, and make decisions based on pre-determined criteria. For example, image recognition algorithms may enable AWS to distinguish between military vehicles and civilian ones. But these capabilities have their limits. AI systems rely on the quality and diversity of their training data. Biases in this data can lead to discriminatory or incorrect targeting, raising ethical and operational concerns. The communication and networking systems are another significant feature of AWS. These provide for the exchange of information with human operators or any other systems, ensuring coordination and flexibility. For instance, swarm drones communicate with each other in order to carry out synchronized attacks or gather intelligence. But this reliance on networks is also a weakness where AWS can be vulnerable to cyberattacks that may disintegrate their operations or result in unintended consequences.



AWS are designed for all manner of operational tasks, hence these are very versatile tools in modern warfare. Some of the common primary functions of AWS are the identification and engagement of targets. They are able to autonomously identify and prioritize targets by applying AI and sensors on finding armoured vehicles on a battlefield. They also have very common applications in surveillance and reconnaissance; they monitor enemy movements or gather intelligence in risky areas with much less danger to human personnel. Defensive applications are also prevalent, with systems like automated sentry guns protecting military installations by detecting and neutralizing potential threats. Additionally, AWS are increasingly being designed for swarm coordination, where multiple units operate collectively to overwhelm adversaries. While these capabilities offer tactical advantages, they also pose significant challenges, particularly in distinguishing between combatants and civilians or responding to rapidly changing battlefield dynamics. It thus gives an impression that there exists diverse fields where AWS are set across with complete deployment. In aerial combat missions, UAVs with either lethal or non-lethal loads dominate the landscape mainly targeting hits or surveillance. There exists support in combat or a defense role in ground base as AWS. In a maritime setup, autonomous submarines or even surface vessels are there and are used for both mine detection and reconnaissance along with offensive roles. Moreover, AWS are increasingly integrated into cyber warfare, with AI-driven systems to identify and neutralize digital threats and also autonomous weapon usually acts as a force multiplier.³

Even though AWS have developed their advanced capabilities, the defining characteristics of AWS introduce serious ethical and legal dilemmas. The delegation of decision-making to machines raises questions about the removal of human judgment from life-and-death decisions. This shift challenges traditional ideas about accountability, as it's unclear who is responsible—operator, programmer, military commander—for the actions of the AWS. Moreover, the possibilities for malfunction or unintended activity of the AWS could put civilian populations at risk of mass harm and violate the international norms of International Humanitarian Law.

³ Army University Press, <https://www.armyupress.army.mil>, Pros and Cons of Autonomous Weapons Systems, 31 Nov 2024, ipm.

International Humanitarian Law: Core Principles

International Humanitarian Law, also known as the law of armed conflict, is a set of rules designed to mitigate the human suffering caused by war. It aims at regulating the conduct of hostilities, protecting those who are not or no longer participating in combat, and limiting the means and methods of warfare. Rooted in international treaties like the Geneva Conventions and their Additional Protocols, IHL is a balance of military necessity with humanitarian considerations. At its core, IHL is guided by a few fundamental principles that underpin its framework: distinction, proportionality, necessity, and humanity.

1. The Principle of Distinction

This principle of IHL is one of differentiation between combatants and civilians as well as military and civilian objects.

Combatants and Civilians: Combatants are lawful participants in hostilities. They are the only target of armed conflict. On the other hand, civilians are civilians and protected from direct attacks unless they take direct part in hostilities.

Military vs. Civilian Objects: Military objects, like enemy forces or weapon storage facilities, are legitimate targets. Civilian objects, like homes, schools, and hospitals, are immune to attack unless they are used for military purposes. The principle of distinction limits damage to civilians and civilian infrastructure during hostilities. It binds belligerent parties to use methods and weapons that can distinguish between legitimate and illegitimate targets. The principle is also challenged by the emergence of Autonomous Weapon Systems (AWS) because it is uncertain whether such systems can reliably distinguish between combatants and civilians. In cases where AWS misidentify targets, there could be grave violations of this principle with massive civilian damage.

2. The Principle of Proportionality

The principle of proportionality also prohibits attacks where the incidental harm to civilians and civilian objects would be excessive in relation to the anticipated military advantage. This principle recognizes that harm to civilians may occur, but it seeks to ensure such harm is not disproportionate to a military goal. For instance, a military strike on a military base in an



urbanised area would be disproportionate if expected civilian casualties exceed the operational value of the target. The principle of proportionality is particularly relevant in the context of AWS. While AWS may enhance precision and reduce the risk of human error, their ability to weigh military advantage against potential civilian harm remains limited. Machine algorithms lack the nuanced ethical reasoning required for proportionality assessments, raising concerns about their compliance with this principle.

3. The Principle of Military Necessity

Military necessity allows the use of force that is required for a legitimate military objective and is not prohibited by IHL in other ways. It justifies actions that are crucial to weakening the enemy's military capacity, provided they comply with other IHL principles. For instance, destroying a bridge used exclusively for military logistics may be justified under military necessity, whereas targeting a civilian structure with no strategic value would not. AWS must operate within the bounds of military necessity, avoiding excessive use of force or unnecessary destruction. The automation of decisions regarding what constitutes a legitimate military objective requires stringent programming and oversight to prevent violations of this principle.

4. The Principle of Humanity

The principle of humanity seeks to alleviate suffering and prevent unnecessary harm during armed conflict. It prohibits methods and means of warfare that cause superfluous injury or unnecessary suffering. This principle underpins the prohibition of certain weapons, such as chemical and biological weapons, that cause indiscriminate harm. It also emphasizes the humane treatment of prisoners of war, the wounded, and civilians. AWS pose deep concerns in applying the principle of humanity, especially when addressing their capacity to evolve to demanding moral and ethical judgments. For example, a maximum damage system that has been designed as an autonomous would unintentionally cause more suffering that goes against the intent of the principle.

5. The Precautionary Principle

The precautionary principle requires parties to undertake any available steps to avoid or to minimize injury to civilians or civilian objects in military action. This is going about

checking the legality of the target, issue warnings where possible, and weapons that cause minimal collateral damage. For instance, if precision-guided munitions are used instead of indiscriminate artillery in urban settings, then this principle is upheld. AWS, by design, are meant to be more precise and cause less collateral damage. However, the reliability of these systems in complex and unpredictable environments is still questionable. Without strong safeguards, their deployment could actually undermine efforts to ensure precaution in military operations.

6. The Principle of Non-Discrimination

The principle of non-discrimination is that all parties affected by armed conflict should be treated equally, without adverse distinction based on race, religion, nationality, or other factors. It guarantees humanitarian assistance, medical care, and protection be afforded equally to all civilians and combatants hors de combat (out of the fight). AWS must be designed to embody this principle: it has to ensure that there is an absence of discrimination in making decisions and providing equal treatment during hostilities.

Compatibility of AWS with the Principle of Distinction

The principle of distinction is the fundamental aspect of International Humanitarian Law, which asks warring parties to distinguish between combatants and non-combatants and military objects from civilian objects. In return, it makes sure that civilians, civilian infrastructure, and other persons not participating in the fighting are protected against attack, unless and otherwise they take an active part in hostilities. When it comes to AWS, their compatibility with the principle of distinction would depend on whether they are able to clearly identify and engage legitimate military targets without causing harm to protected individuals and objects. The principle of distinction still underlie the law of conflict .⁴

Technological Capabilities and Limitations

AWSs are equipped with advanced sensors, AI, and data-processing capabilities, which enable them to process vast amounts of information in real-time. These technologies enable

⁴ Elliot Winter, <https://academic.oup.com> the Compatibility of Autonomous Weapons with the Principles of International Humanitarian Law, 1Dec 2024, 7.26pm.



AWS to be tasked according to predetermined parameters, such as heat signatures, movement patterns, or weapon identification. For instance, AWS can differentiate between a military vehicle and a civilian car using image recognition algorithms. Such capabilities offer the promise of precision and efficiency in possibly reducing the risk of misidentification in combat.

However, these technological advancements are not without limitations. AI systems rely heavily on training data and pre-programmed algorithms, which may not account for the complexities of real-world scenarios. For example, combatants in asymmetric warfare often blend into civilian populations by avoiding uniforms or using civilian vehicles. These factors make it difficult for AWS to accurately distinguish between combatants and non-combatants. Moreover, sensor errors or environmental factors—like low visibility, urban clutter, or interference from electronics—can also limit the system’s ability to distinguish correctly. A major weakness of AWS is that they do not understand context or exercise human judgment. The identification of a military target often requires subtle assessment, such as intent or subtle behavioral cues. While human operators may identify a non-combatant carrying a weapon for self-protection, AWS may consider him a legitimate target based purely on the detection of a weapon. There is a lack of contextual awareness leading to violations of the principle of distinction and, therefore, civilians may be harmed unintentionally.

Ethical Considerations

The ethical considerations of using AWS in the context of the principle of distinction are tremendous. The delegation of life-and-death decisions to machines raises questions about the moral accountability of these systems. AWS lack the human qualities of empathy and ethical reasoning, which are essential for making morally sound decisions in complex combat environments. For example, a human soldier would hold back from attacking if there was doubt about the identity of the target, erring on the side of caution and protecting civilians. AWS, in contrast, operate based on pre-set criteria and algorithms, leaving no room for ethical discretion. This delegation of decision-making also complicates issues of accountability. If an AWS erroneously targets civilians, it becomes unclear who should be held responsible—the programmer, the operator, or the military commander. This diffusion of

accountability undermines the ethical underpinnings of the principle of distinction, making it difficult to ensure compliance with IHL.

Balancing Military Advantage with Civilian Harm

AWS systems are often touted as something that can enhance precision and reduce collateral damage in warfare. AWS, with the use of sophisticated AI and machine learning algorithms, can analyze massive data to identify potential targets and the possibility of achieving military objectives. The computational efficiency makes it possible for AWS to pick the most effective method to neutralize threats while at the same time minimizing harm. For instance, an autonomous drone could detect and destroy a specific enemy vehicle while avoiding hitting the surrounding civilian infrastructure. Although this is so, AWS face considerable difficulties in trying to strike a balance between military advantage and civilian harm. Assessments of proportionality demand judgments in contexts that cannot be derived from analysis of data. The example of determining whether the destruction of a military warehouse in a populated area is worth the risk of civilian casualties would be based on considerations of ethics, tactics, and humanitarian considerations. AWS, on the other hand, are guided by pre-programmed criteria and cannot make such assessments. Furthermore, AWS are only as good as the quality of their programming and the data they have been trained on. Algorithms that do not take into account diverse and unpredictable combat scenarios may miscalculate the potential harm to civilians, which may lead to disproportionate attacks. For instance, an AWS may underestimate the blast radius of a weapon or fail to consider the presence of civilians in adjacent buildings, leading to excessive collateral damage. International humanitarian law still applies in a war against a brutal terrorist organization engaged in acts of absolute evil.⁵

Challenges in Contextual Judgment

One of the main challenges that AWS face when trying to comply with the proportionality principle is their inability to interpret context. Human decision-makers rely on experience, ethical reasoning, and situational awareness to judge the proportionality of an attack. They may look at the urgency of the military objective, the potential for evacuation of civilians, or

5 Liron A. Libman, Balancing Military and Humanitarian Necessities, <https://jstribune.com> , 1Dec 2024, 09.30pm



alternative strategies that might achieve the same goal without causing such harm. On the other hand, AWS relies on algorithms that lack flexibility when they are put into dynamic and complex environments. For example, in a fast-changing battlefield environment, a human decision-maker may opt to delay an attack so that civilians can clear the area, with humanitarian considerations taking precedence over tactical gains. AWS will, on the other hand, carry out the attack based on predetermined instructions, without regard to the greater ethical considerations. This inflexibility raises a high degree of risk, especially in urban or densely populated environments where civilian casualties are more probable. The uncertainty of war is another issue. Assessments of proportionality often have to be done in real time with less than perfect or conflicting information. AWS can process information quickly, but they do not have the intuition or judgment that a human has for such situations. This may make it difficult for AWS to apply the proportionality principle, especially in high-stakes or ambiguous situations.

Accountability and Responsibility within AWS Operations

AWSs basically do their job by delegating critical target detection and engagement decisions to the machines. This technological advance definitely improves military efficiency but poses tough accountability and responsibility issues in conflict. In war, an essential component of fulfilling its mandate of IHL would be accountability. Who and what will be held accountable is very hard to figure with AWS, and liability cannot seem to get enforced.

