
Centre for International
Governance Innovation

CIGI Papers No. 345 – February 2026

Artificial Intelligence, the Future of War and International Politics

Michael C. Horowitz



CIGI Papers No. 345 – February 2026

Artificial Intelligence, the Future of War and International Politics

Michael C. Horowitz

About CIGI

The Centre for International Governance Innovation (CIGI) is an independent, non-partisan think tank whose peer-reviewed research and trusted analysis influence policy makers to innovate. Our global network of multidisciplinary researchers and strategic partnerships provide policy solutions for the digital era with one goal: to improve people's lives everywhere. Headquartered in Waterloo, Canada, CIGI has received support from the Government of Canada, the Government of Ontario and founder Jim Balsillie.

À propos du CIGI

Le Centre pour l'innovation dans la gouvernance internationale (CIGI) est un groupe de réflexion indépendant et non partisan dont les recherches évaluées par des pairs et les analyses fiables incitent les décideurs à innover. Grâce à son réseau mondial de chercheurs pluridisciplinaires et de partenariats stratégiques, le CIGI offre des solutions politiques adaptées à l'ère numérique dans le seul but d'améliorer la vie des gens du monde entier. Le CIGI, dont le siège se trouve à Waterloo, au Canada, bénéficie du soutien du gouvernement du Canada, du gouvernement de l'Ontario et de son fondateur, Jim Balsillie.

Credits

Research Director, Digitalization, Security & Democracy **Aaron Shull**
Director, Programs **Dianna English**
Senior Program Manager **Jenny Thiel**
Publications Editor **Susan Bubak**
Manager, Publications **Jennifer Goyder**
Graphic Designer **Sepideh Shomali**

Copyright © 2026 by the Centre for International Governance Innovation

The opinions expressed in this publication are those of the author and do not necessarily reflect the views of the Centre for International Governance Innovation or its Board of Directors.

For publications enquiries, please contact publications@cigionline.org.



The text of this work is licensed under CC BY 4.0. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>.

For reuse or distribution, please include this copyright notice. This work may contain content (including but not limited to graphics, charts and photographs) used or reproduced under licence or with permission from third parties. Permission to reproduce this content must be obtained from third parties directly.

Centre for International Governance Innovation and CIGI are registered trademarks.

67 Erb Street West
Waterloo, ON, Canada N2L 6C2
www.cigionline.org

Table of Contents

vi	About the Author
vi	Acronyms and Abbreviations
1	Executive Summary
1	Introduction
2	The Future of War Is Now
4	History Is Inevitable
6	Prospects for International Cooperation
8	Conclusion
9	Works Cited

About the Author

Michael C. Horowitz is Richard Perry Professor and director of Perry World House at the University of Pennsylvania and a senior fellow at the Council on Foreign Relations. He served as deputy assistant secretary of defense for force development and emerging capabilities and director of the Emerging Capabilities Policy Office in the Pentagon. He is the author of *The Diffusion of Military Power: Causes and Consequences for International Politics*, and co-author (with Allan C. Stam and Cali M. Ellis) of *Why Leaders Fight*. He won the Karl Deutsch Award given by the International Studies Association for early career contributions to the fields of international relations and peace research.

His research interests include the intersection of emerging technologies such as artificial intelligence with global politics and military innovation. He is a life member of the Council on Foreign Relations. He received his Ph.D. in government from Harvard University and his B.A. in political science from Emory University.

Acronyms and Abbreviations

AGI	artificial general intelligence
AI	artificial intelligence
AWS	autonomous weapon systems
CBMs	confidence-building measures
FPV	first-person view
GC REAIM	Global Commission on Responsible Artificial Intelligence in the Military Domain
GPT	general-purpose technology
LAWS	lethal autonomous weapon systems
LLMs	large language models
MSS	Maven Smart System
R&D	research and development
REAIM	Responsible Artificial Intelligence in the Military Domain

Executive Summary

Advances in artificial intelligence (AI), mostly driven by the private sector, are creating an even more uncertain tomorrow for militaries. It is companies, not governments, that are developing the bleeding edge of AI capabilities, and the conversation is no longer just about lethal autonomous weapon systems (LAWS), which will be a small fraction of the military uses of AI. Rapidly advancing large language models (LLMs) are of growing interest to every country's military, whether that be China, which is attempting to scale military AI applications quickly, or the United States, which has invested far more in AI experimentation and moved much more slowly on adoption. International cooperation on AI in the military domain is essential, but extremely difficult, given that it is occurring in the shadow of geopolitical competition. The best opportunities for cooperation will be those that decrease the risks of accidents, miscalculation and inadvertent escalation, since those are in the interest of all states. Promising options include creating an autonomous incidents agreement for deployed autonomous systems, an agreement on human control over nuclear weapons, and a UN-based institution to share best practices and lessons learned and build capacity to support the responsible use of AI in the military domain.

Introduction

The character of warfare is changing once again, and the international conversation about military adoption of AI and autonomy must change as well. For more than a decade, the international community, from states to civil society, has focused on the risks posed by LAWS and the possibilities for their regulation or even prohibition (United Nations Office for Disarmament Affairs 2025). That approach began changing with the creation of the Responsible Artificial Intelligence in the Military Domain (REAIM) process in 2023, which considered the use of AI across a wide range of military applications — from logistics to surveillance, decision support and strike — and the launch of the Political Declaration on Responsible Military

Use of Artificial Intelligence and Autonomy (the Political Declaration)¹ at the same time.

