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“AI and the Future of Warfare”

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AI and the Future of Warfare

Abstract

This paper examines the transformative impact of artificial intelligence on contemporary and future warfare, focusing on autonomous systems, AI-enabled drones, and decision-support technologies. It analyses how AI is reshaping military strategy, operational speed, and force multiplication, while simultaneously generating complex legal and ethical challenges under international humanitarian law. Drawing on global case studies and India's strategic posture, the paper highlights debates on accountability, proportionality, and meaningful human control in lethal decision-making. It argues that India's cautious, technology-neutral approach seeks to balance strategic necessity with normative restraint, underscoring the need for robust governance frameworks as AI becomes integral to modern conflict.

Introduction

Rapid advances in artificial intelligence (AI) are transforming the conduct of war. Modern conflicts increasingly deploy semi-autonomous systems for surveillance, targeting, and decision support, raising profound strategic, legal, and ethical questions. As one U.S. defence official has observed, "AI will transform the character of warfare" over the next two decades, affecting all domains from cyberspace to space (Vergun, 2020). From autopilots or automated gun-control systems, military AI has entered a new era of autonomy (e.g., autonomous drones and robotics) that demands careful study. This paper examines three key themes: the evolution and current uses of AI in war, the role of AI-driven drones as instruments of autonomous warfare, and the legal and ethical challenges posed by these technologies. It then analyzes India's approach and prospects in this domain. Throughout, the

analysis integrates global developments with India's security concerns and policy positions, drawing on academic research, legal frameworks, think-tank reports, and credible media.

Evolution and Current Uses of AI in Warfare

The integration of AI into military systems has grown sharply in recent years. Early forms of "autonomous" warfare, such as autopilot functions in combat aircraft or automated close-in weapon systems, have existed for decades (Knight, 2023). However, those systems were limited to narrow tasks under well-defined conditions, and not "intelligent" in the sense of learning or adapting. Starting around 2014, major powers began to invest heavily in AI to maintain a competitive edge. In the United States, Pentagon leaders recognized that peer competitors (like China and Russia) were rapidly advancing AI and autonomous capabilities, spurring initiatives to regain technological overmatch (Knight, 2023). As Secretary Shanahan put it, even if the U.S. could not match an adversary soldier-for-soldier, it could prevail through "AI-enabled autonomy" on the battlefield (Vergun, 2020). Today, AI underpins many military functions: it processes sensor data for real-time targeting, fuses intelligence from multiple sources, and aids commanders in planning and logistics.

Other countries echo this trend. Chinese military doctrine calls for "intelligentized warfare" as the future of its armed forces (Bansal & Joshi, 2025), and Russia and Israel likewise emphasize autonomous capabilities. India, too, has signalled that future conflicts will be highly technological. Analysts describe recent border skirmishes as demonstrations of a new era "fought by machines, in the skies, space, and cyberspace, with soldiers as commanders" (Bansal & Joshi, 2025). In all these cases, the main driver is that AI can act faster than humans in processing data and targeting, and it can extend military reach into domains too hazardous or remote for people. These developments suggest a broad "revolution in military affairs" under way, with AI acting as a force multiplier by expanding

surveillance, precision-strike, and decision-making capabilities (Knight, 2023; Vergun, 2020). Yet this evolution is uneven: while the technology base (in civilian AI) has surged, actually deploying reliable autonomous weapons remains complex. Defence establishments continue to experiment with concept vehicles and doctrines (e.g., swarming drones, unmanned ships) and to refine "human-machine teaming" rather than full autonomy. In sum, AI is already embedded across military systems worldwide, heralding major change but also highlighting gaps between promise and practice (Knight, 2023; Vergun, 2020).

AI and Drones as an instrument of autonomous warfare

Unmanned aerial vehicles (UAVs) and robotic drones exemplify how AI is reshaping combat. Today's drones range from simple remotely piloted reconnaissance aircraft to advanced loitering munitions that can autonomously search for targets. In the ongoing war in Ukraine, for instance, "dozens" of home-grown AI-driven systems now allow small attack drones to find and engage targets without human pilots (Hunder, 2024a). A Reuters report describes Ukrainian forces employing AI-augmented drones to fly around Russian electronic jamming, bringing explosive payloads to concealed targets that a human operator could not otherwise reach (Hunder, 2024a). One official notes that algorithms can improve the hit probability of first-person-view (FPV) attack drones from 30–40% to as much as 80% (Hunder, 2024a, 2024b). Likewise, start-up companies in Ukraine are developing "swarm" technology so that dozens of drones can coordinate under AI control: some drones are designated to decoy or jam enemy defences, while others autonomously navigate to strike points (Hunder, 2024a, 2024b). These systems use computer vision and machine-learning flight-planning so that a single operator can, in effect, command a drone group by simply setting goals, rather than micromanaging each vehicle (Hunder, 2024a, 2024b).