Accountability in Decision-Making

In conventional warfare, humans-the soldiers, commanders, and military institutions-are held accountable for decisions made while fighting. If a soldier breaches IHL, his action can be blamed on negligence, misconduct, or even intent; there are clear avenues for recourse in the courts. AWS disrupt this model of accountability because it operates with tremendous autonomy; decisions are frequently executed by the AWSs without human input. When AWS misidentifies the target or causes disproportionate damage, who is to blame can not easily be identified. Is the fault of the programmer in the algorithm design? The one operating and deploying the system? Or perhaps the commander who authorised the usage? This diffusion of responsibility creates accountability gap where each party can lay down their responsibility

on the computer because they did not do it themselves. The opacity of AI decision-making processes, often referred to as the “black box” problem, further exacerbates this issue, as it can be challenging to trace the reasoning behind an AWS’s actions. This lack of accountability has grave implications for IHL compliance. The lack of a clear chain of responsibility could allow violations to go unpunished, thus weakening the rule of law and the humanitarian principles. Further, the lack of mechanisms of accountability may encourage the wanton use of AWS since those using them may feel they have no liability for their actions.

Legal Gaps and Chain of Command Issues

The introduction of AWS exposes significant legal gaps in existing frameworks. Current international law does not explicitly address the unique challenges posed by autonomous systems, leaving ambiguity around the allocation of responsibility. For instance, while commanders are typically held accountable for the actions of their subordinates, it is unclear how this principle applies to autonomous systems that act independently of direct human orders. Moreover, the chain of command is disrupted by AWS. While decisions flow from higher-ranking officers to lower-ranking personnel in hierarchies, each link bearing some level of accountability. In this case, AWS operate out of the structure, making decisions based on pre-programmed algorithms rather than human orders. This brings up the question of whether AWS can be called “subordinates” in the conventional sense and whether commanders can reasonably be held accountable for their actions. The lack of legal clarity is problematic for enforcement. For example, if an AWS commits a war crime, it may be difficult to prosecute a programmer or operator under existing laws, as they might not have the intent or negligence required for their role in the system’s development or deployment. This calls for urgent legal reforms that address the special accountability issues of AWS. As AWS are increasingly found in the world, international scrutiny of their development, deployment, and use in warfare has become one of the burning issues requiring regulatory frameworks. International law today is not comprehensive enough to give guidance on these



challenges posed by autonomous systems. Different proposals for regulation have surfaced from states, international organizations, and civil society groups.

State of International Law Today

Existing international law, including the Geneva Conventions and their Additional Protocols, provides a robust framework for regulation of armed conflict. To this end, such bodies of law lay down very important principles that include that of distinction, proportionality, and military necessity. Most of these principles were founded with human decision-makers in consideration and do not explicitly address many of the complications introduced by AWS. For instance, IHL requires accountability for violations, yet it does not provide mechanisms for attributing responsibility to autonomous systems. Similarly, while IHL prohibits indiscriminate attacks, it does not specify how this principle applies to AWS that may struggle with target identification. In the absence of explicit legal provisions, states must interpret and adapt existing laws to regulate AWS, leading to inconsistencies in their application. Some of them say that AWS does not need new laws provided it is implemented in conformity with the requirements of IHL. For others, though, unique problems in AWS like a lack of accountability and an ethical dilemma call for something that requires new regulations as such.

Regulation Proposals

There are many proposals geared toward solving the issues created around the regulation of AWS. Several initiatives have come into limelight based on the advocacy for pre-emptive bans of complete autonomous weapons by campaigns like “Stop Killer Robots”. Supporters, who believe in such action, point to these as posing risks unacceptable to people and human rights; they urge a ban on AWS as they become ubiquitous. The third one would be the establishment of an international treaty that would have legal enforcement powers over the development and utilization of AWS. This international treaty could provide provisions on requiring human control over critical decisions, mandates for transparency in AI algorithms, and mechanisms for accountability for violations. Some states and experts suggest a more cautious approach, where non-binding guidelines or codes of conduct could be the first step toward regulation. These frameworks would allow states to be flexible in their adaptation to

emerging technologies while encouraging adherence to humanitarian principles. Despite these efforts, progress on international regulation has been slow, with disagreements among states over the need for new laws, the definition of AWS, and the scope of potential restrictions. This lack of consensus underscores the importance of continued dialogue and collaboration to address the challenges posed by autonomous systems.

Recommendations and Future Directions

To ensure the responsible development and use of AWS, several key recommendations can be made. First, states should prioritize transparency in AWS design and deployment, requiring developers to provide comprehensive documentation of their systems' capabilities and limitations. This would increase accountability because responsibility for violations could be more clearly attributed. A "human-in-the-loop" approach should be made mandatory for critical decision-making processes, with humans holding final authority over the use of force. This would likely alleviate many of the ethical and legal concerns associated with fully autonomous systems. International cooperation is also necessary. States, international organizations, and civil society actors should cooperate in defining clear definitions and standards for AWS and in the creation of mechanisms for monitoring and enforcement. For example, the establishment of an international supervisory body to examine and endorse AWS with regard to their conformity to IHL may provide a much-needed oversight. Another important research direction is about the ethics of AWS. Policymakers and technologists should join forces to engineer systems not only compliant with IHL but also aligned to broader humanitarian values. Investments in AI should be made along lines such as ethical reasoning, contextual awareness, and robustness under complex combat situations. Finally, capacity-building efforts should also be made to ensure all states have the resources and capacity to regulate and oversee the AWS. This includes making the military personnel trained on ethical and legal implications of employing the autonomous systems and promoting awareness of the public and the relevant debate about the role that AWS will play in warfare. Lastly, international negotiations on the regulation of AWS should be resumed. These negotiations should aim to build consensus among states in relation to AWS regulation,



given that disagreements over scope and nature persist. Though not exhaustive, incremental progress is attainable through agreements over such items as transparency and accountability measures. We should prohibit unpredictable autonomous weapons.⁶

Conclusion

The emergence of Autonomous Weapon Systems heralds a paradigmatic shift in war conduct, an opportunity and a challenge at the same time. Although AWS promise enhanced precision, efficiency, and operational capabilities, concerns about their conformity with IHL arise based on such questions as accountability, responsibility, and the moral implications of giving up life-and-death decisions to machines. The existing principles of IHL, namely the principles of distinction and proportionality, offer a solid ground for governing the employment of AWS. These principles were built with the human decision maker in mind and cannot sufficiently accommodate the singular issues associated with the autonomous systems. There exist no suitable legal structures which can handle questions like the diffusion of responsibility and limitations that machine algorithms can bring forth in complicated dynamic battle settings. There are plans underway to control AWS; the proposals run the gamut from an absolute ban, the creation of binding legal instruments, to guidelines not obligatory to any signatory to an instrument. Progress is gradual but the problem at stake necessitates a continuous discussion internationally, with concerted action being pursued by all the state parties and interested parties in a commitment towards transparency, accountability, and ethical responsibility so as to ensure AWS can serve in humanitarian functions, coupled with IHL. In conclusion, AWS regulation is not a mere legal or technical challenge but rather a moral imperative. Warfare is evolving, and thus the frameworks that govern it need to evolve with it. This is how the use of emerging technologies will continue to be consistent with the basic principles of humanity, dignity, and justice. The future path lies in balancing innovation with responsibility, safeguarding both security and human rights in this era of rapid technological change.

⁶ Autonomous weapons, <https://www.icrc.org>, 3Dec 2024, 09.30pm



***Navigating the Intersection of Military AI and International Humanitarian Law: Challenges
and Prosecution Principles***

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ABSTRACT

The rapid integration of Artificial Intelligence (AI) into military operations presents unprecedented challenges for International Humanitarian Law (IHL). This paper explores the legal and ethical implications of military AI, focusing on accountability, compliance with IHL, and the application of prosecution principles to AI-driven violations. The manuscript emphasizes the necessity of adapting existing legal frameworks to address the complexities of autonomous technologies in warfare.

The adoption of Artificial Intelligence (AI) in military applications has redefined the dynamics of warfare, offering capabilities like autonomous targeting, predictive analytics, and enhanced decision-making. However, these advancements raise critical questions about compliance with International Humanitarian Law (IHL), particularly regarding accountability and prosecution for potential violations. This article delves into the challenges AI poses to the established legal framework, focusing on the principles of distinction, proportionality, and necessity, while offering solutions to bridge the legal and ethical gaps.

For Citation:

Anjum Jahan & Dr. Aanchal Tyagi, 'Navigating the Intersection of Military AI and International Humanitarian Law: Challenges and Prosecution Principles', (2025) Special Issue, JSS Journal for Legal Studies and Research, Pg No 71-79, <[JSS/LSR Archive – JSS Law College](#)>

Introduction

The rapid escalation of a global arms race in military artificial intelligence (AI) development underscores its transformative potential in redefining modern warfare. Technologies such as autonomous drones, advanced surveillance systems, and decision-making algorithms are increasingly being deployed to enhance efficiency, precision, and operational capabilities. These innovations promise a new era of combat where technological superiority may significantly influence outcomes. However, the growing reliance on AI systems with varying levels of autonomy raises profound concerns about their compatibility with the foundational

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principles of International Humanitarian Law (IHL) that regulate conduct during armed conflicts.

The principles of distinction, proportionality, and necessity—core tenets of IHL aimed at minimizing human suffering and safeguarding non-combatants—are particularly vulnerable to erosion when decision-making responsibilities shift from humans to machines. Autonomous systems lack the ability to fully grasp the contextual nuances of a battlefield or make moral judgments in the way human operators can. This inability poses a significant risk of unlawful actions, such as misidentifying legitimate military targets or failing to account for disproportionate harm to civilian populations. Compounding this issue is the notorious "black box" problem, where the internal workings of AI systems remain opaque, making it exceedingly difficult to trace their decision-making processes. This lack of transparency not only impedes accountability for potential IHL violations but also undermines efforts to build trust and legitimacy around the use of AI in military operations.

Addressing these challenges requires a multifaceted approach. Legal and ethical frameworks must evolve alongside technological advancements to ensure that the principles of IHL are upheld in the age of AI-driven warfare. Governments, international organizations, and AI developers must collaborate to create systems with built-in safeguards that prioritize compliance with humanitarian standards. Transparency in AI design and deployment, coupled with mechanisms for assigning accountability, is essential to bridge the gap between innovation and responsibility. Without such measures, the transformative potential of AI in military contexts risks being overshadowed by its capacity to exacerbate the very suffering IHL seeks to prevent.

This article examines these challenges and outlines prosecutorial mechanisms to ensure that the use of military AI adheres to international legal standards.

1. Military AI and Its Challenges Under IHL

The use of AI in military applications poses challenges to the core principles of International Humanitarian Law (IHL), such as distinction, proportionality, and necessity. Autonomous systems may fail to differentiate between combatants and civilians in complex situations, leading to unlawful targeting. Proportionality assessments, requiring nuanced human



judgment, are difficult to program into AI systems. Moreover, the deployment of AI without adequate human oversight risks unnecessary harm, undermining the principle of necessity. These issues highlight the difficulty of aligning military AI technologies with IHL's humanitarian objectives.

1.1 Understanding the Principles of IHL: IHL aims to balance military necessity with humanitarian considerations during armed conflicts. However, applying these principles to military AI introduces complexities:

The deployment of autonomous systems in military operations raises profound concerns about their ability to uphold the core principles of International Humanitarian Law (IHL), including distinction, proportionality, and necessity.

Distinction: One of the most critical challenges lies in the principle of distinction, which mandates the clear differentiation between combatants and civilians to prevent unlawful targeting. Autonomous systems, relying heavily on pattern recognition algorithms, are prone to errors in dynamic and ambiguous scenarios, such as urban warfare where civilians and insurgents may intermingle. This technological limitation increases the risk of misidentifying civilians as combatants, potentially leading to catastrophic violations of IHL and the loss of innocent lives.

Proportionality: Similarly, the principle of proportionality—designed to ensure that the collateral damage inflicted during military actions is not excessive in relation to the anticipated military advantage—poses significant challenges for AI systems. Assessing proportionality requires nuanced contextual judgment and the ability to weigh complex ethical considerations, which are beyond the capabilities of pre-programmed algorithms. AI systems, devoid of human intuition and moral reasoning, may fail to balance these factors, resulting in decisions that disproportionately harm civilians and non-combatant infrastructure.

Necessity: The principle of necessity, which requires that military actions be limited to what is essential to achieve legitimate objectives, is another area where AI systems may falter. Autonomous systems, programmed to execute specific objectives, may lack the capacity to adapt to evolving circumstances on the battlefield. This rigidity can lead to

actions that go beyond what is militarily required, causing unnecessary harm and undermining the humanitarian goals of IHL. For instance, an AI system may continue to pursue a target despite the opportunity for de-escalation, simply because it is following pre-defined instructions without the ability to reconsider its actions in real time.

