

Ethical and strategic challenges of AI weapons: A call for global action

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1 Impending prophecy

About a decade ago, theoretical physicist Stephen Hawking expressed extreme concern about the development of artificial intelligence (AI), stating that "the development of full artificial intelligence could spell the end of the human race. Concurrently, in 2014, entrepreneur Elon Musk expressed similar cautionary sentiments, suggesting that AI might surpass nuclear weapons in terms of danger. Despite these warnings, the prevailing sentiment at the time was largely skeptical. However, only a few years later, on May 30, 2023, hundreds of artificial intelligence experts and other notable figures issued a 22-word statement^[1] warning against the "risk of extinction."

With the reports of the conflict between Russia and Ukraine, the world has witnessed a new form of warfare, one where AI-powered weapons are used in real wars. Drones possibly guided by artificial intelligence have penetrated over 1000 km into Russian territory, disrupting oil and gas infrastructure^[2]. These weapons can make decisions to cause explosions without human intervention. Therefore, the impact of AI-enabled applications in warfare is a critical topic that needs the most attention and discussion.

2 Third revolution in warfare

AI weapons, also known as autonomous weapons systems, are military technologies that leverage artificial intelligence to perform tasks without direct human intervention. Although data from actual combat scenarios are lacking, the exceptional capabilities of AI in the realms of image recognition and decision-making processes have been instrumental in substantially augmenting the speed, precision, and defensive evasion capabilities. Additionally, even in situations where electronic communication is rendered impossible due to interference, these advanced systems can continue to execute missions^[3]. Renowned AI expert Kai-Fu Lee has characterized this advancement in AI weaponry as the "third revolution in warfare"^[4], succeeding the significant developments of gunpowder and nuclear weapons.

3 Limitation of code

The intelligence of AI weapons is primarily reflected in their ability to make autonomous decisions. However, the autonomy granted to these weapons systems raises deep ethical concerns. The very concept of autonomy, originating from the Greek for "self-law,"

hints at machines making pivotal decisions without human guidance. Despite AI weapons' capability to execute complex computations and decision-making processes, they are still limited by their programming code. It's difficult to make the 'black box' nature of machine learning fully interpretable or to ensure that AI systems perform as expected after deployment^[5]. These systems learn from their environment, and the real world is never as simple as the laboratory. This absence of human moral judgment is troubling and poses risks of tragic errors.

Imagine walking into a brightly lit conference room, the hum of fluorescent lights echoing above, where a group of bright yet possibly misguided engineers are deep in discussion. They're adjusting the dials on sophisticated algorithms that will ultimately determine who lives and who does not. Here we are, confronting the bizarre reality of AI weaponry - machines given the autonomous power to make life-or-death decisions.

4 Arms competition

In 2018, the U.S. Congress created the National Security Commission on Artificial Intelligence (NSCAI), whose recommendations advocate "the integration of AI-enabled technologies into every facet of warfighting." The NSCAI revived some of the Cold War's most disastrous ideas, framing its report in terms of winning a competition for AI-enabled warfare. This quest for technological dominance has prompted nations to channel substantial resources into developing AI-powered weapons. These autonomous systems, capable of independently identifying and neutralizing threats, represent a significant advancement in military capabilities.

The advent of AI-powered weapons could potentially ignite a new arms race, reminiscent of the nuclear rivalry that defined the Cold War era. This worrisome trend might exacerbate international tensions and open the floodgates to a surge of increasingly advanced and potentially dangerous technologies. Due to the rapid iteration characteristic of artificial intelligence, once a breakthrough in key technologies is achieved, it becomes a winner-takes-all situation. Therefore, it is foreseeable that if countries engage in competition in the field of AI weapons, the future development trend will become uncontrollable.

5 Moral and ethical responsibility

Equally concerning is the potential erosion of human agency — an inherent aspect of our identity that depends on our capacity for ethical and moral decision-making. Entrusting significant moral and ethical responsibilities to autonomous systems could irrevocably alter the nature of conflict. On the battlefield, lethal autonomous weapons systems (LAWS) can select and engage targets without human intervention. This raises profound questions about the laws of war and humanitarian principles, touching the core of our humanity. If machines can decide matters of life and death without

Received date: 2024-06-07 Accepted date: 2024-09-10

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human guidance, our understanding and respect for the value of life may be fundamentally challenged.

The ability of AI weapons to operate without human oversight presents significant ethical dilemmas. Philosophical and moral debates revolve around the notion of machines making decisions that have historically been the domain of human judgment. Without the ability to empathize or engage in moral reasoning, the actions taken by AI weaponry could lead to devastating consequences. This threat is real and calls for serious examination and considered regulation. The implications of allowing machines to make life-and-death decisions necessitate a robust framework to ensure that the deployment of such technologies does not undermine the moral fabric of our society.

While discussions have emerged about the possibility of AI being recognized as a legal entity and even as a new “species” within the legal framework^[6], the complexities surrounding AI’s legal status as a commercial entity compared to its role as a responsible party in warfare are profoundly different.

6 Global Cooperation in Regulating AI Weapons

In considering these challenges, it’s evident that simply pondering on these developments won’t suffice. There’s a pressing need for a concerted effort from policy creators, tech innovators, and moral thinkers to come together and craft regulations that guide the responsible cultivation and application of AI. The risks are too significant to ignore the prospect of these tools being misused.

Our path forward should not be dictated by the unpredictable whims of tech progression. By spotlighting moral considerations and advocating for a human-centered approach to the advancement of AI, we stand a chance to harness the benefits of this technology while keeping its potential threats at bay. The inherent dangers that AI weaponry represents call for a unified, decisive action plan. Formulating international agreements, moral codes of conduct, and strict supervisory protocols is imperative to prevent the

misapplication of these powerful tools.

Strengthening global dialogue and cooperation on AI weapons is not merely a practical necessity but a profound philosophical endeavor. By grounding our approach in ethical principles, legal frameworks, collective security, and philosophical reflection on human agency, we can navigate the complex landscape of AI-enabled warfare. The choices we make today will determine whether AI serves as a force for good or a catalyst for conflict. The initial conditions we set for the development and deployment of AI weapons will shape their future trajectory. It is crucial to establish norms, standards, and safeguards at the outset. There are likely to be only a few opportunities to set sensible initial conditions for AI weapons. Let’s shape AI weapons before they shape the world.

Keywords: ethical challenges, strategic challenges, AI weapons, global action

DOI: [10.25165/j.ijabe.20241705.9456](https://doi.org/10.25165/j.ijabe.20241705.9456)

Citation: Bai J W, Mujumdar A S, Xiao H W. Ethical and strategic challenges of AI weapons: A call for global action. *Int J Agric & Biol Eng*, 2024; 17(5): 293–294.

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