The conflict in Ukraine shows every day what analysts speculated about for years prior to the Russia-Ukraine war — the way that one-way attack drones near the front lines, surveillance drones and long-range, inexpensive strike are now responsible for most of the casualties on the battlefield (Santora et al. 2025; Bondar 2025; Filkins 2025; US Department of Defense 2024; Goncharuk 2025). We have entered the age of precise mass, where the intersection of ubiquitous access to precision guidance, advanced commercial manufacturing, and AI and autonomy technology mean that any country around the world — and now many non-state actors — can produce inexpensive, accurate weapons and surveillance capabilities (Horowitz 2024). In particular, the electronic jamming that Russia and Ukraine use to defeat remotely piloted systems, such as first-person view (FPV) drones, very clearly shows the role for autonomous systems in particular. Strike weapons powered by algorithms and not reliant on an easily jammed data link are more effective, especially given the need to keep costs down in a war where each side is producing millions of drones (Boffey 2025; Pultarova 2025; Horowitz, Kahn and Schwartz 2025). And if that is true in the Russia-Ukraine context, imagine the early days of a war between the United States and China, whether over Taiwan or something else (US Department of Defense 2023).²

If that is today's reality, private sector advances in AI are creating even more opportunity, risk and uncertainty for militaries. It is companies, not governments, that are developing the bleeding edge of AI capabilities (Maslej et al. 2025; Plumb and Horowitz 2025). Rapidly advancing LLMs are of growing interest to every military, whether that be China, which is attempting to scale military AI applications quickly, or the United States, which has invested far more in AI experimentation and moved much more slowly on adoption. Tomorrow's AI is not the military-driven technologies of the past but a general-purpose technology (GPT) just as applicable — if not more so — to the commercial sector, and where private sector investments far outpace government dollars.

1 See www.state.gov/bureau-of-arms-control-deterrence-and-stability/political-declaration-on-responsible-military-use-of-artificial-intelligence-and-autonomy.

2 This is particularly true in the context of AI-enabled military systems as a broader category, which includes decision support, longer-range weapons and sensors, and shorter-range drones.

While there will always be military-specific applications and use cases of AI, conceptually, it is much more akin to the combustion engine or electricity than nuclear weapons (Horowitz 2018; Ding 2024; Narayanan and Kapoor 2025).

This is important because many conversations about the potential for international regulation of AI start by comparing AI (considered the most important technology of the day) to nuclear weapons (the single most impactful new military technology in history). But while AI and nuclear weapons may share importance, nuclear technology, even if it is expanded from weapons to include nuclear energy, is far from a GPT. This means efforts to regulate AI as the world regulates nuclear weapons are likely to be much less successful. The nuclear non-proliferation regime relies not just on a shared belief by the international community in the dangers of new countries acquiring nuclear weapons, but also on the hard, physical, immovable constraints on nuclear weapons — plutonium or enriched uranium (Horowitz and Kahn 2025).

If regulating AI in the same way the world regulates nuclear weapons is unlikely to succeed, then what will succeed? Especially in an era of great-power competition, successful international cooperation will require finding common ground that all, or nearly all, states share. A key element of common ground involves the desire of states to avoid accidents, inadvertent escalation and miscalculation. After all, even in the age of AI, states will want to ensure that if they get into violent confrontations, it is their decision.

Given these changes in the character of warfare, ongoing advances in AI and the general-purpose character of AI, what are the prospects for cooperation in the military domain (Puscas 2024; Grand-Clément 2023; United Nations Institute for Disarmament Research Security and Technology Programme 2025)? The three most promising avenues for international cooperation are:

- an autonomous incidents agreement modelled after the successful Incidents at Sea Agreement between the United States and the Soviet Union during the Cold War;
- an agreement affirming a requirement for human judgment and control over key decisions surrounding the potential use of nuclear weapons; and

- an agreement to create a new international institution focused on best practices and rules of the road that complies with applicable international law in ways that create strong norms of responsible behaviour that all militaries around the world can adopt (Shugart 2024; Horowitz and Kahn 2021; Renshaw and Hunnicutt 2024).

The military AI areas most likely to generate agreements, on average, will be those where international cooperation can reduce accidents, inadvertent escalation and miscalculation involving military applications of AI, since these are in the interest of all or nearly all countries. The road map laid out by the *Strategic Guidance Report*, published by the Global Commission on Responsible Artificial Intelligence in the Military Domain (GC REAIM),³ is therefore a promising avenue for cooperation (GC REAIM 2025).⁴

The Future of War Is Now

The battlefields of Ukraine, where millions have been killed or wounded in a brutal war since Russia's invasion in 2022, have become a laboratory for understanding the future of war. Examples include:

- Ukraine's use of one-way attack, uncrewed surface vessels in the Black Sea to drive back Russia's surface fleet;
- Ukraine's initial use of TB2 uncrewed platforms early in the war to attack Russian armour;
- Russia's use of long-range, low-cost Shahed-136 one-way attack systems supplied by Iran — and now produced by Russia — to hit Ukraine's military and cities; and
- the way both Russia and Ukraine increasingly employ FPV one-way attack systems with ever growing levels of AI and autonomy to wreak havoc on the front lines and enforce a bloody stalemate (Kahn 2022; Horowitz, Kahn and Schwartz 2025; Finer and Shimer 2025).