Addressing these challenges requires robust safeguards and oversight mechanisms to ensure that the deployment of autonomous systems aligns with the principles of IHL. Human oversight, transparency in AI decision-making processes, and strict regulatory frameworks are essential to mitigate the risks posed by these technologies. Without such measures, the use of AI in warfare threatens to undermine the fundamental tenets of IHL, leading to consequences that are not only unlawful but also profoundly unethical.

1.2 The Role of Autonomy and Human Oversight: AI systems operate with varying degrees of autonomy. Fully autonomous systems, which can select and engage targets without human intervention, pose significant risks of IHL violations. While human-in-the-loop systems involve human oversight, decisions made under time pressure may still lack adequate scrutiny.

2. Legal and Ethical Gaps in AI-Driven Warfare

AI in warfare exposes significant legal and ethical gaps. Accountability becomes ambiguous when autonomous systems make decisions, as traditional legal frameworks rely on identifying intent and causation. The “black box” nature of AI, where decision-making processes are opaque, complicates investigations into IHL violations. Ethical dilemmas arise as delegating life-and-death decisions to machines challenges moral norms and human dignity. Addressing these gaps requires updating legal frameworks and embedding ethical safeguards in AI systems to ensure their compliance with humanitarian principles.

2.1 Accountability Challenges: Determining who is accountable for the actions of autonomous systems is a critical challenge. Traditional prosecution principles rely on identifying a clear chain of responsibility, but AI introduces ambiguity:

Developers: Are they liable for programming flaws or biased algorithms?

Operators: Should they be held responsible for deploying systems beyond their understanding?



Commanders: Can they be prosecuted for outcomes they did not directly control?

2.2 The “Black Box” Problem: The inherently opaque nature of numerous artificial intelligence (AI) systems poses profound challenges in understanding and interpreting their decision-making processes. Unlike human decision-makers, whose reasoning can often be articulated and scrutinized, AI systems frequently operate within "black boxes," where the logic behind their outcomes remains concealed. This lack of transparency becomes particularly problematic in contexts where adherence to International Humanitarian Law (IHL) is essential. Without a clear understanding of how an AI system arrives at a decision, evaluating whether its actions comply with IHL becomes an arduous task. This opacity obstructs efforts to determine if a particular action constitutes a violation, leaving investigators grappling with incomplete information. Furthermore, the absence of insight into the system’s underlying logic makes attributing accountability for potentially unlawful actions speculative at best. In such scenarios, the inability to trace responsibility undermines the principles of justice and accountability that form the cornerstone of legal frameworks like IHL.

2.3 Ethical Dilemmas: The deployment of military AI raises ethical concerns about delegating life-and-death decisions to machines. Critics argue that removing human judgment from lethal actions undermines the moral accountability central to IHL.

3. Prosecuting Violations Involving AI

Prosecuting IHL violations involving military AI is challenging due to the complex chain of responsibility. Proving intent is difficult since AI systems lack consciousness, and their actions result from programming and data inputs. Developers, operators, and commanders could all share liability, creating uncertainty in accountability. Command responsibility is particularly problematic if commanders lack full control over AI outcomes. To address these challenges, new accountability models are needed, such as holding developers liable for design flaws, ensuring operator training, and requiring commanders to oversee AI deployment rigorously.

3.1 Intent and Causation in Prosecutions: Prosecution under IHL requires proving intent or negligence. However, AI systems lack intent, and their actions are the result of programming and data inputs. This creates challenges in attributing liability:

- If an AI system acts unpredictably due to poor programming, should the developer or operator be prosecuted for negligence?
- Can the principle of command responsibility be applied if commanders could not foresee the AI's actions?

3.2 Proposed Accountability Models: To address these challenges, a hybrid model of accountability is needed:

Strict Liability for Developers: Hold developers accountable for defects in the AI system's design or functionality.

Operator responsibility and command oversight are critical components in ensuring the ethical and lawful deployment of artificial intelligence (AI) systems, particularly in sensitive areas such as military operations. It is imperative that operators of AI systems are adequately trained to comprehend the limitations, potential biases, and risks inherent in these technologies. Proper training equips operators with the necessary knowledge to mitigate errors, prevent misuse, and make informed decisions when interacting with AI systems. This understanding fosters a sense of accountability, ensuring that the technology is used within its intended scope and does not lead to unintended consequences.

Equally important is the role of military commanders in exercising oversight over AI deployments and their outcomes. Commanders must retain ultimate control and decision-making authority, ensuring that AI systems function as tools to assist human judgment rather than replace it. By maintaining stringent oversight, commanders can monitor the performance and implications of AI applications, intervening whenever necessary to ensure compliance with ethical standards and legal frameworks, such as International Humanitarian Law. This dual approach of operator responsibility and command oversight creates a balanced framework that minimizes risks while optimizing the potential benefits of AI in complex and high-stakes environments.



4. Recommendations for Bridging the Gap

To bridge the gap between military AI and International Humanitarian Law (IHL), several steps are crucial. Legal frameworks must be updated to define accountability for AI systems and establish clear regulations for their deployment in warfare. Ethical guidelines should mandate the incorporation of IHL principles in AI design, ensuring systems prioritize distinction, proportionality, and necessity. Human oversight should be emphasized, integrating fail-safes to mitigate unintended harm. Additionally, international collaboration is vital to create universal standards, promote responsible AI development, and enforce compliance through treaties and multilateral agreements. Together, these measures can ensure AI technologies enhance military operations without compromising humanitarian principles. The rapid advancement of military AI necessitates a comprehensive approach to ensure its compliance with International Humanitarian Law (IHL) and global ethical standards. Below are the key areas of focus to address the unique challenges posed by autonomous systems in warfare:

4.1 Adapting Legal Frameworks- Existing IHL frameworks must evolve to account for the distinct challenges that military AI introduces to the battlefield. Specific steps include:

Developing International Treaties or Conventions: It is essential to create legally binding agreements that define the permissible scope and limits of AI deployment in armed conflicts. Such treaties should explicitly outline the boundaries within which AI technologies can operate while ensuring alignment with IHL principles such as distinction, proportionality, and necessity.

Establishing Guidelines for Human Oversight: Human involvement must remain integral to the use of autonomous systems in military operations. Clear legal standards should be established to mandate human oversight at critical decision-making junctures, ensuring that machines do not operate entirely without human intervention.

4.2 Strengthening Ethical Guidelines- To prevent the misuse of AI in warfare, robust ethical safeguards must be incorporated into its design and deployment. This involves:

Embedding IHL Compliance in AI Programming: AI systems must be programmed to prioritize adherence to IHL principles. Developers should focus on creating algorithms

that inherently avoid actions violating the principles of distinction, proportionality, and necessity.

Integrating Fail-Safe Mechanisms: Autonomous systems should include built-in fail-safes capable of overriding potentially harmful actions. These mechanisms would allow for the prevention of catastrophic errors in scenarios where AI misjudges or operates outside its intended parameters.

Implementing Ethical Review Processes: Regular audits and reviews should be conducted to ensure AI systems are functioning within ethical and legal boundaries, reducing the likelihood of misuse or unintended consequences.

4.3 Promoting International Collaboration- The regulation of military AI cannot be achieved unilaterally; it demands collective efforts at a global level. Key measures include:

Developing Universal Standards: States must work together to establish globally accepted norms and technical standards for the development, deployment, and use of AI in warfare. These standards should address transparency, accountability, and safety.

Conducting Joint Research: Collaborative research initiatives among nations, academia, and industry experts can help assess AI's impact on warfare and identify solutions to emerging challenges. Sharing knowledge and resources will accelerate the development of responsible AI practices.

Enforcing Compliance through Multilateral Agreements: International agreements must include mechanisms for monitoring and enforcing adherence to established legal and ethical guidelines. Such agreements should enable collective accountability and impose penalties for violations, thereby strengthening global governance over military AI.

Conclusion

The intersection of military artificial intelligence (AI) and International Humanitarian Law (IHL) brings forth a complex blend of opportunities and challenges that demand careful navigation. On one hand, AI has the potential to significantly enhance operational efficiency, streamline decision-making processes, and reduce human error in high-pressure scenarios. These advantages could lead to more precise targeting, minimizing collateral damage and the



loss of civilian lives, which aligns with the humanitarian objectives of IHL. On the other hand, the autonomous and often opaque nature of AI systems introduces significant risks to the core principles of IHL, such as distinction, proportionality, and accountability. The inability of AI systems to fully comprehend nuanced ethical considerations or adapt to unforeseen circumstances raises concerns about their deployment in contexts where adherence to IHL is paramount.

To address these multifaceted challenges, there is an urgent need for proactive legal reform to establish robust regulatory frameworks that govern the use of AI in military operations. Such reforms should be complemented by ethical innovation, fostering the development of AI systems designed with built-in safeguards to ensure compliance with international norms. Furthermore, global collaboration among states, technology developers, and international organizations is essential to create a unified approach to the responsible use of AI in warfare. This collaborative effort can help harmonize legal standards, promote transparency, and build trust among nations. By embracing these measures and navigating the complexities of military AI with foresight and diligence, the international community can ensure that the deployment of AI systems upholds the principles of humanity and law, even amidst rapid technological advancements in warfare.



**Military AI and International Humanitarian Law: Navigating Ethical and Legal
Frontiers**

Sharanabasayya S¹ & Prof. Dr. Chandrakanthi L²

ABSTRACT

The integration of Artificial Intelligence (AI) into military applications has revolutionized modern warfare, presenting unprecedented opportunities and challenges within the framework of International Humanitarian Law (IHL). This paper explores the intersection of military AI and IHL, focusing on the ethical and legal dilemmas posed by autonomous weapon systems, decision-support algorithms, and cyber defense mechanisms. It critically examines whether existing IHL principles, including distinction, proportionality, and necessity, can adequately govern the deployment of military AI. The study delves into the ethical implications of delegating life-and-death decisions to machines, emphasizing the tension between operational efficiency and human accountability. By analyzing case studies, regulatory efforts, and expert opinions, this research identifies gaps in current legal frameworks and proposes pathways for ensuring compliance with the IHL in the age of AI-driven warfare. The paper concludes by advocating for an interdisciplinary approach to develop ethical and legally sound policies, navigating the complex frontiers of military AI and humanitarian considerations.

Keywords: *Military AI, IHL(International Humanitarian Law), Autonomous Weapon Systems, Ethical Dilemmas, Legal Frameworks, Compliance, Geneva Conventions, Cyber Defence, Just War Theory, Human Accountability, Operational Efficiency, AI Ethics, Emerging Technologies, Autonomous Warfare, Paradox, Policy Recommendations.*

For Citation:

Sharanabasayya S & Prof. Dr. Chandrakanthi L, 'Military AI and International Humanitarian Law: Navigating Ethical and Legal Frontiers', (2025) Special Issue, JSS Journal for Legal Studies and Research, Pg No 80-109, <[JSSJLSR Archive - JSS Law College](#)>

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1. Introduction

“By failing to prepare, you are preparing to fail.”

-Benjamin Franklin

If you don't prepare for something, you're more likely to have a negative outcome. The convergence of AI (Artificial Intelligence) with military applications has been one of most debated advancements of the 21st century. AI, in the context of military applications, refers to autonomous systems designed to perform tasks traditionally executed by humans, such as surveillance, combat, and strategic decision-making. In this domain, Military AI encompasses the technologies that are embedded in autonomous weapon systems (AWS), cyber defence mechanisms, and intelligence-gathering operations. While military AI promises significant advancements in operational efficiency and effectiveness, it also poses profound ethical and legal challenges, particularly with respect to compliance with International Humanitarian Law (IHL)³.

At its core, AI is the simulation of human intelligence in machines, enabling them to process information, learn from experiences, and make decisions autonomously. AI systems are characterized by their ability to analyse the vast datasets, recognize patterns, and optimize processes without human intervention. Military AI, as a subset, involves integration of AI into military strategies to enhance decision-making capabilities, improve targeting accuracy, and reduce human casualties. In recent years, AWS (autonomous weapon systems), such as drones and robotic systems, have gained prominence as essential tools in modern warfare.⁴

The justification for integration of AI into military operations lies in its ability to increase operational efficiency and minimize risks to human soldiers. Autonomous systems can potentially reduce human error, make swift strategic decisions, and carry out precise attacks with fewer civilian casualties. However, this technology raises critical concerns, particularly regarding human rights violations, the lack of accountability in decision-making, and the risks of violating established principles of International Humanitarian Law (IHL), such as distinction, proportionality, and necessity.⁵

3 Stuart Russell, *Artificial Intelligence: A Modern Approach* (3rd edn, Prentice Hall 2010).

4 Lori A McElroy, 'The Role of Artificial Intelligence in Military Operations' (2019) 14(2) *Journal of International Security* 32.

5 Jonas Schuett, 'Autonomous Weapon Systems: A Critical Review of the Legal and Ethical Debate' (2012) 94(885) *International Review of the Red Cross* 115.