Such applications are not limited to Ukraine. Many advanced militaries pursue autonomous drones and munitions. For example, Iran's Shahed drones and Israel's Harop loitering missiles have shown semi-autonomous target-seeking capabilities. India's own "Operation Sindoor" air strikes were reported to be "fronted by intelligent drones", in this case Indian forces using Harop and Hermes loitering munitions that can fly overhead and choose targets autonomously (Bansal & Joshi, 2025). These AI-empowered drones can discriminate between military and civilian objects by pattern recognition, enabling them to strike precise targets with minimal collateral damage (Bansal & Joshi, 2025). On the defensive side, anti-drone systems employ AI to scan skies and intercept hostile UAVs. In one recent India-Pakistan clash, India's DRDO-developed drone-defence grid, using jammers and laser weapons, shot down over 80% of incoming enemy drones, illustrating a new AI-versus-AI contest in the sky (Bansal & Joshi, 2025).

Taken together, these examples show that unmanned systems, guided by AI, are central to modern warfare. Drones reduce risks to soldiers and expand the battlefield to denied areas (deep behind enemy lines or under electronic warfare). They can be rapidly deployed in large numbers (e.g., loitering "kamikaze" drones) at low cost compared to manned aircraft. However, they also raise concerns: a European Parliament research group warns that fully autonomous drones without human oversight could violate international humanitarian law and even lower the threshold for war (Hunder, 2024b). In practice, nearly all current systems retain a human in the loop (e.g., to approve each strike), but the military intent is to push towards higher autonomy, pointing algorithms at targets before soldiers press the trigger. The rapid experimentation in Ukraine and elsewhere underscores how soon AI-guided drones may move from adjunct to frontline combat tools, blurring the line between human-controlled and fully autonomous weapons (Hunder, 2024a, 2024b).

Legal and Ethical Challenges of AI in War

The rise of autonomous weapons triggers grave legal and moral questions under the laws of armed conflict and human rights law. Under international humanitarian law (IHL), any new weapon must comply with the principles of distinction and proportionality, which demand that combatants differentiate between military and civilian targets and avoid excessive collateral harm. Critics argue that current AI systems struggle with these duties. As military ethicist Noel Sharkey observes, AWS (Autonomous Weapon Systems) are likely to "find it very hard" to tell civilians from combatants, a task that often challenges even human soldiers (Etzioni, 2017). Likewise, the principle of proportionality, which requires judgment about whether an attack's expected military gain outweighs civilian harm, involves contextual nuances that AI cannot yet reliably assess. Legal scholars note that "no one" disputes that any AWS must obey the existing Law of Armed Conflict; rather, the key issue is whether new rules or interpretations are needed (Etzioni, 2017). Under Geneva Protocol I (Article 36), states are already obliged to review new weapons for legality before use, but it remains contested whether current algorithms can pass muster.

Accountability is another core concern. IHL's *jus in bello* requires that human beings ultimately bear responsibility for decisions to use lethal force. Ethicist Robert Sparrow points out that an "autonomous" kill machine breaks the chain of accountability: if an AI mistakenly fires on civilians, who is responsible, the software designer, the commander who deployed the system, or the machine itself? In traditional warfare, a clear chain of command leads from soldier to commanding officer to political leaders; with AI, blame is diffuse. Sparrow argues that any weapon making it "impossible to identify responsibility" for unlawful killings would violate the very spirit of IHL (Etzioni, 2017). A notable U.S. review concluded that if an

autonomous weapon cannot trace its actions to accountable human agents, it may fail legal requirements (Etzioni, 2017).

International bodies have begun grappling with these issues. The International Committee of the Red Cross (ICRC) and other NGOs have called for new rules or even bans on certain autonomous arms. The ICRC explicitly recommends that states prohibit "unpredictable" weapons that operate without human control and restrict all others through binding laws (ICRC, 2023). Similarly, human rights organizations emphasize that AWS pose risks not only in wartime but also in peacetime law enforcement; they warn that delegating life-and-death decisions to machines violates basic rights to life, security, and dignity (Human Rights Watch, 2025).

However, many governments caution that existing laws, rather than new treaties, should govern AI weapons. They argue IHL is technology-neutral (it prohibits weapons that in effect cannot discriminate, regardless of AI). For example, Indian diplomats at the UN have emphasized that the key is adherence to IHL obligations, not whether a weapon uses AI. The U.S. Department of Defence, for instance, directs that autonomous weapon systems be designed so that commanders and operators can "exercise appropriate levels of human judgment" before force is used (Department of defence, 2023). This reflects the emerging international concept of "meaningful human control", the idea that a person, not a machine, makes the ultimate decision to kill.

Ethically, concerns extend beyond legality. Critics warn that AI could deskill war, making killing feel impersonal and thus more acceptable, potentially lowering political thresholds for conflict. There are worries about "dehumanizing" warfare and the moral hazards of algorithms that lack empathy or respect for human life. Yet some advocates counter that AI might improve combat ethics by reducing errors: theoretically, a precise

algorithm could avoid civilian zones or abort a strike when a car or ambulance appears, something a fatigued soldier might overlook (Bansal & Joshi, 2025). Other observers propose futuristic concepts like "Mutually Assured AI Misfunction" (MAIM), speculating that advanced AI arms races could deter full-scale war through strategic equilibrium. These arguments remain contested; many analysts caution that AI will never fully replicate human judgment or moral reasoning. In practice, most studies and international forums remain aligned around cautious reform of existing law rather than a complete overhaul. But the debate is far from settled: with so much uncertainty about AI behaviour in warfare, the question of how to ensure ethical use of autonomous systems continues to provoke intense discussion (Human Rights Watch, 2025; ICRC, 2023).