3 See <https://hcss.nl/gcreaim/>.

4 The author was a commissioner.

Individual aspects of the capabilities demonstrated in the war between Russia and Ukraine, or at least precursors to them, showed up in prior conflicts. For example, the 2020 Armenia-Azerbaijan conflict featured unmanned aerial vehicles destroying tanks and other conventional military equipment, and being used as decoys to force adversaries to waste valuable air defence missiles (Keating 2024). The US military even used a rudimentary FPV drone against Japan in the Second World War (Hambling 2024) and, of course, more modern FPVs have dominated commercial and consumer markets for the past 15 years, with a market size valued at US\$30 billion in 2024.⁵

But what happened in Ukraine was that military applications of robotics hypothesized about by scholars and policy makers for years became real, not just in experiments, prototypes or one-offs but also at the speed and scale required for large-scale conventional war. Moreover, given that necessity is the mother of invention, as the conflict has dragged on, both sides have engaged in substantial intra-war innovation, especially in the context of drones for surveillance and strike. Both Russia and Ukraine now produce a million or more drones per year of all types for a variety of purposes (Kirichenko 2025; Reeves 2025).⁶

A critical element of the change in warfare we see in Russia and Ukraine involves not just the use of these capabilities, but also the way they are interacting with electronic warfare to create an impetus for greater uses of AI and autonomy. Electronic warfare in the Russia/Ukraine context mostly involves each side using frequency jamming to disrupt the communications links that one side is using to guide one-way attack drones, GPS-guided weapons or even surveillance drones. Successful jamming that severs the data link between an operator and a system will lead to malfunctions and generally eliminate the system's ability to complete its mission as designed (Pultarova 2025; Bondar 2025). There are several approaches to defeating jamming, from frequency switching, to hardening systems against jamming, to developing concepts of operation that make attacks a greater tactical surprise, among others, so jamming does not occur until it

is too late. Each of these solutions is either time consuming or, in the case of hardening, expensive (Horowitz 2024). This is why Ukrainian units now sometimes turn to physical fibre-optic cables that can spool out over kilometres to connect an operator to the system. But that solution only works over short distances and is vulnerable to other issues — such as cables getting tied up in trees.

If the challenge is that electronic warfare can sever the data link between the operator and the system and lead to system failure, another solution is one that Ukraine and Russia are increasingly turning to — using advances in AI and autonomy to partially or completely eliminate the need for a data link. By training simple algorithms on target data sets and uploading the software into one-way attack systems, both sides can either field systems that can switch to algorithmic operation when jamming occurs or even eliminate the need for direct operator guidance in the first place.

Meanwhile, in the Middle East, Israel's use of AI systems to support decision making early in the kill chain in its war against Hamas in Gaza has come under scrutiny. While public descriptions in the media often seem inaccurate and at odds with available information on the systems themselves, the use of AI to assist with target identification, no matter how far back in the kill chain, raises questions about human responsibility (Filkins 2025). Israel also smuggled one-way attack drones into Iran at the onset of Operation Rising Lion against Iran, using them to help disable the country's air defence systems and missile launchers (Horowitz, Kahn and Schwartz 2025). Iran does not just supply inexpensive, long-range, one-way strike systems to Russia, but it has also used them against Israel. While Israel's work to disable Iran's missile launchers blunted Iran's response, the low cost per shot for Iran's counterattack relative to Israel's cost to defeat each missile raised questions, even in a short war, about whether Israel would run out of missile defence interceptors (Holliday 2025). In April 2024, when Iran launched a volley of one-way attack systems and cruise missiles at Israel, it reportedly cost US\$100 million to launch the strike, whereas Israel, the United States and other allies in the region spent US\$1 billion on interceptors, aircraft and other capabilities to defeat the attack (Macaskill 2024).

What all of this adds up to is that we have entered the era of precise mass in warfare (Horowitz 2024). Precise mass means the use of low-cost (also called “attributable”) systems for

⁵ For more on the growth of the commercial drone market, see Grand View Research (2024).

⁶ On limits of the Ukraine model for the future of war, see Goncharuk (2025).

surveillance and strike, which stands in stark contrast to the American model of war over the last several decades. This model relies on ever smaller numbers of expensive, exquisite systems, from stealth bombers to missiles, that cost US\$1.5–\$3 million per shot (ibid.). Precise mass is not just something for great powers, however.

As most of the examples above make clear, nearly every country can access precise mass capabilities and either cheaply import them or produce them at scale, because these capabilities only require three essential elements: precision guidance, commercial manufacturing, and non-frontier AI and autonomy. Precision guidance technology is now everywhere, from our phones to military equipment, and is decades off, meaning any state or non-state actor around the world can access precision guidance technology on the cheap. Not everyone can access the state of the technology, but that simply is not necessary for many uses of military force. Commercial drone manufacturing has also become a ubiquitous part of public life, and is mainstream in nations such as China, even though Amazon delivery drones are not yet a regular feature of life for Western consumers. The difference between many commercial drones and an FPV one-way attack system is about payload and software, not hardware, meaning commercial manufacturing facilities designed to produce inexpensive, relatively unsophisticated systems can be set up by most nations and even by sophisticated militant groups.