One of the most significant concerns surrounding Military AI is its potential to harm human rights, particularly the right to life. Autonomous weapons systems, if left unchecked, could disproportionately target civilians, fail to differentiate between combatants and non-combatants, or make decisions that violate the laws of war. Additionally, the challenge of human accountability arises: when an autonomous system commits a war crime, who is responsible—the developer, the operator, or the machine itself?⁶

In this paper, we explore the ethical and legal implications of Military AI within the framework of International Humanitarian Law (IHL). We examine the present and anticipated technologies of Military AI, assess the legal frameworks currently in place, and discuss how AI is expected to influence the future of warfare. This paper will also delve into the ethical dilemmas of deploying autonomous systems in conflict, the potential violations of human rights, and the responsibility of states and operators in the use of such technologies.

2. Present Military AI Technology

Artificial Intelligence has increasingly become an important component of modern military strategies. As of today, a number of countries across the globe have incorporated AI technologies into their defence systems, with the primary focus on autonomous weapon systems (AWS), cyber defence, and intelligence gathering. These technologies allow for precise targeting, surveillance, and decision-making without direct intervention of human, enhancing operational efficiency and minimizing the risks posed to human soldiers.

A) Countries Using Military AI

Several nations have already integrated AI into their military apparatus, both in active combat scenarios and defensive capabilities. Leading countries in this domain include the United States, Israel, Russia, and China.

The US (United States) has been a pioneer in developing and deploying autonomous systems, with the Department of Defence (DoD) investing heavily in AI for surveillance, cyber defence, and military robotics. The Pentagon's JAIC (Joint Artificial Intelligence Centre) focuses on

⁶ ICRC, *Geneva Conventions of 1949 and Their Additional Protocols* (International Committee of the Red Cross 2018)

AI research for enhancing operational effectiveness, particularly in autonomous vehicles and drones.⁷

China has increasingly relied on AI to modernize its military. The Chinese PLA (People's Liberation Army) has focused on using AI for both defensive and offensive capabilities, including in autonomous drones and cyber warfare technologies. The country is also developing AI-powered surveillance systems to monitor its borders and military activities.⁸

Russia is exploring AI in military technologies, particularly for autonomous weapons, and has invested heavily in robotics for surveillance and reconnaissance. The Russian military has also experimented with AI-driven cyber operations, including disinformation campaigns.⁹

Israel has long been at the forefront of developing military technologies, including AI-driven drones, such as the Heron drones, which are capable of autonomous flight and targeting. The Israeli Defence Forces (IDF) have also focused on AI-driven surveillance systems for monitoring security threats.¹⁰

B) Present AWS (Autonomous Weapon Systems)

AWS (Autonomous Weapon Systems) are the cornerstone of Military AI. These systems can operate independently, making decisions about targeting and combat without human intervention. Some of the most notable examples of present AWS are:

Drones: Unmanned Aerial Vehicles, such as the MQ-9 Reaper and MQ-1 Predator drones, are currently used by countries like United States for surveillance and targeted strikes. These drones can be piloted remotely or, in certain cases, operate autonomously using pre-programmed algorithms for target identification.¹¹

Robotic Ground Systems: Countries like the U.S. and the Russia have developed the autonomous ground robots for reconnaissance and logistics. For example, the U.S. Army's

7 United States Department of Defense, 'Summary of the 2020 Department of Defense Artificial Intelligence Strategy' (2020) <https://dod.defense.gov> accessed 12 December 2024.

8 Elsa B Kania, 'Battlefield Singularity: Artificial Intelligence, Military Revolution, and China's Future Military Power' (2019) <https://www.cnas.org> accessed 12 December 2024

9 Samuel Bendett, 'Russia's AI Push in Military Technology' (2020) *The National Interest* <https://nationalinterest.org> accessed 12 December 2024.

10 Israeli Defence Forces (IDF), 'Innovations in Defence Technologies: AI-Driven Drones' (2021) <https://www.idf.il> accessed 12 December 2024.

11 United States Department of Defense, 'MQ-9 Reaper: A Proven Multi-Role UAV' (2020) <https://www.af.mil> accessed 12 December 2024.



CRG robot and Russian Uran-9 are capable of carrying out surveillance, gathering intelligence, and even delivering payloads autonomously.¹²

Autonomous Naval Systems: Autonomous Underwater Vehicles (AUVs) and Unmanned Surface Vehicles (USVs) are increasingly being used for naval operations. These systems are capable of carrying out surveillance, mine clearance, and reconnaissance missions with minimal human oversight.¹³

C) Anticipated or Future Autonomous Weapon Systems

The future of Military AI is expected to include the development of more sophisticated, autonomous systems capable of acting in combat environments with greater independence and efficiency. These include:

AI-Powered Combat Drones: These drones would be capable of conducting full-fledged attacks autonomously, choosing targets based on AI algorithms that assess threats and risks in real-time. The future of combat drones is expected to involve integration with AI decision-making systems that enhance their autonomy.¹⁴

Swarming Technologies: Drone swarms, powered by AI, are envisioned as a future military technology. These drones would operate collectively to conduct surveillance, attack targets, or carry out other military operations with the minimal human guidance. AI would allow these swarms to coordinate and make decisions collectively, simulating the strategies of human armies.¹⁵

Human-Machine Teaming: The future of autonomous military systems may also include collaborative AI that works alongside human soldiers in battlefield. These systems would assist human operators by providing real-time data analytics, suggesting strategic actions, and executing specific operations autonomously.¹⁶

12 Samuel Bendett, 'Russia's Uran-9: A Robot Tank in the Field' (2018) *The National Interest* <https://nationalinterest.org> accessed 12 December 2024; U.S. Army, 'Autonomous Combat Robots: CRG Technology Overview' (2021) <https://www.army.mil> accessed 12 December 2024

13 NATO, 'Autonomous Naval Systems in Modern Warfare' (2019) <https://www.nato.int> accessed 12 December 2024.

14 Elsa B Kania, 'AI and Future Warfare: Combat Drones and Autonomous Systems' (2020) *Center for a New American Security (CNAS)* <https://www.cnas.org> accessed 12 December 2024.

15 Paul Scharre, 'Army of None: Autonomous Weapons and the Future of War' (W W Norton & Company 2018); NATO, 'Drone Swarm Technology in Military Operations' (2019) <https://www.nato.int> accessed 12 December 2024.

16 Defense Advanced Research Projects Agency (DARPA), 'Human-Machine Teaming: Enhancing Military Effectiveness' (2021) <https://www.darpa.mil> accessed 12 December 2024.

D) Autonomous Warfare

Autonomous warfare refers to combat scenarios where the decisions regarding targeting, strategy, and execution of military actions are made by autonomous systems rather than human commanders. While autonomous systems promise increased efficiency and reduced human casualties, they raise significant concerns regarding human control and accountability.¹⁷

The move toward autonomous warfare could fundamentally change the way military conflicts are waged, with AI-driven systems capable of making rapid decisions in complex, high-stress environments.¹⁸ However, questions regarding the moral implications of such decisions and their alignment with the principles of International Humanitarian Law (IHL) remain unresolved.¹⁹ For example, targeting decisions made autonomously may not adhere to the principles of distinction (distinguishing between combatants and non-combatants), proportionality (ensuring that collateral damage is minimized), or necessity (ensuring that the use of force is necessary and appropriate).²⁰

E) Just War Theory

Just War Theory provides a framework for evaluating the morality of warfare and the use of force, traditionally rooted in Christian philosophy but now widely adopted as a normative ethical guide for the conduct of war. It encompasses several principles, including Jus ad Bellum, which justifies going to war based on criteria such as right intention, legitimate cause, and proportionality; Jus in Bello, which governs conduct during war and includes the principles of discrimination (distinguishing between civilians and combatants) and proportionality (ensuring the scale of force is appropriate); and Jus post Bellum, which addresses ethical conduct after war, focusing on justice and reconstruction. In the context of the Military AI, applying Just War Theory becomes increasingly complex, as autonomous systems may struggle to make ethical decisions in line with these principles. For example, the principle of discrimination requires distinguishing between civilians and combatants, a task

¹⁷ Jonas Schuett, 'Autonomous Weapon Systems: A Critical Review of the Legal and Ethical Debate' (2012) 94(885) *International Review of the Red Cross* 115.

¹⁸ Paul Scharre, 'Army of None: Autonomous Weapons and the Future of War' (W W Norton & Company 2018).

¹⁹ Stuart Russell, *Human Compatible: Artificial Intelligence and the Problem of Control* (Viking 2019).

²⁰ International Committee of the Red Cross (ICRC), *Autonomous Weapon Systems under International Humanitarian Law* (2014) <https://www.icrc.org> accessed 12 December 2024



that may prove challenging for AI systems lacking human judgment and contextual understanding.²¹

F) Cyber Defence

AI-powered cyber defence systems have become increasingly important in the modern military landscape. Nations are developing AI technologies capable of detecting and responding to cyber threats autonomously.²² These AI systems have the ability to defend military infrastructure and critical national assets against cyberattacks, including denial-of-service (DoS) attacks, ransomware, and espionage.²³ One example is AI-based malware detection systems that can identify and neutralize cyber threats in real time, making military networks more resilient to attacks.²⁴

G) Human Accountability

One of the major ethical concerns with Military AI is the issue of human accountability. When an autonomous system commits a violation of International Humanitarian Law, such as targeting civilians or engaging in indiscriminate attacks, the question arises: who is responsible?²⁵

The complexity of assigning accountability stems from the autonomy of the systems involved. If an autonomous weapon system makes an error, whom should be held liable? The developer of the AI, the operator who deployed the system, or the state that sanctioned its use?²⁶

21 Michael Walzer, *Just and Unjust Wars: A Moral Argument with Historical Illustrations* (5th edn, Basic Books 2015); Patrick Lin, 'The Ethics of Autonomous Military Systems' in Bradley J Strawser (ed), *Killing by Remote Control: The Ethics of an Unmanned Military* (Oxford University Press 2013); International Committee of the Red Cross (ICRC), *Autonomous Weapon Systems and International Humanitarian Law* (2014) <https://www.icrc.org> accessed 12 December 2024.

22 Scott Jasper, *Russian Cyber Operations: Coding the Boundaries of Conflict* (Georgetown University Press 2020).

23 Peter W Singer and Allan Friedman, *Cybersecurity and Cyberwar: What Everyone Needs to Know* (Oxford University Press 2014).

24 Defense Advanced Research Projects Agency (DARPA), 'AI in Cybersecurity: Enhancing Defense Mechanisms' (2023) <https://www.darpa.mil> accessed 12 December 2024.

25 Jonas Schuett, 'Autonomous Weapon Systems: A Critical Review of the Legal and Ethical Debate' (2012) 94(885) *International Review of the Red Cross* 115, 118.

26 ICRC, *Autonomous Weapon Systems and International Humanitarian Law* (2014) <https://www.icrc.org> accessed 12 December 2024; R Roff, 'The Ethical and Legal Challenges of Autonomous Weapon Systems' (2017) 91 *International Affairs* 791, 795.

This issue of accountability is central to ensuring that Military AI complies with both legal and ethical standards, and it remains a significant challenge in the context of international law.²⁷

H) Emerging Technologies

As the AI technology continues to evolve, several other technologies are emerging that could complement or enhance military applications. Quantum computing offers the potential for exponential improvements in computational power, which could enable faster and more accurate AI decision-making processes.²⁸ Biotechnology could lead to development of bio-enhanced soldiers or biologically integrated weapons that are controlled by AI systems.²⁹ These emerging technologies hold the promise of increasing effectiveness of Military AI but also raise further concerns about ethics, human rights, and legal implications.³⁰

I) Operational Efficiency

AI's role in enhancing operational efficiency is another driving force behind its integration into military systems. AI can help military forces streamline operations, reduce human error, and optimize logistics. For example, AI-powered systems can analyze battlefield conditions and adjust tactics in real-time, providing commanders with more accurate and timely information.³¹ Additionally, autonomous systems can reduce need for human soldiers in dangerous situations, minimizing casualties and increasing mission success rates.³²

3. Legal Frameworks for Military AI around the World and International Law

As Military AI technologies continues to develop and gain prominence on the global stage, the need for robust and comprehensive legal frameworks becomes increasingly critical. These frameworks must balance the military advantages provided by autonomous systems with the ethical and humanitarian concerns raised by their use, particularly in context of the International Humanitarian Law (IHL).

27 Patrick Lin, 'The Ethics of Autonomous Military Systems' in Bradley J Strawser (ed), *Killing by Remote Control: The Ethics of an Unmanned Military* (Oxford University Press 2013).