Analysis: India's Position and the Future of AI Warfare

India has begun to articulate its own approach to battlefield AI. At international forums, New Delhi has adopted a careful, technology-neutral stance. In United Nations debates under the Convention on Conventional Weapons, India has emphasized that existing law, especially the Geneva Conventions and their Additional Protocols, already provide the framework to regulate autonomous arms (Bharadwaj & Bhatt, 2024). For instance, India and other states reaffirm that "any use of autonomous weapon systems will be in compliance with international humanitarian law" and that ultimate responsibility lies with humans in the chain of command (Bharadwaj & Bhatt, 2024). India has been reluctant to endorse a pre-emptive ban or rigid new treaty on AWS. In recent multilateral sessions, India voted against a U.N. resolution calling for a new GGE (Group of Governmental Experts) on AWS, arguing that the current group's work on non-binding guiding principles is "sufficient" (Bharadwaj & Bhatt, 2024). Indian officials suggest that declaring or banning an entire class of weapons could be premature and might "stigmatize" technology that can have legitimate uses

(Bharadwaj & Bhatt, 2024). Instead, India has generally supported a U.S.-style approach of developing national policies and voluntary "codes of conduct" rather than a binding global treaty (Bharadwaj & Bhatt, 2024). At the same time, India has backed calls for meaningful human control and warned that IHL must never be violated by new systems. This balanced posture reflects a desire to keep India on the right side of humanitarian norms while preserving its freedom to research and deploy AI-enhanced arms.

Meanwhile, India is also intensifying its own defence AI development. Security analysts note that as neighbouring countries experiment with autonomous weapons, India sees strategic benefits in similar capabilities (Bhattacharjee, 2024). The author Sandeep Bhattacharjee argues that India needs indigenous AI weaponry to safeguard its borders and reduce dependence on foreign arms (Bhattacharjee, 2024). Potential advantages of AI systems, cited by Indian analysts, include better force multiplication, faster intelligence gathering, and more precise targeting with lower casualties (Bhattacharjee, 2024). For example, loitering munitions ("kamikaze drones") can autonomously search for enemy positions and strike them, ideally distinguishing combatants from civilians through advanced imaging (Bansal & Joshi, 2025). India has begun integrating such tools: in recent conflicts, media reports describe the use of AI-driven Harop and Heron drones that "loiter, manoeuvre and choose their targets intelligently" during precision strikes (Bansal & Joshi, 2025). India's armed forces are also adopting other AI-enabled systems, from satellite-guided precision munitions to augmented-reality helmets for infantry that display real-time drone surveillance feeds (Bansal & Joshi, 2025). These capabilities are reinforced by India's space and technology agencies: for instance, high-resolution surveillance satellites (Cartosat, RISAT) and an expanding network of UAVs provide the raw data that military AI systems consume (Bansal & Joshi, 2025).

Looking ahead, India's role in the AI-warfare arena will likely grow. With a large tech-savvy population and a strong defence research base (DRDO, HAL, ISRO, etc.), India is positioned to acquire advanced robotics and AI capabilities over the next decade. Internationally, India is expected to continue advocating a cautious, measured approach: emphasizing human oversight and the humanitarian use of AI while resisting calls for premature bans that could hinder its own security interests (Bharadwaj & Bhatt, 2024; Bhattacharjee, 2024).

Conclusion

In conclusion, AI and autonomy are rapidly changing the landscape of modern warfare. As shown, military forces worldwide are integrating AI into sensors, weapons, and drones to enhance precision, speed, and situational awareness. Autonomous systems, especially AI-guided drones and loitering munitions – have already entered active combat, bringing new tactical advantages but also new risks. These innovations create a host of legal and ethical challenges: existing laws of armed conflict impose clear standards of distinction and accountability, and experts underscore that any AI weapons must conform to those standards (Etzioni, 2017). Human rights advocates and humanitarian organizations stress that fully self-governing killer machines threaten fundamental protections and call for strict limits or prohibitions (Human Rights Watch, 2025; ICRC, 2023). The international community is currently divided between those who push for formal bans and those who trust existing law and voluntary measures to manage the risks.

India's case illustrates this tension. Indian analysts recognize both the strategic imperative of adopting AI and the need to uphold norms. India's position is that autonomous weapons development should proceed under careful regulation and legal restraint, an approach that seeks to balance technological modernization with ethical responsibility

(Bharadwaj & Bhatt, 2024; Bhattacharjee, 2024). Going forward, India and other states must craft policies that harness AI's potential (for defence and deterrence) while reinforcing "meaningful human control" over life-and-death decisions. Ultimately, the quest for a more "humane" war fought by machines hinges on ensuring that these machines remain tools of human will and judgment, not replacements for conscience and law. As this paper has shown, the future of AI on the battlefield will depend as much on wise governance and international cooperation as on technological innovation.

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