Finally, the types of AI and autonomy needed to maximize the effectiveness of these systems does not require access to substantial compute and the most data-intensive models developed by companies such as OpenAI and Anthropic. As part of Operation Spider Web, a daring effort to smuggle one-way attack drones inside Russia and use them to target Russian nuclear bombers, among other assets, Ukraine used open-source AI piloting software and trained an algorithm to strike Russian nuclear bombers based on images and models at a Cold War-era museum in Ukraine (Horowitz 2025e).

The era of precise mass is important from the perspective of assessing the plausibility of different types of potential international regulations surrounding military adoption of AI and autonomy because it is hard enough to adopt and enforce binding restrictions on specific technologies in the best of times. Now that some of these capabilities have been adopted successfully and at scale by Ukraine as it continues defending itself

from Russia's ongoing invasion, it legitimizes the capabilities that Ukraine uses, illustrating that even if there are concerns about potential misuse of AI, there are also very legitimate uses that the international community supports.

History Is Inevitable

The current era of precise mass shows what is possible at speed and at scale using available technologies. Advances in AI are seemingly happening on a weekly basis, as companies mostly, but not exclusively, based in the United States and China race ahead on the AI frontier toward the theoretical promised land of artificial general intelligence (AGI). Even if some of the advances in AI are overhyped, or the search for ever greater amounts of compute to train new foundation models does not lead to an enormous new conceptual breakthrough, AI applications are transforming ever larger sections of the global economy, from jobs to how people interact with each other and the world. Militaries are no exception.

Militaries around the world are investing in AI use cases from human resources to logistics to surveillance and strike. Even though most of the investments in the West still involve research and development (R&D) and experiments, rather than the acquisition of capabilities for fielding, these investments have a sense of inevitability.⁷ The prospect for algorithms to identify patterns, ease paperwork burdens, assist humans with targeting and provide more durable guidance than the precision-guided weapons of the last generation, make AI attractive for many militaries — not just great powers. Smaller and middle powers, in fact, see enormous opportunities from AI, particularly wealthy countries with greater capital than access to labour, for whom AI could be a game changer in its ability to generate capabilities (Raska and Bitzinger 2023; Sweijs, van Genugten and Osinga 2025).

There are enormous fears about the way that AI decision support tools, especially those involved

⁷ For example, contracts announced by the US Department of Defense's Chief Digital and Artificial Intelligence Office potentially add up to US\$800 million in funds for AI capabilities, but it is all for R&D (Freedberg 2025).

in the targeting process, could make accidents and mistakes more likely, undermining military effectiveness and making compliance with international humanitarian law more difficult (Dorsey 2025). Successful use of AI decision support requires effective human-machine teaming, meaning human operators who receive information from an AI system are trained in the system, its limits and the best contexts for its use, while having standard operating procedures that create a pathway to accountability and responsibility. The principal risks involve variants of automation bias, where humans are overconfident in AI systems relative to their actual performance (for example, treating input from an algorithm as 95 percent accurate even when the data shows it is only 75 percent accurate) (Cummings 2004; Horowitz and Kahn 2024). In the context of the use of force, automation bias could lead to flawed decision making that creates both effectiveness and legal compliance challenges.

Breakthroughs in AI could enable scaled applications of many nascent systems we see today — if they can overcome some of the limits of those systems. For example, AI systems trained on mixes of classified and unclassified data and that bring together data feeds from both in real time could be useful for painting a picture of the information environment for senior leaders, or mapping the actual environment, aiding in detecting targets and assessing the results of strikes. This category of AI systems, sometimes called AI decision support systems, is also sometimes described as encompassing actual decision-making support for senior leaders, which could occur if AI systems — trained on historical interactions among states, strategic texts, and data on heads of state and military leaders — could provide functional advice to commanders and political leaders. These systems would have clear limits and risks at present, given the limits to historical evidence, brittleness in algorithms, possibilities for data poisoning, hallucinations and the other well-known issues facing frontier AI models today.

On the battlefield, programs such as the Maven Smart System (MSS) employed by specialized units such as the US Army's Eighteenth Airborne Corps, show some of the potential for AI to cut through stovepipes and inefficiencies that delay or prevent accurate targeting while not making accidents more likely. It is best known through the Scarlet Dragon experimentation series, and as

Emelia S. Probasco (2024, 3) writes: “The Scarlet Dragon version of MSS can access sensor data from diverse sources, apply computer vision algorithms to help soldiers identify and choose military targets, and then provide workflow support that enables a request to be approved by the chain of command in order to strike a target. It can also serve as a repository where battle damage assessments can be stored, as well as provide a map of the location of friendly forces and targets.”

Then there are endemic concerns about the way that misapplications of autonomous weapon systems (AWS), by increasing the speed of war and removing human judgment from the equation, could create substantial risks for inadvertent escalation and miscalculation, in addition to challenges for compliance with international humanitarian law. When UN Secretary-General António Guterres argued, “We cannot delegate life-or-death decisions to machines” (United Nations 2025), he was expressing the fear that AWS will be used not to complement but to supplant the role of human decision making in the use of force, undermining the responsibility and accountability that are at the core of international humanitarian law in addition to any other ethical and moral issues.