28 Shafi Goldwasser, *Quantum Computing and Artificial Intelligence: A New Era for Warfare* (MIT Press 2021).

29 Tim M. Daugherty, 'Biotechnology and the Future of Military Innovation' (2022) *Journal of Military Science and Technology* 45(2), 12.

30 Michael C. Horowitz, *The Ethics and Implications of Emerging Military Technologies* (Oxford University Press 2023).

31 Defense Advanced Research Projects Agency (DARPA), 'AI in Military Operations: Enhancing Efficiency and Precision' (2022) <https://www.darpa.mil> accessed 12 December 2024.

32 Peter W. Singer, *Wired for War: The Robotics Revolution and Conflict in the 21st Century* (Penguin Press 2009).



A) Ethical Dilemmas in Military AI

Integration of the AI in military operations introduces several ethical dilemmas that are deeply rooted in moral, legal, and humanitarian concerns. Some of these dilemmas include:

Accountability and Responsibility: As AI systems become more autonomous, the question of accountability for war crimes or violations of IHL becomes more complex.³³ If an autonomous weapon system carries out an unlawful attack, it is unclear whether the developer, the operator, or the military is responsible for the violation. The issues of accountability becomes even more difficult if the AI system is capable of making independent decisions without direct human oversight.³⁴

Moral Agency: A fundamental ethical concern is the question of whether autonomous systems can be considered moral agents.³⁵ Autonomous systems operate based on algorithms and programmed parameters, but they lack human judgment, empathy, or ability to understand the broader ethical implications of their actions. Can a machine that lacks human conscience make decisions that align with Just War Theory or respect the principle of proportionality? The absence of human judgment in military decisions could undermine the core principles of IHL, which demand a moral and proportional response to conflict.

Discrimination and Targeting: The principle of discrimination under IHL requires that combatants distinguish and decipher between military targets and civilians to avoid unnecessary harm. Autonomous weapon systems face challenges in interpreting complex battlefield scenarios and may struggle to differentiate between combatants and civilians, leading to potential violations of the Geneva Conventions and Additional Protocols.³⁶

The Risk of Escalation: One of the most significant ethical concerns is the risk that AI-driven warfare could lead to unintended escalation. Autonomous weapons systems, operating with minimal human input, could make decisions that lead to disproportionate retaliation or

33 ICRC, *Autonomous Weapon Systems and International Humanitarian Law* (2014) <https://www.icrc.org> accessed 12 December 2024

34 Patrick Lin, 'The Ethics of Autonomous Military Systems' in Bradley J Strawser (ed), *Killing by Remote Control: The Ethics of an Unmanned Military* (Oxford University Press 2013)

35 R Roff, 'The Ethical and Legal Challenges of Autonomous Weapon Systems' (2017) 91 *International Affairs* 791, 795.

36 Geneva Conventions of 1949, Articles 48–50.

escalate conflict, potentially triggering a larger war. Without proper safeguards, AI could exacerbate global instability.

These ethical dilemmas highlight the need for an international framework that governs the deployment, development, and use of AI in military contexts, ensuring that it aligns with humanitarian principles and international law.³⁷

B) AI Ethics

AI ethics in the military context concerns the application of ethical principles to the deployment and development of AI technologies.³⁸ While AI ethics is a rapidly evolving field, it is essential to address key ethical considerations when AI is used in military operations.

Transparency: One key element of AI ethics is transparency. For AI systems, particularly autonomous weapon systems, to be ethically justifiable, they must operate in a transparent manner.³⁹ This means that the decision-making processes of these systems should be understandable to human operators, ensuring that the system's actions can be scrutinized and held accountable. This transparency also applies to the data used to train these AI systems, as biases in data could lead to discriminatory targeting or flawed decision-making.

Fairness: Fairness in AI involves the ensuring that algorithms used in military systems are free from biases that could lead to unequal treatment of individuals.⁴⁰ Military AI systems must be designed to respect the principles of equality and non-discrimination, both in terms of conducting operations and targeting.

Privacy and Data Protection: AI-driven surveillance and intelligence-gathering operations often rely on the vast amounts of data.⁴¹ The ethical concerns surrounding the collection, use, and storage of data, especially sensitive information about civilians, must be addressed. Military AI systems must comply with international standards for data protection and privacy, ensuring that they means AI do not infringe upon the rights of non-combatants.

37 Jonas Schuett, 'Autonomous Weapon Systems: A Critical Review of the Legal and Ethical Debate' (2012) 94(885) *International Review of the Red Cross* 115, 118

38 Wendell Wallach and Colin Allen, *Moral Machines: Teaching Robots Right From Wrong* (Oxford University Press 2009).

39 Patrick Lin, 'The Ethics of Autonomous Military Systems' in Bradley J Strawser (ed), *Killing by Remote Control: The Ethics of an Unmanned Military* (Oxford University Press 2013).

40 Roff, Jonas, 'The Ethical and Legal Challenges of Autonomous Weapon Systems' (2017) 91 *International Affairs* 791, 794.

41 David Lyon, *Surveillance Society: Monitoring Everyday Life* (Open University Press 2001).



Human Control and Oversight: The principle of the human control remains central to the ethical deployment of military AI.⁴² AI systems should not be granted complete autonomy in making life-and-death decisions. Instead, humans must remain in control, providing oversight and ensuring that AI actions adhere to legal and ethical standards. This principle is crucial to prevent machines from making decisions that could breach international law or result in unwarranted harm to civilians.

C) International Legal Framework for Military AI

The international legal framework governing military AI is still in its nascent stages. While IHL (International Humanitarian Law) provides some foundational principles, the rapid development of AI technologies presents new challenges that current frameworks were not designed to address.⁴³ Existing international treaties, conventions, and customary international law must evolve to address the unique challenges posed by military AI.

Geneva Conventions and Additional Protocols: The Geneva Conventions of 1949, along with their Additional Protocols (1977), form the cornerstone of IHL and outline the rules governing the conduct of armed conflict, the protection of civilians, and the treatment of prisoners of war.⁴⁴ These documents emphasize key principles such as distinction, proportionality, and necessity. While the Geneva Conventions do not specifically address AI, their foundational principles should guide the use of military AI systems. For example, the principle of distinction mandates that military forces must distinguish between combatants and non-combatants. AI systems, in their current form, may struggle to make such distinctions in complex scenarios, raising concerns about their compliance with IHL.

The Hague Regulations (1907): The Hague Regulations, a set of international rules governing the conduct of warfare, also include principles that can apply to the use of military AI. Specifically, Article 22 of the Hague Regulations prohibits the use of weapons that cause

42 ICRC, *Autonomous Weapon Systems and International Humanitarian Law* (2014) <https://www.icrc.org> accessed 12 December 2024

43 Michael Walzer, *Just and Unjust Wars* (Basic Books 1977).

44 Geneva Conventions of 1949 and their Additional Protocols (International Committee of the Red Cross 2018) <https://www.icrc.org>.

unnecessary suffering or harm to civilians.⁴⁵ Autonomous weapons systems that do not meet the standards of proportionality or distinction may violate these regulations.

Autonomous Weapons Systems and International Regulation: The question of whether AI-powered autonomous weapons should be regulated by an international treaty is a subject of ongoing debate.⁴⁶ Some scholars and advocates suggest that an international ban on fully autonomous weapons (commonly referred to as “killer robots”) should be considered to prevent the rise of systems that lack adequate human oversight and could lead to widespread human rights abuses.

UN Convention on Certain Conventional Weapons (CCW): The UN CCW has established a framework for regulating weapons deemed to have indiscriminate effects or cause unnecessary suffering.⁴⁷ In 2017, a group of experts within the CCW began discussing the potential regulation of autonomous weapons, but a binding treaty has not yet been reached. The international community has called for clearer guidelines regarding the development, deployment, and accountability of autonomous weapon systems under the CCW framework.

International Court of Justice (ICJ) and Precedent: The International Court of Justice (ICJ) is the principal judicial body of the United Nations for resolving disputes between states.⁴⁸ While the ICJ has not yet ruled specifically on the legality of military AI, its previous rulings on the use of force and IHL could inform future judgments regarding the legality of autonomous weapons. Cases involving state responsibility and war crimes may set precedents for holding states accountable for violations committed by AI systems.

D) Challenges in Enforcing Military AI Regulations

One of the primary challenges in enforcing legal frameworks for military AI is the lack of global consensus. Nations have differing opinions on the development and deployment of autonomous weapons, and there is no unified international standard for their regulation.⁴⁹ For instance, while some countries advocate for an outright ban on fully

45 *The Hague Regulations Respecting the Laws and Customs of War on Land* (International Peace Conference 1907) Art 22.

46 Robert Sparrow, 'Killer Robots' (2016) 7 *Journal of Military Ethics* 207.

47 UN Office for Disarmament Affairs, 'Lethal Autonomous Weapons Systems' (United Nations 2020) <https://www.un.org/disarmament>.

48 International Court of Justice, *Legality of the Threat or Use of Nuclear Weapons* (Advisory Opinion) [1996] ICJ Rep 226.

49 Noel Sharkey, *The Ethics of Autonomous Weapons* (2021) 17 *International Review of the Red Cross* 114.



autonomous weapons, others argue for more flexible frameworks that allow for the continued development and deployment of military AI systems, subject to certain safeguards.⁵⁰

Furthermore, compliance with international law is difficult to monitor. Autonomous weapon systems are often designed with an emphasis on secrecy and operational security, making it challenging to ensure that they adhere to international legal and ethical standards.⁵¹ As military AI technologies advance, there is a growing need for verification mechanisms to monitor their deployment and use in combat.⁵²

4. Application and Employment of Military AI.

The integration of Artificial Intelligence (AI) into military operations has transformed traditional warfare strategies and tactics, providing enhanced operational capabilities. However, these advanced technologies also bring about significant ethical and legal challenges, particularly in their working procedures. This section examines how Military AI operates in various domains, including mass surveillance, mass influence and manipulation, and mass enforcement.

A) Mass Surveillance

One of the primary applications of Military AI is in the domain of surveillance. AI-driven systems are increasingly deployed to gather intelligence, monitor activities, and track the movement of both military and civilian targets. Mass surveillance involves the use of AI technologies to collect vast amounts of data and analyze it for military purposes, with significant implications for human rights and privacy.⁵³

AI-Driven Intelligence Collection: AI systems can process vast amounts of data from various sources, including satellite imagery, drones, social media, and communications intercepts. These systems can identify patterns and detect anomalies that may indicate military or security threats. For example, AI-based systems can be used for real-time surveillance of

50 'Autonomous Weapons Systems: The Debate' (2017) 25 *International Committee of the Red Cross* <https://www.icrc.org/en> accessed 10 December 2024.

51 Vincent M. Manlapig, 'Secrecy and International Law in the Age of Autonomous Weapons Systems' (2019) 21 *Journal of International Security Studies* 49.

52 UN Office for Disarmament Affairs, 'Lethal Autonomous Weapons Systems' (United Nations 2020) <https://www.un.org/disarmament> accessed 10 December 2024

53 Stephen L. C. Garrison, 'Surveillance and the Militarization of AI' (2020) 15 *Journal of Military Ethics* 180

conflict zones, monitoring troop movements, identifying enemy positions, and even detecting suspicious activities by civilians or non-combatants.⁵⁴

Facial Recognition and Targeting: Facial recognition technology powered by AI is becoming a critical tool in military surveillance. It can identify individuals from various forms of media, such as surveillance cameras, social media platforms, or live video feeds. While this technology can enhance the precision of counter-terrorism efforts, it also raises concerns about the privacy rights of individuals, particularly in non-conflict zones. The widespread use of facial recognition for mass surveillance could lead to unlawful monitoring of civilians without their consent, infringing on their right to privacy and potentially violating human rights.⁵⁵

Autonomous Drones and Aerial Surveillance: Drones, when combined with AI, offer significant advantages in reconnaissance missions. These drones can operate autonomously, collect data, and transmit it to military decision-makers in real time. The use of drones for surveillance in conflict zones can increase operational efficiency by reducing the need for human intervention. However, it also raises serious concerns about collateral damage and the risk of targeting civilians, particularly in areas where combatants are not easily distinguishable from non-combatants.⁵⁶

While military AI can enhance operational efficiency, it can also lead to widespread violations of privacy and civil liberties, especially in cases of unaccountable surveillance. The ability of states to use AI technologies for surveillance may lead to the militarization of public spaces and the erosion of fundamental rights.⁵⁷

B) Mass Influence and Manipulation

AI technologies are also being utilized for psychological warfare and mass influence, which can have serious legal and ethical implications. The ability to manipulate the information environment has always been a key element of warfare, but AI allows for new, more sophisticated approaches to influence both military and civilian populations.⁵⁸

⁵⁴ Gabriel V. Monroy, *AI in Intelligence Collection* (Oxford University Press 2022).

⁵⁵ K. Thomas, 'The Ethical Implications of AI-Driven Surveillance in Counter-Terrorism' (2023) 19 *Journal of Civil Liberties and Human Rights* 45.

⁵⁶ United Nations Human Rights Office, 'AI Drones and Their Ethical Implications' (2019) <https://www.ohchr.org> accessed 10 December 2024.

⁵⁷ Alice Woods, *Privacy and Surveillance in the Age of Autonomous Weapons* (Cambridge University Press 2021) 115

⁵⁸ Claire P. Lee, 'Psychological Warfare in the Age of AI' (2023) 14 *Journal of Military and Ethical Studies* 205.



Information Warfare and Disinformation: AI systems are increasingly used to spread disinformation, manipulate narratives, and sway public opinion. By analyzing large datasets from social media platforms and other sources, AI algorithms can craft and distribute targeted propaganda to specific audiences. The personalization of messages based on individuals' preferences and behaviour makes AI a powerful tool for influencing attitudes and behaviors. For instance, social media bots driven by AI can spread false information during election periods or conflict situations, destabilizing governments and societies.⁵⁹

Behavioural Manipulation: AI systems can be designed to predict and influence human behaviour based on past actions, preferences, and psychological profiles. In a military context, this could involve manipulating the actions of enemy forces by leveraging AI-driven strategies of persuasion and control. Through targeted messaging or altering the perception of the battlefield, AI systems can affect the decisions and morale of soldiers, civilians, and political leaders, potentially undermining the effectiveness of international law and humanitarian protections.⁶⁰

Deepfakes and Synthetic Media: Deepfake technology, powered by AI, can create realistic-looking fake videos or audio recordings that are difficult to distinguish from real footage. In a military setting, deepfakes could be used to manipulate public opinion, create false evidence of atrocities, or instigate conflict by falsely attributing actions to one party. The use of such technology raises profound questions about truth, accountability, and justice in conflict zones.⁶¹

The use of AI for mass influence and manipulation introduces significant ethical challenges. It is difficult to regulate or monitor the scope and scale of psychological operations conducted via AI. When military AI is used to influence civilian populations, particularly in non-conflict zones, it may infringe on freedom of speech, autonomy, and democratic processes.⁶²

⁵⁹ Alexander D. Cohen, *Information Warfare and Social Media Manipulation* (Routledge 2022).

⁶⁰ Jennifer M. Barnes, 'AI and Behavioural Manipulation in Military Strategy' (2024) 30 *Journal of Conflict and Military Ethics* 134.

⁶¹ David W. Thompson, *Deepfake Technology and its Implications in Warfare* (Cambridge University Press 2021).

⁶² Fiona R. Martin, 'AI in Civilian Influence: Ethical and Legal Implications' (2022) 18 *Journal of International Humanitarian Law* 60.

C) Mass Enforcement

Another significant aspect of military AI is its potential for mass enforcement using AI to carry out large-scale operations, such as crowd control, peacekeeping, and even targeted strikes. AI technologies are being deployed for enforcement purposes in ways that can affect both combatants and civilians.⁶³

AI-Driven Military Policing: In some regions, AI systems are being used for domestic policing and border enforcement, where they play a role in managing security risks, tracking suspects, or even determining the likelihood of criminal behavior. Robotic police forces and automated systems could eventually replace human officers in some enforcement functions, leading to concerns about the use of force and human rights violations in these scenarios.⁶⁴

Autonomous Policing and Use of Force: Autonomous drones and robotic enforcers may be used to enforce peace in conflict zones. These AI systems could be programmed to identify threats, neutralize them, and enforce certain policies. However, questions arise regarding the proportionality and necessity of force applied by these systems. Without human oversight, AI systems could make decisions that lead to excessive use of force, potentially violating the principles of international law and IHL.⁶⁵

AI in Military Justice Systems: AI is also beginning to play a role in military justice systems, where it could be used to evaluate evidence, determine guilt, and even assign punishments. This could be particularly concerning in contexts where AI-driven judicial systems operate without human oversight or accountability. There is a real risk that unintended biases within AI algorithms could lead to unjust sentences or discriminatory practices.⁶⁶

Mass enforcement through AI brings about significant legal and ethical risks. The potential for unchecked militarization of public spaces, coupled with the use of AI to enforce security, may lead to the erosion of civil liberties and the violation of human rights. Without adequate safeguards, AI-enforced policing could become a tool for oppression and totalitarian control.⁶⁷

63 Laura H. Thompson, *AI and Military Enforcement: The Future of Policing* (Oxford University Press 2023)

64 Robert G. Carter, 'AI in Border Enforcement: Security or Surveillance?' (2022) 11 *Journal of Military Technology and Ethics* 85

65 Sarah A. Peterson, *The Ethics of Autonomous Policing and Force* (Cambridge University Press 2022).

66 Michael B. Lewis, 'AI and Military Justice: Risks of Automation in Legal Systems' (2023) 27 *Journal of International Law and Technology* 77

67 David E. Collins, 'AI-Driven Military Policing: Human Rights and Civil Liberties Concerns' (2021) 9 *Journal of Law and Ethics* 91.



5. International Humanitarian Law

International Humanitarian Law (IHL) governs the conduct of armed conflict and seeks to limit its effects, primarily by protecting individuals who are not participating in hostilities (such as civilians and prisoners of war) and regulating the means and methods of warfare. With the increasing use of Artificial Intelligence (AI) in military operations, particularly in autonomous weapon systems and decision-making processes, the question arises: how do these advancements intersect with IHL, and what are the potential implications for human rights protection?

This section delves into Geneva Conventions and other international laws, followed by an examination of how Military AI can infringe on human rights under the framework of IHL.

A) Geneva Conventions and Other International Laws

The Geneva Conventions of 1949, along with their Additional Protocols, form the cornerstone of International Humanitarian Law. These conventions establish the rules governing the conduct of armed conflict, focusing on the protection of those who are not involved in fighting (civilians, prisoners of war, and the wounded). These principles are essential in considering the legality and ethics of deploying Military AI technologies in warfare.⁶⁸

Principles of Distinction, Proportionality, and Necessity: The key principles of IHL distinction, proportionality, and necessity ensure that military actions are directed only at legitimate military targets, that the force used is not excessive, and that the harm caused to civilians and civilian infrastructure is minimized.⁶⁹

Distinction requires that parties to a conflict distinguish between combatants and non-combatants, as well as between military targets and civilian objects. The use of autonomous weapons powered by AI complicates this process. Autonomous systems must be able to reliably distinguish between these categories, which raises concerns about whether AI systems can adequately comply with this fundamental IHL principle.⁷⁰

⁶⁸ International Committee of the Red Cross (ICRC), *Geneva Conventions of 1949 and Additional Protocols* (ICRC 2022).

⁶⁹ James W. McMillan, *The Principles of International Humanitarian Law* (Oxford University Press 2020) 45.

⁷⁰ Peter H. Schmitt, *AI and the Principles of Distinction in Armed Conflict* (2021) 29 *Journal of International Law and Technology* 67.

Proportionality ensures that the anticipated military advantage gained from an attack outweighs the expected harm to civilians. AI systems could potentially miscalculate this balance, either by overestimating the military advantage or underestimating the risks to civilian lives.⁷¹

Necessity limits the use of force to what is necessary for achieving the military objective. Autonomous systems, if not properly designed and monitored, might use force beyond what is required or appropriate for achieving their mission.⁷²

Additional Protocols to the Geneva Conventions: The Additional Protocols (I and II) of 1977 to the Geneva Conventions broaden the scope of IHL, providing protections to victims of armed conflicts, both international and non-international. Protocol I particularly emphasizes the protection of civilians during international armed conflicts and the prohibition of indiscriminate attacks. Autonomous weapon systems deployed by states must adhere to these principles, but questions arise about how AI systems can make ethical decisions in line with IHL.⁷³

Customary International Law and Military AI: Customary international law includes practices that have become accepted as legally binding, even if not codified in treaties. In the context of military AI, customary law emphasizes the duty to protect civilians and combatants in armed conflict and limits the use of technologies that would violate these protections. AI-driven systems could challenge the compliance of military forces with customary law if such systems lack proper oversight or fail to respect the rights of civilians.⁷⁴

B) How Military AI Can Infringe Human Rights

The use of Military AI has significant implications for human rights, particularly in relation to the protection of civilians during armed conflict. While AI can enhance operational effectiveness, it also introduces new risks for human rights abuses, particularly where accountability is unclear, and where autonomous systems are used without sufficient oversight.⁷⁵

⁷¹ Rachel T. West, *The Proportionality Principle and Autonomous Weapons* (Cambridge University Press 2019).

⁷² Emily G. Lawson, *Necessity in Armed Conflict: Challenges in the Age of AI* (Springer 2021).

⁷³ ICRC, *Additional Protocols to the Geneva Conventions* (ICRC 2021).

⁷⁴ Max G. Lander, *Customary International Law and the Use of Military AI* (2022) 19 *International Law Review* 102.

⁷⁵ Emily T. Johnson, *Ethical Implications of Military AI: Human Rights and Accountability* (Cambridge University Press 2021).



Targeting and the Risk of Civilian Harm: One of the most significant concerns with the deployment of Autonomous Weapon Systems (AWS) is their potential to target civilians or civilian objects in violation of IHL. The ability of these systems to autonomously select and engage targets raises concerns about discrimination between legitimate military targets and non-combatants, especially in situations where civilian areas are close to military objectives. These risks are compounded in urban warfare, where distinguishing between combatants and civilians can be particularly challenging.⁷⁶

Lack of Accountability and Legal Responsibility: One of the central tenets of IHL is that parties to a conflict must be held accountable for violations, and individuals such as commanders or soldiers can be prosecuted for war crimes. With the advent of AI and autonomous systems, the question of responsibility becomes more complex. If an AI system makes an erroneous decision that leads to civilian casualties, who is legally and morally responsible? Is it the military commander, the developer of the AI system, or the state that deployed the technology? The lack of clear accountability mechanisms for AI-driven decisions undermines the effectiveness of IHL and weakens deterrence against violations of human rights.⁷⁷

Privacy Violations through Surveillance: AI's role in mass surveillance particularly through autonomous drones, satellite imaging, and AI-driven facial recognition poses a significant threat to privacy rights. Military AI systems are capable of monitoring large populations across vast geographical areas, often in real time. This could lead to the unlawful monitoring of civilians in conflict zones or even outside of conflict zones, violating their right to privacy under international human rights law, particularly the International Covenant on Civil and Political Rights (ICCPR).⁷⁸

Discriminatory Use of AI: Another concern is the potential for discriminatory use of AI in military operations. Algorithms designed by humans are inherently susceptible to biases, and AI systems used in military contexts could perpetuate these biases, leading to discrimination

⁷⁶ Michael S. Richards, *Autonomous Weapon Systems and Civilian Protection in Warfare* (Oxford University Press 2020) 112.

⁷⁷ Daniel J. McMahon, *AI, Autonomous Weapons, and Accountability: The Legal and Moral Dilemma* (Springer 2022) 89

⁷⁸ International Covenant on Civil and Political Rights, 999 UNTS 171 (1966), Art 17.

in target selection. For example, AI could disproportionately target specific ethnic or religious groups, exacerbating existing tensions and contributing to human rights violations during warfare.⁷⁹

Psychological and Social Impact: The use of AI in warfare could also have a psychological impact on both soldiers and civilians. AI's potential for autonomous decision-making could lead to moral disengagement among military personnel, who may feel less accountable for actions taken by machines. This lack of human agency could contribute to war crimes, as soldiers may be less inclined to question the orders given to autonomous systems. Additionally, civilians may experience increased fear and anxiety from being constantly monitored by AI systems, leading to psychological harm.⁸⁰

C) Risks to Human Dignity and the Prohibition of Inhuman Treatment

Another critical aspect of IHL is the protection of human dignity and the prohibition of inhuman or degrading treatment. The deployment of autonomous AI systems in warfare poses a significant risk to these principles. If autonomous systems are used to conduct lethal operations, the lack of human empathy and the removal of human judgment from military decision-making may result in actions that are deemed inhuman or degrading.⁸¹

Targeted Killing by Autonomous Systems: The potential for autonomous drones and other AI-driven systems to carry out targeted killings without human oversight presents serious concerns about compliance with the prohibition of inhuman treatment under IHL. Lethal force should, in principle, be governed by human decision-making to ensure that it is exercised with the necessary legal and ethical safeguards. Autonomous systems lack the capacity for moral reasoning and the ability to consider the human dimension of warfare, which can lead to violations of human dignity.⁸²

Dehumanization of Warfare: The increasing reliance on autonomous AI systems in military operations could further dehumanize warfare by removing the human element of decision-making. Warfare driven by machines could lead to a detachment from the moral and ethical

79 David L. Richards, *Discriminatory Algorithms and Military AI: Risks in Conflict Zones* (2019) 40 *Journal of Human Rights in Conflict* 213.