If advances in AI reach the level of AGI, meaning that an AI system is able to replicate human-level reasoning across a wide variety of task areas, the consequences could be even more enormous. Some of the fears concerning AGI involve the way frontier AI systems might dramatically lower the barrier to malicious actors — whether states or militant groups — developing biological or chemical weapons even in the absence of substantial technical knowledge on their part. In a more extreme case, such as nuclear deterrence, the consequences could be even more severe. If AGI enables these states to generate scientific breakthroughs in areas from batteries to sensing, it could make the oceans more transparent, undermining the survivability of the nuclear-armed submarines that arguably play a greater role in nuclear deterrence than any other nuclear capabilities. Of course, the challenge with arguments about AGI and its consequences is that they are difficult to make tangible enough to generate analytical traction. One can assert that AGI will give a state the ability to make sensing breakthroughs that eliminate the ability of nuclear-armed submarines to hide in the oceans, and it is

impossible to contest that claim fully on a factual basis, just like it is impossible to prove it is true.

Prospects for International Cooperation

Given the enormity of the potential consequences for the balance of power and the risks concerning conflict and war, what prospects are there for international cooperation that would reduce the risks? Most broadly, international cooperation and norm development should start from the understanding that AI is a GPT (Horowitz 2018; Ding 2024). GPTs are productivity-enhancing innovations that do not just constitute a single piece of technology, whether dual use or not, but have generalized applications. Examples include the combustion engine, electricity, the airplane and computing (Bresnahan and Trajtenberg 1995).

GPTs are different from other types of technologies because the economic incentives for their development and the broad set of use cases mean there are incentives for actors across the world to invest in them. Historically, this means that regulation of GPTs requires standard setting and efforts to ensure responsible use aligned to agreed-upon norms and best practices. Prohibitions are less effective over time for GPTs because the financial incentives for development are so strong that technological progression occurs.

Practically, the consequence of AI being a GPT is that governance and regulatory proposals that involve macro controls on the technology's spread are unlikely to succeed. While it is tempting to turn to the nuclear non-proliferation regime and argue in favour of an International Atomic Energy Agency equivalent for AI, there is no constraint for AI model development and adoption as fundamental as plutonium and enriched uranium are for nuclear technology (Horowitz and Kahn 2025). The closest thing in the AI realm to a material constraint blocking development is high-end AI chips, but it is not clear that access to large numbers of the most advanced chips is necessary to train models for most of the AI uses cases for commercial, consumer and military applications. Additionally, since semiconductor chips are a much more "normal" economic product than plutonium,

export controls will likely have the same effects as in other fields: they are market distorting in ways that give market leaders additional time, but they inevitably lead to substitutes and innovation by countries facing restrictions. This is part of the logic behind DeepSeek's breakthrough in winter 2025; lacking advanced Nvidia chip access, the company had to come up with new methods to train models (Plumb and Horowitz 2025).⁸

Moreover, now that the world has seen what AI and autonomy can do on the battlefield in the Russia-Ukraine context, legally binding restrictions that prohibit the use of AI — in particular, military systems, whether weapons or not — will become harder to enforce. The image of a technologically innovative Ukrainian state collaborating with AI companies and others in the commercial sector to roll out technological advances to defeat Russia has clearly landed with the American public. And now that countries have seen what responsible militaries can do when employing AI even in weapon systems, it will be that much harder to try to turn back the clock.

Given that AI is a GPT and is changing rapidly, there are real risks of inappropriately applying regulatory restrictions given the way regulatory lock-in can occur and make future changes to agreements more difficult. That does not make cooperation impossible, however. The most promising areas of cooperation are those where states working together can reduce the risk of accidents, inadvertent escalation and miscalculation involving AI-enabled systems. Even in periods of deep, sustained geopolitical competition, states wish to only fight when they have made the choice, not due to accidents. So, international agreements on military uses of AI that decrease the risk of accidental conflict or escalation are the most plausible and desirable. A confidence-building measures (CBMs) approach is thus the most likely to succeed (Afina and Persi Paoli 2025; Puscas 2024; Horowitz and Kahn 2021).

The three most promising areas for real international agreements on military adoption and use of AI are an autonomous incidents agreement modelled after the Cold War-era Incidents at Sea Agreement; a human-nuclear command-and-control agreement requiring human responsibility and accountability for critical decisions involving the use of nuclear

⁸ DeepSeek did have access to some Nvidia chips, of course, but the company pointed to its lack of complete access as part of what forced it to innovate (Mok 2025).

weapons; and a new institution to build capability and capacity to use AI in the military domain responsibly, including a repository of national policies, lessons learned and best practices.

Autonomous Incidents Agreement

One persistent concern regarding deployed autonomous military systems — whether weapons-based or not — is that they could engage in unpredictable behaviour, especially if deployed outside their designed use context or when engaged with the autonomous systems of potential adversaries. These unpredictable behaviours could not only jeopardize the success of missions but also lead to inadvertent conflict if the actions of autonomous systems are misinterpreted. Fortunately, there is a way forward that all states should endorse because it will decrease the risk of accidental conflict and inadvertent escalation without compromising state secrets. States should negotiate an autonomous incidents agreement that is conceptually similar to the Incidents at Sea Agreement signed by the United States and Russia during the Cold War. The Incidents at Sea Agreement happened after a decade of close calls between the US and Russian navies and air forces. Tests and exercises by one side were sometimes treated as the early stages of a potential war by the other side, increasing the risk of a war no one wanted. The Incidents at Sea Agreement reduced the risk of accidental conflict through unintended air and naval engagements by applying commercial rules of the road for safe engagements to the military vessels and aircraft of both nations during peacetime. Over the decades, the Incidents at Sea Agreement proved a durable CBM that built trust and reduced the risk of conflict.