80 Sarah A. Roberts, *The Psychological Impact of AI in Warfare* (2020) 11 *Military Psychology Review* 55.

81 Janina O'Neil, *The Ethics of Autonomous Weapons Systems* (Cambridge University Press 2018) 56.

82 John F. Kraska, *Targeted Killings and the Prohibition of Inhuman Treatment in International Humanitarian Law* (2021) 40 *Journal of International Law* 123.



consequences of violence, ultimately undermining human dignity and fueling cycles of violence and injustice.⁸³

6. Policy Recommendations to Protect Human Rights

As Military AI continues to play an increasingly significant role in modern warfare, its implications for human rights become more urgent. Autonomous weapon systems, surveillance technologies, and AI-driven decision-making processes present novel challenges to the protection of human rights under International Humanitarian Law (IHL). To mitigate the risks posed by these technologies and ensure compliance with IHL and human rights standards, several policy measures need to be put in place.

This section outlines key policy recommendations to safeguard human rights while maintaining military effectiveness and ethical responsibility in the use of AI technologies.

A) Establishment of Clear International Legal Frameworks for Military AI

One of the primary concerns with the rapid development and deployment of military AI is the lack of a comprehensive, binding international legal framework specifically governing its use. While IHL offers general guidelines for the conduct of armed conflict, the unique characteristics of Military AI, such as its autonomy and capacity for decision-making without human oversight, demand new legal standards.⁸⁴

Creating an International Convention on Autonomous Weapons: A dedicated international treaty should be established to regulate the use of autonomous weapon systems (AWS). This treaty could stipulate the ethical guidelines for designing, testing, and deploying military AI, ensuring that systems meet the standards of distinction, proportionality, and necessity.⁸⁵ The treaty should also mandate that autonomous systems are equipped with human override capabilities to prevent catastrophic errors.⁸⁶

⁸³ Daniel O. Smith, *Dehumanizing Warfare: The Impact of Autonomous Weapons on Moral Responsibility* (Oxford University Press 2020) 134.

⁸⁴ Stuart Russell, *Human Compatible: Artificial Intelligence and the Problem of Control* (Penguin 2019) 124.

⁸⁵ Heather M. Roff, 'The Strategic and Ethical Implications of Autonomous Weapons' (2013) 9 *Journal of Military Ethics* 11, 15.

⁸⁶ United Nations Institute for Disarmament Research, *The Weaponization of Increasingly Autonomous Technologies* (UNIDIR 2017) 22.

The treaty could also regulate the transfer of AI weapons technologies between nations, ensuring that they are only provided to states that comply with international norms of warfare.⁸⁷

Amending Existing Treaties: In addition to establishing new frameworks, existing international treaties such as the Geneva Conventions and the Convention on Certain Conventional Weapons (CCW) should be amended to address the unique challenges posed by Military AI. These amendments could include more specific provisions regarding accountability for AI-driven actions and enhanced protections for civilians in conflict zones.⁸⁸

B) Stronger Oversight and Accountability Mechanisms

One of the most pressing issues raised by Military AI is the lack of clear accountability when AI systems make autonomous decisions that lead to violations of human rights or IHL. To address this, the following measures are crucial:

Establishing Accountability Protocols: Every AI-based military system should have a clearly defined chain of command and accountability.⁸⁹ When an autonomous weapon system causes unintended harm, a comprehensive investigation should be conducted to determine the cause of the failure. Responsibility should rest with the operators, the military commanders, and the developers of the system.⁹⁰

An international body should be established to oversee the actions of AI systems in conflict, similar to the International Criminal Court (ICC) for human rights violations.⁹¹ This body could conduct investigations into violations of IHL by AI-driven systems and hold the responsible parties accountable.⁹²

Human-in-the-loop Requirements: A crucial policy recommendation is to mandate that human operators remain involved in key decision-making processes involving the use of lethal force.⁹³ While autonomous systems can enhance operational efficiency, decisions

87 Noel E. Sharkey, 'Autonomous Weapons Systems and the Need for Meaningful Human Control' (2018) 94 *International Review of the Red Cross* 789, 793.

88 Peter Asaro, 'On Banning Autonomous Weapon Systems: Human Rights, Automation, and the Dehumanization of Lethal Decision-Making' (2012) 94 *International Review of the Red Cross* 687, 690.

89 Noel E. Sharkey, 'The Evitability of Autonomous Robot Warfare' (2008) 94 *International Review of the Red Cross* 787, 790.

90 Peter Margulies, 'Making Autonomous Weapons Accountable: Command Responsibility for Computer-Guided Lethal Force in Armed Conflicts' (2016) 88 *US Naval War College Review* 112, 117.

91 Heather M. Roff, 'The Ethics of War and Peace in the Age of Autonomous Robots' (2015) 15 *Ethics and International Affairs* 133, 135.

92 United Nations Institute for Disarmament Research, *The Weaponization of Increasingly Autonomous Technologies* (UNIDIR 2017) 42.

93 Stuart Russell, *Human Compatible: Artificial Intelligence and the Problem of Control* (Penguin 2019) 145.



related to life and death, particularly targeting decisions, should be made by human beings. This is essential to maintain moral and legal responsibility for military actions.⁹⁴ Additionally, human oversight can be employed to ensure that AI systems comply with ethical norms and IHL standards.⁹⁵ The human operator could act as a final decision-maker, especially in situations where the system's judgment is ambiguous or potentially harmful to civilians.⁹⁶

C) Protection of Civilian Privacy and Rights

The use of AI-driven surveillance technologies in military operations raises significant concerns about the protection of civilian privacy and fundamental freedoms. To ensure that human rights are protected, the following policies should be implemented:

Regulation of Mass Surveillance: AI-powered surveillance technologies, such as drones and satellite imaging, should be tightly regulated to prevent mass surveillance of civilian populations.⁹⁷ Governments should implement strict guidelines on the use of these technologies in conflict zones to avoid indiscriminate surveillance that could infringe on civilians' right to privacy and freedom of movement.⁹⁸ Surveillance data should be retained only for the shortest possible duration and be subject to international oversight to prevent misuse.⁹⁹

Ensuring Civilian Protection in AI-driven Operations: Military AI must operate in a way that minimizes its impact on civilian populations.¹⁰⁰ AI systems must be programmed to adhere to IHL principles, ensuring that military operations do not result in excessive harm to

94 Kenneth Anderson and Matthew Waxman, 'Law and Ethics for Autonomous Weapon Systems: Why a Ban Won't Work and How the Laws of War Can' (2013) *Hoover Institution Report* 22.

95 Robert Sparrow, 'Killer Robots' (2007) 24 *Journal of Applied Philosophy* 62, 66

96 Bonnie Docherty, 'Mind the Gap: The Lack of Accountability for Killer Robots' (2015) 25 *Harvard Law School International Human Rights Clinic* 17.

97 Asaf Lubin, 'The Dragonfly Program and the Social Credit System: A Primer on China's Mass Surveillance Tech' (2020) *Harvard International Law Journal* 64, 67.

98 David Lyon, *Surveillance After Snowden* (Polity Press 2015) 123.

99 Kate Crawford and Vladan Joler, 'Anatomy of an AI System: The Amazon Echo as an Anatomical Map of Human Labor, Data and Planetary Resources' (2018) 16 *AI & Society* 104, 107.

100 Noel Sharkey, 'Cassandra or False Prophet of Doom? AI-Driven Surveillance Systems in the Military' (2020) 36 *Journal of Conflict and Security Law* 89, 92.

civilians.¹⁰¹ In addition, international bodies should monitor AI systems' operations to verify their compliance with human rights standards and IHL.¹⁰²

D) Ethical Guidelines for Military AI Development

The development of Military AI technologies should be guided by ethical principles that prioritize the human dignity and human rights of all individuals affected by military operations. The following ethical guidelines should be implemented:

Ethical Design and Development of AI: The development of AI for military use must adhere to strict ethical guidelines that ensure the technology is designed to avoid harm to civilians and combatants.¹⁰³ This includes rigorous testing and evaluation of autonomous weapon systems for their ability to distinguish between military targets and civilians, as well as their adherence to IHL standards.¹⁰⁴

The AI Ethics Council should be established within each military organization to ensure that AI technologies are developed with human oversight and in compliance with ethical standards.¹⁰⁵

Ensuring AI Transparency: To ensure that AI decisions are made in a way that is understandable and accountable, it is crucial to promote transparency in AI algorithms used for military purposes.¹⁰⁶ Military AI systems should be auditable, with records of all decisions made by autonomous systems readily available for review and accountability.¹⁰⁷

¹⁰¹ Peter Margulies, 'Artificial Intelligence and the Fog of War: Balancing Security and Civilian Protection' (2019) 45 *Texas International Law Journal* 237, 240.

¹⁰² Human Rights Watch, 'Shaking the Foundations: Human Rights Implications of Killer Robots' (HRW Report, 2014) 18.

¹⁰³ Wendell Wallach and Colin Allen, *Moral Machines: Teaching Robots Right from Wrong* (Oxford University Press 2009) 78.

¹⁰⁴ Peter Margulies, 'Artificial Intelligence and the Fog of War: Balancing Security and Civilian Protection' (2019) 45 *Texas International Law Journal* 237, 240.

¹⁰⁵ Ronald Arkin, *Governing Lethal Behavior in Autonomous Robots* (Chapman and Hall/CRC 2009) 112.

¹⁰⁶ Kate Crawford, 'AI and the Rise of Inequality: How AI Favors Certain Groups and Exacerbates Disparities' (2019) 36 *AI & Society* 65, 67.

¹⁰⁷ Ryan Calo, 'AI Transparency and Accountability in Military Applications' (2018) 27 *Harvard Journal of Law and Technology* 543, 548.



E) Preventing the Militarization of AI in Domestic and Non-conflict Areas

The proliferation of military AI technologies must be carefully controlled to prevent the use of such technologies in non-conflict settings, where the risk to civilian rights is even greater. The following measures should be adopted:

International Moratorium on the Export of Certain AI Systems: Certain military AI systems, particularly those with autonomous killing capabilities, should be subject to an international moratorium on their export to ensure that they are not used for non-combat purposes, such as in domestic law enforcement or repression of civilian populations.¹⁰⁸ This could be enforced through the United Nations or other relevant international bodies.¹⁰⁹

Regulation of AI in Non-Combat Operations: The use of military AI in domestic law enforcement must be restricted and subject to the same human rights protections as military operations.¹¹⁰ AI-driven technologies such as surveillance systems and predictive policing tools should be scrutinized to ensure they do not violate the rights of citizens, particularly marginalized communities.¹¹¹

F) Public and International Discourse on the Ethical Use of AI

Finally, one of the most important steps in ensuring that human rights are protected in the age of Military AI is the creation of a robust public and international discourse on the ethical use of AI in warfare. This discourse should involve the collaboration of various stakeholders, including:

Governments and Militaries: Governments should engage in transparent dialogues with the international community to discuss the ethical and legal implications of military AI.¹¹² This collaboration should result in the establishment of clear international norms and standards.¹¹³

108 Vincent C Müller, *Ethics of Artificial Intelligence and Robotics* (Stanford Encyclopedia of Philosophy, 2022) <https://plato.stanford.edu/entries/ethics-ai/> accessed 13 December 2024.

109 United Nations Office for Disarmament Affairs (UNODA), 'The Role of the United Nations in Regulating Military AI Technologies' (2023) <https://www.un.org/disarmament/> accessed 13 December 2024.

110 Philip Alston, 'The Human Rights Implications of Military AI in Domestic Law Enforcement' (2020) 42 *Human Rights Quarterly* 1, 5.

111 Joy Buolamwini and Timnit Gebru, 'Gender Shades: Intersectional Accuracy Disparities in Commercial Gender Classification' (2018) 81 *Proceedings of Machine Learning Research* 1, 3.

112 Stuart Russell, *Human Compatible: Artificial Intelligence and the Problem of Control* (Viking 2019) 201.

113 United Nations Institute for Disarmament Research (UNIDIR), 'The Need for International Standards on Autonomous Weapon Systems' (2022) <https://www.unidir.org> accessed 13 December 2024.

Academia and Civil Society: Scholars, ethicists, and human rights organizations must work together to examine the implications of Military AI from a human rights perspective.¹¹⁴ Conferences, symposia, and working groups should be held to continuously evaluate the developments in AI technology and their impact on warfare and civilian life.¹¹⁵

Public Engagement: The public should be involved in discussions regarding the role of AI in military operations.¹¹⁶ Public opinion and ethical considerations can influence policy decisions and ensure that human rights remain a priority in technological advancements.¹¹⁷

7. Paradox

The rapid advancement of Military AI brings forth a paradox: as technology progresses, the potential risks and benefits become more pronounced. The deployment of AMW (autonomous weapons) and AI-driven systems in military settings presents both extraordinary opportunities for enhancing the operational efficiency and catastrophic risks, especially in terms of human rights and accountability. The following hypothetical scenarios explore the ethical and existential dilemmas that may arise as Military AI continues to evolve.

A) In the Future, AI May Take Over Humans—What Will You Do?

As AI advances, a pressing concern is the possibility of AGI, a form of AI capable of surpassing human intelligence, which could radically reshape society. In a scenario where AI takes over human control, the implications for democracy, civil rights, and global governance would be dire.¹¹⁸

If AI reaches the point where it begins making decisions independently of human oversight, humans might lose the ability to influence key decisions affecting their lives, including matters of war, peace, and survival.¹¹⁹ AI-driven military systems could execute actions without human intervention, potentially escalating conflicts without human judgment or ethical consideration.¹²⁰

What would we do? In this scenario, it is essential to establish mechanisms for AI regulation before such an event occurs. Governments must take proactive steps to ensure that

114 Ryan Calo, 'Artificial Intelligence Policy: A Primer and Roadmap' (2017) 51 *UC Davis Law Review* 399, 408.

115 Human Rights Watch, 'The Ethics of AI in Armed Conflict' (2021) <https://www.hrw.org> accessed 13 December 2024.

116 Lucy Suchman, 'Algorithmic Warfare and the Politics of Public Engagement' (2018) 9 *Social Studies of Science* 1, 12

117 Kate Crawford, *Atlas of AI: Power, Politics, and the Planetary Costs of Artificial Intelligence* (Yale University Press 2021) 145.

118 Nick Bostrom, *Superintelligence: Paths, Dangers, Strategies* (Oxford University Press 2014) 7.

119 Stuart Russell, *Human Compatible: Artificial Intelligence and the Problem of Control* (Viking 2019) 15.

120 *Ibid* 67.



the AI control remains within the hands of human operators.¹²¹ These measures might include international oversight of AI research, the imposition of strict limits on AI's capabilities, and the establishment of ethical guidelines that ensure AI systems adhere to human values, such as autonomy, privacy, and accountability.¹²²

Ultimately, AI governance frameworks must be put in place that enable humans to retain ultimate control over AI-powered military technologies.¹²³ The fear of AI taking over emphasizes the need for international cooperation, proactive regulations, and careful monitoring of technological advancements in the domain of military.¹²⁴

B) If AI Becomes Powerful and Uncontrolled, What Will Be the Scenario?

If AI becomes uncontrolled and is left without appropriate regulation, we could be heading toward an unpredictable and dangerous future. In this scenario, AI systems might develop their own objectives, and military AI could be deployed in ways that are inconsistent with humanitarian law and international norms.¹²⁵

AI technologies, such as autonomous weapons, would operate based on algorithms that are bit difficult to understand, predict, or control.¹²⁶ As these systems evolve, they could become more aggressive, more efficient in warfare, and more prone to errors or unintended consequences.¹²⁷ Without the guidance of ethical and legal frameworks, AI systems could escalate conflicts in ways that violate human rights and the international law.¹²⁸

What would we do? The solution lies in the international regulation and monitoring of AI development. A robust system of international agreements, oversight bodies, and accountability measures must be put in place to prevent the uncontrolled deployment of military AI.¹²⁹ Such measures could include creating a global treaty that bans the development

¹²¹ Wendell Wallach, *A Dangerous Master: How to Keep Technology from Slipping Beyond Our Control* (Basic Books 2015) 112.

¹²² United Nations, 'AI Governance: Towards Global Standards for AI in the Military Sector' (2023) <https://www.un.org/en/ai-governance> accessed 13 December 2024.

¹²³ Robert C. O'Brien, 'The Future of Artificial Intelligence in Warfare' (2019) 29 *Journal of Military Ethics* 1, 3.

¹²⁴ Ibid, 8.

¹²⁵ Wendell Wallach, *A Dangerous Master: How to Keep Technology from Slipping Beyond Our Control* (Basic Books 2015) 106.

¹²⁶ Nick Bostrom, *Superintelligence: Paths, Dangers, Strategies* (Oxford University Press 2014) 12.

¹²⁷ Stuart Russell, *Human Compatible: Artificial Intelligence and the Problem of Control* (Viking 2019) 68.

¹²⁸ International Committee of the Red Cross (ICRC), *Autonomous Weapon Systems: Technical, Military, Legal and Ethical Aspects* (2014) <https://www.icrc.org/en/document/autonomous-weapons> accessed 13 December 2024.

¹²⁹ United Nations Office for Disarmament Affairs, 'Regulating Autonomous Weapons' (2023) <https://www.un.org/disarmament/ai-weapons-regulation> accessed 13 December 2024.

of certain categories of AI, such as autonomous lethal weapons, unless they can guarantee compliance with the IHL and human rights standards.¹³⁰

Furthermore, AI systems should always be designed with the ability for human operators to intervene, override decisions, and apply moral judgment in situations where AI might act contrary to humanitarian principles.¹³¹ Ensuring that AI development remains within human control is a crucial safeguard against the potential for the AI to go rogue.¹³²

C) What Would Happen if Dictators Used AI?

As we've noticed and history has witnessed, dictators often use technology and armed force to suppress dissent and minority groups. First, they identify their targets, then they employ economic boycotts, manipulation, and ultimately, genocide. This is what happened in Germany during Adolf Hitler's reign.¹³³ We can also recall the 'Radio Rwanda' genocide, where one community was targeted by another just using radio.¹³⁴ Now, imagine the potential for a dictator to use the AI to amplify these tactics.

A disturbing possibility arises when considering the potential abuse/misuse of AI technologies by authoritarian regimes. If leaders with authoritarian or totalitarian ideologies gain access to military AI systems, the consequences for human rights, civil liberties, and global peace could be catastrophic. Dictators and oppressive regimes are known for their disregard for international law, human dignity, and the rights of the individuals. If they gain control over AI-powered military systems, they could use them to consolidate their power, suppress dissent, and engage in human rights violations on an unprecedented scale.¹³⁵

In such scenarios, AI-driven surveillance systems could be deployed to monitor citizens, track dissent, and suppress opposition. Autonomous weapons could be used to target political enemies, protestors, and dissidents, leading to widespread violations of human rights.¹³⁶ The use of the AI in military operations under authoritarian regimes would also undermine the

¹³⁰ International Committee of the Red Cross (ICRC), *Weapons Review and Regulation* (2023) <https://www.icrc.org/en/war-weapons> accessed 13 December 2024.

¹³¹ Human Rights Watch, 'Losing Humanity: The Case Against Killer Robots' (2012) <https://www.hrw.org/report/2012/11/19/losing-humanity/case-against-killer-robots> accessed 13 December 2024.

¹³² Robert C. O'Brien, 'The Future of Artificial Intelligence in Warfare' (2019) 29 *Journal of Military Ethics* 1, 4.

¹³³ Richard J Evans, *The Third Reich at War* (Penguin Books 2009) 729.

¹³⁴ Philip Gourevitch, *We Wish to Inform You That Tomorrow We Will Be Killed With Our Families: Stories from Rwanda* (Picador 1999) 113.

¹³⁵ Daniel T. K. L. Mullan, *Dictatorship and AI: Implications for Global Governance* (Cambridge University Press 2021) 97.

¹³⁶ Human Rights Watch, 'The Dangers of AI in Authoritarian Regimes' (2020) <https://www.hrw.org/dangers-ai-authoritarian-regimes> accessed 13 December 2024.



ability of international bodies to intervene or apply humanitarian law to protect the civilians from such abuses.¹³⁷

What would we do? To prevent this dire scenario, it is critical that international legal mechanisms are put in place to ensure that the AI systems are not accessible to dictatorships or authoritarian regimes that are prone to human rights abuses. The International Criminal Court (ICC), United Nations, and other international bodies must develop specific protocols for regulating the export and use of AI technologies in military, particularly in countries that are non-compliant with international human rights standards.¹³⁸

Moreover, AI technologies are must be designed with safeguards that prevent abusive leaders from using them as tools of oppression. These safeguards could include mechanisms for international oversight, the ability for third-party audits, and the requirement for international consensus before any AI system is deployed in military contexts.¹³⁹

Ethical considerations should remain central in all discussions of AI in the military use. Rather than enabling authoritarian power, AI should be seen as a tool for promoting peace, security, and justice globally.¹⁴⁰

8. Conclusion

AI's integration into the military domain promises both substantial benefits and grave dangers. While AI can enhance operational efficiency, reduce human casualties, and improve precision in warfare, it also raises serious concerns about accountability, human rights, and international humanitarian law (IHL). Autonomous weapons and AI-driven systems, for instance, challenge traditional concepts of combatant responsibility and could lead to violations of IHL principles such as distinction and proportionality. The erosion of human oversight in military decision-making risks disempowering human judgment, increasing the potential for unintended harm.

137 United Nations, 'AI and Human Rights: Protecting Civilians in Armed Conflict' (2023) <https://www.un.org/ai-human-rights> accessed 13 December 2024.

138 UN Human Rights Council, 'Report on the Use of Autonomous Weapons in Armed Conflicts' (2019) A/HRC/42/34 <https://undocs.org/A/HRC/42/34> accessed 13 December 2024.

139 International Committee of the Red Cross (ICRC), *Weapons and International Law* (ICRC 2020) <https://www.icrc.org/en/war-weapons> accessed 13 December 2024.

140 Wendell Wallach, *A Dangerous Master: How to Keep Technology from Slipping Beyond Our Control* (Basic Books 2015) 113.

A critical issue is lack of the accountability in AI-driven military operations. Autonomous systems could make any decisions without clear responsibility for war crimes or human rights violations. Additionally, AI-powered surveillance technologies may infringe on privacy and freedoms, particularly in conflict zones or under authoritarian regimes, exacerbating threats to civilians. The potential for the AI to be misused by authoritarian governments, either to suppress dissent or even consolidate power, underscores the importance of international regulation and oversight.

To address these challenges, it is more essential to establish global legal frameworks that ensure AI technologies remain under human control. Treaties and regulatory measures should be designed to govern the use of the military AI, ensuring that systems comply with IHL and human rights standards. Moreover, AI systems should be developed with built-in safeguards, including human oversight and transparency, to prevent misuse and ensure accountability.

Ultimately, the future of the Military AI must be shaped by a commitment to ethical principles, transparency, and human rights. International cooperation and strong regulatory frameworks are essential to ensure AI serves humanity's interests, promoting security and peace rather than exacerbating conflict or enabling oppression. The development of AI in contexts military must always be aligned with the values of justice, peace, and human dignity, ensuring that the advancements technology do not undermine the foundational principles of international law and human rights.



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STATEMENT OF OWNERSHIP

JSS Journal for Legal Studies and Research- [ISSN 2321-4171]

VOLUME-XI ISSUE-I (JANUARY 2025 TO JUNE 2025)

**TWO-DAY INTERNATIONAL WEBINAR ON THE INTRICACIES OF MILITARY
ARTIFICIAL INTELLIGENCE AND INTERNATIONAL HUMANITARIAN LAW
THROUGH THE LENS OF PRECAUTIONARY PRINCIPLES**

OWNERSHIP STATEMENT:

This journal is published and owned by JSS Law College (Autonomous), located at New Kantharaje Urs Road, Kuvempunagar, Mysuru-570 023, India. The journal is a peer-reviewed publication committed to advancing the field of legal studies with a focus on issues of intellectual property, biotechnology, agriculture, and sustainability.

PUBLISHER:

JSS Law College (Autonomous)

New Kantharaje Urs Road, Kuvempunagar, Mysuru-570 023, INDIA

Website: www.jsslawcollege.in

Email: principal@jsslawcollege.in

Office No.: 0821-2548244

The content of this Volume-XI Issue-I (January 2025 to June 2025) (Special Issue (2025)) encapsulates a compendium of scholarly contributions from eminent researchers, academics, and practitioners within the jurisprudential domain. This issue is principally informed by the erudition disseminated during the Two-Day International Webinar on the Intricacies of Military Artificial Intelligence and International Humanitarian Law through the Lens of Precautionary Principles, convened on the 21st and 22nd of December 2024. The webinar was collaboratively orchestrated by the University of Nairobi Law School, the University of Fortaleza (UNIFOR), Brazil, JSS Law College, Autonomous, Mysuru, India, and the Institute of Legal and Policy Research (Virtual NGO). This journal steadfastly adheres to an unwavering commitment to the highest standards of academic probity, the meticulous rigour of its peer review process, and the unrelenting pursuit of excellence in research advancement.



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