It is now time for an autonomous incidents agreement. The core of the agreement could be the application of the same general principles — commercial rules of the road applied to aircraft and naval vessels during peacetime — making clear that they apply to autonomous systems as well. Militaries would also, in peacetime, disclose the level of autonomy for their deployed systems. These actions would increase trust and confidence and decrease the risk of accidental conflict, but would not undermine sovereignty or military capabilities because of the emphasis on peacetime engagement.

Human Judgment Over Nuclear Weapons

In fall 2024, then US President Joe Biden and his Chinese counterpart President Xi Jinping agreed, after years of negotiations, to a simple statement on military AI that included one specific commitment: “Building on a candid and constructive dialogue on AI and co-sponsorship of each other’s resolutions on AI at the United Nations General Assembly, the two leaders affirmed the need to address the risks of AI systems, improve AI safety and international cooperation, and promote AI for good for all. The two leaders affirmed the need to maintain human control over the decision to use nuclear weapons. The two leaders also stressed the need to consider carefully the potential risks and develop AI technology in the military field in a prudent and responsible manner” (US Mission Lima 2024).

The statement built on the similar US commitment in the 2022 Nuclear Posture Review to always have a human in the loop for key decisions involving nuclear weapons, and a France, UK and US statement saying the same thing as part of the Nuclear Non-Proliferation Treaty review conference in 2022 (Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons 2022).

While the first draft of the Political Declaration contained a norm surrounding human control of nuclear weapons, the item does not appear in the final draft endorsed by 60 countries. One reason might be the non-nuclear states’ fears that endorsing the statement meant tacit support of the legitimacy of nuclear weapons in general.

The issue is too important to let differences over wording hold up an agreement. A treaty or other type of binding international agreement requiring human command and control over key decisions involving nuclear weapons seems like one of the most plausible areas of international agreement in this era of great-power competition.

Building AI Capability and Capacity

A final recommendation to promote global cooperation is to create a new international institution focused on building national-level capability and capacity to encourage responsible military development and use of AI, in compliance with applicable international law. Core areas of agreement for nearly all states may include:

- creating strong norms of responsible behaviour;
- establishing fora for states to learn how to write military AI policies for their countries and address implementation questions;
- data repositories; and
- a standing expert panel to evaluate developments and provide technical assistance.

On the one hand, the Political Declaration has been a success, with 60 countries endorsing it, while, on the other hand, only 60 countries have endorsed it. A renewed push for an international institution that takes elements from the Political Declaration, adds more and internationalizes it would make it easier for more countries to endorse it, especially Group of 77 states and others beyond the scope of US allies and partners (since the United States initially drafted the Political Declaration).

This kind of new international institution could be a unifying force surrounding military AI. Even as debates about AWS range, LAWS comprise only a tiny fraction of the military applications of AI. Creating a strong international institution to guide states toward responsible policy making in this space would be highly desirable. In a world of great-power competition, such an institution would need to be scoped clearly in a way that maximizes the possibility for global participation and incorporates the United States and China. The recommendations from the GC REAIM (2025) *Strategic Guidance Report* represent one way to proceed along these lines.

Conclusion

International cooperation on AI in the military domain is more urgent than ever. Not only is AI playing a growing role on battlefields from Ukraine to the Middle East, but advances in AI are also promising an even greater transformation as militaries will be forced to reorganize themselves internally to take advantage of frontier AI. What will this mean for specific applications of AI for human-machine teaming purposes? The intersection of automation bias and a lack of testing and evaluation procedures for advanced AI systems could be a potent mix for uses of AI in ways that lead to international stability.

Fortunately, there is a path forward. By focusing on CBMs that emphasize avoiding accidental conflict and inadvertent escalation, and focus almost exclusively on peace time, states can work together to build trust and confidence and set the world on a path toward the responsible use of AI in the military.

Works Cited

- Boffey, Daniel. 2025. "Killing machines: how Russia and Ukraine's race to perfect deadly pilotless drones could harm us all." *The Guardian*, June 25. www.theguardian.com/world/2025/jun/25/ukraine-russia-autonomous-drones-ai.
- Bondar, Kateryna. 2025. *Ukraine's Future Vision and Current Capabilities for Waging AI-Enabled Autonomous Warfare*. March. Washington, DC: Center for Strategic & International Studies. www.csis.org/analysis/ukraines-future-vision-and-current-capabilities-waging-ai-enabled-autonomous-warfare.
- Bresnahan, Timothy F. and Manuel Trajtenberg. 1995. "General purpose technologies 'Engines of growth'?" *Journal of Econometrics* 65: 83–108. www.sciencedirect.com/science/article/pii/030440769401598T.
- Cummings, Mary L. 2004. "Automation Bias in Intelligent Time Critical Decision Support Systems." American Institute of Aeronautics and Astronautics First Intelligent Systems Technical Conference, September 20–22. <https://doi.org/10.2514/6.2004-6313>.
- Ding, Jeffrey. 2024. *Technology and the Rise of Great Powers: How Diffusion Shapes Economic Competition*. Princeton, NJ: Princeton University Press.
- Dorsey, Jessica. 2025. "Proportionality under Pressure: AI-Based Decision-Support Systems, the Reasonable Commander Standard and Human(e) Judgment in Targeting." GC REAIM Expert Policy Note Series. May. <https://hcss.nl/wp-content/uploads/2025/10/Dorsey-edited.pdf>.
- Filkins, Dexter. 2025. "Is the U.S. Ready for the Next War?" *The New Yorker*, July 14. www.newyorker.com/magazine/2025/07/21/is-the-us-ready-for-the-next-war.
- Finer, Jon and David Shimer. 2025. "Ukraine's Drone Revolution." *Foreign Affairs*, July 7. www.foreignaffairs.com/russia/ukraines-drone-revolution.
- Freedberg, Sydney J., Jr. 2025. "Anthropic, Google and xAI win \$200M each from Pentagon AI chief for 'agentic AI.'" *Breaking Defense*, July 14. <https://breakingdefense.com/2025/07/anthropic-google-and-xai-win-200m-each-from-pentagon-ai-chief-for-agentic-ai>.
- GC REAIM. 2025. *Responsible by Design: Strategic Guidance Report on the Risks, Opportunities, and Governance of Artificial Intelligence in the Military Domain*. The Netherlands: The Hague. September. <https://hcss.nl/wp-content/uploads/2025/09/GC-REAIM-Strategic-Guidance-Report-Final-WEB.pdf>.
- Goncharuk, Vitaliy. 2025. "Ukraine Isn't the Model for Winning the Innovation War." *War on the Rocks*, August 12. <https://warontherocks.com/2025/08/ukraine-isnt-the-model-for-winning-the-innovation-war/>.
- Grand Clément, Sarah. 2023. *Artificial Intelligence Beyond Weapons: Application and Impact of AI in the Military Domain*. Geneva, Switzerland: United Nations Institute for Disarmament Research. <https://unidir.org/publication/artificial-intelligence-beyond-weapons-application-and-impact-of-ai-in-the-military-domain>.
- Grand View Research. 2024. *Commercial Drone Market (2025–2030)*. San Francisco, CA: Grand View Research. www.grandviewresearch.com/industry-analysis/global-commercial-drones-market.
- Hambling, David. 2024. "How The U.S. Navy Carried Out The First FPV Drone Strikes In 1944." *Forbes*, February 8. www.forbes.com/sites/davidhambling/2024/02/08/how-the-us-navy-carried-out-fpv-drone-strikes-in-1944/.
- Holliday, Shelby. 2025. "U.S. Races to Defend Israel as It Burns Through Missile Interceptors." *The Wall Street Journal*, June 20. www.wsj.com/world/middle-east/u-s-races-to-defend-israel-as-it-burns-through-missile-interceptors-2909e49d.
- Horowitz, Michael C. 2018. "Artificial Intelligence, International Competition, and the Balance of Power." *Texas National Security Review* 1 (3): 36–57. <https://doi.org/10.15781/T2639KP49>.
- . 2024. "Battles of Precise Mass: Technology Is Remaking War — and America Must Adapt." *Foreign Affairs*, October 22. www.foreignaffairs.com/world/battles-precise-mass-technology-war-horowitz.
- Horowitz, Michael C. and Lauren A. Kahn. 2021. "Leading in Artificial Intelligence through Confidence Building Measures." *The Washington Quarterly* 44 (4): 91–106. <https://doi.org/10.1080/0163660X.2021.2018794>.
- . 2024. "Bending the Automation Bias Curve: A Study of Human and AI-Based Decision Making in National Security Contexts." *International Studies Quarterly* 68 (2): sqae020. <https://doi.org/10.1093/isq/sqae020>.
- . 2025. "Nuclear Non Proliferation Is the Wrong Framework for AI Governance." *AI Frontiers*, June 27. <https://ai-frontiers.org/articles/nuclear-non-proliferation-is-the-wrong-framework-for-ai-governance>.
- Horowitz, Michael C., Lauren A. Kahn and Joshua A. Schwartz. 2025. "What Drones Can — and Cannot — Do on the Battlefield." *Foreign Affairs*, July 4. www.foreignaffairs.com/united-states/what-drones-can-and-cannot-do-battlefield.

- Kahn, Lauren. 2022. "How Ukraine Is Remaking War." *Foreign Affairs*, August 29. www.foreignaffairs.com/ukraine/how-ukraine-remaking-war.
- Keating, Joshua. 2024. "The overlooked conflict that altered the nature of war in the 21st century." *Vox*, June 3. www.vox.com/world-politics/351105/armenia-azerbaijan-war-combat-future-drones.
- Kirichenko, David. 2025. "Ukraine's drone wall is Europe's first line of defense against Russia." *UkraineAlert* (blog), July 2. www.atlanticcouncil.org/blogs/ukrainealert/ukraines-drone-wall-is-europes-first-line-of-defense-against-russia.
- Macaskill, Andrew. 2024. "Israel's defences would trump Iran's in any air war, but at a high cost." *Reuters*, April 18. www.reuters.com/world/middle-east/any-air-war-israels-defences-would-trump-irans-high-cost-2024-04-18/.
- Maslej, Nestor, Loredana Fattorini, Raymond Perrault, Yolanda Gil, Vanessa Parli, Njenga Kariuki, Emily Capstick et al. 2025. *Artificial Intelligence Index Report 2025*. Stanford, CA: Institute for Human-Centered Artificial Intelligence. <https://hai.stanford.edu/ai-index/2025-ai-index-report>.
- Mok, Charles. 2025. "Taking Stock of the DeepSeek Shock." February 5. Stanford, CA: Cyber Policy Center, Freeman Spogli Institute for International Studies, Stanford University. <https://cyber.fsi.stanford.edu/publication/taking-stock-deepseek-shock>.
- Narayanan, Arvind and Sayash Kapoor. 2025. "AI as Normal Technology." Knight First Amendment Institute at Columbia University, April 15. <https://knightcolumbia.org/content/ai-as-normal-technology>.
- Persi Paoli, Giacomo and Yasmin Afina. 2025. "AI in the Military Domain: A briefing note for States." March. Geneva, Switzerland: United Nations Institute for Disarmament Research. <https://unidir.org/publication/ai-military-domain-briefing-note-states>.
- Plumb, Radha Iyengar and Michael C. Horowitz. 2025. "What America Gets Wrong About the AI Race." *Foreign Affairs*, April 18. www.foreignaffairs.com/united-states/what-america-gets-wrong-about-ai-race.
- Probasco, Emelia S. 2024. "Building the Tech Coalition: How Project Maven and the U.S. 18th Airborne Corps Operationalized Software and Artificial Intelligence for the Department of Defense." Policy Brief. Center for Security and Emerging Technology. August. <https://cset.georgetown.edu/publication/building-the-tech-coalition/>.
- Pultarova, Tereza. 2025. "How Ukraine's Killer Drones Are Beating Russian Jamming." *IEEE Spectrum*, June 2. <https://spectrum.ieee.org/ukraine-killer-drones>.
- Puscas, Ioana. 2024. *Confidence-Building Measures for Artificial Intelligence: A Multilateral Perspective*. Geneva, Switzerland: United Nations Institute for Disarmament Research. <https://unidir.org/publication/confidence-building-measures-for-artificial-intelligence-a-multilateral-perspective/>.
- Raska, Michael and Richard A. Bitzinger, eds. 2023. *The AI Wave in Defence Innovation: Assessing Military Artificial Intelligence Strategies, Capabilities, and Trajectories*. New York, NY: Routledge.
- Reeves, Tabitha. 2025. "Russia Expands Drone Capacities as Ukraine Conflict Continues." *National Defense Magazine*, May 28. www.nationaldefensemagazine.org/articles/2025/5/28/as-russia-ukraine-war-continues-so-does-drone-innovation.
- Renshaw, Jarrett and Trevor Hunnicutt. 2024. "Biden, Xi agree that humans, not AI, should control nuclear arms." *Reuters*, November 16. www.reuters.com/world/biden-xi-agreed-that-humans-not-ai-should-control-nuclear-weapons-white-house-2024-11-16/.
- Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons. 2022. "Principles and responsible practices for Nuclear Weapon States." Working paper submitted by France, the United Kingdom of Great Britain and Northern Ireland and the United States of America. NPT/CONF.2020/WP.20. July 29. New York, NY: United Nations. www.un.org/sites/un2.un.org/files/npt_conf.2020_e_wp.70.pdf.
- Santora, Marc, Lara Jakes, Andrew E. Kramer, Marco Hernandez and Liubov Sholudko. 2025. "A Thousand Snipers in the Sky: The New War in Ukraine." *The New York Times*, March 3. www.nytimes.com/interactive/2025/03/03/world/europe/ukraine-russia-war-drones-deaths.html.
- Shugart, Thomas. 2024. *Autonomy and International Stability: Confidence-Building Measures for Uncrewed Systems in the Indo-Pacific*. March. Washington, DC: Center for a New American Security. https://s3.us-east-1.amazonaws.com/files.cnas.org/documents/Shugart-UxV-CBMs-Report-March-2024_FINAL-D.pdf.
- Sweijts, Tim, Saskia van Genugten and Frans Osinga, eds. 2025. *Defence Planning for Small and Middle Powers: Rethinking Force Development in an Age of Disruption*. Oxford, UK: Routledge.

United Nations. 2025. "‘Politically unacceptable, morally repugnant’: UN chief calls for global ban on ‘killer robots.’" UN News, May 14. <https://news.un.org/en/story/2025/05/1163256>.

United Nations Institute for Disarmament Research Security and Technology Programme. 2025. *Artificial Intelligence in the Military Domain and Its Implications for International Peace and Security: An Evidence-Based Road Map for Future Policy Action*. Geneva, Switzerland: United Nations Institute for Disarmament Research. <https://unidir.org/publication/artificial-intelligence-in-the-military-domain-and-its-implications-for-international-peace-and-security-an-evidence-based-road-map-for-future-policy-action/>.

United Nations Office for Disarmament Affairs. 2025. "Convention on Certain Conventional Weapons — Group of Governmental Experts on Lethal Autonomous Weapons Systems." Meeting of the High Contracting Parties to the Convention on Certain Conventional Weapons, Geneva, Switzerland, March 3–7 and September 1–5. <https://meetings.unoda.org/ccw/convention-on-certain-conventional-weapons-group-of-governmental-experts-on-lethal-autonomous-weapons-systems-2025>.

US Department of Defense. 2023. "Deputy Secretary of Defense Kathleen Hicks Keynote Address: 'The Urgency to Innovate' (As Delivered)." August 28. www.defense.gov/News/Speeches/Speech/Article/3507156/deputy-secretary-of-defense-kathleen-hicks-keynote-address-the-urgency-to-innov.

———. 2024. "‘The Future Character of War’: Keynote Address by Deputy Secretary of Defense Kathleen H. Hicks." December 10. www.defense.gov/News/Speeches/Speech/Article/3992669/the-future-character-of-war-keynote-address-by-deputy-secretary-of-defense-kath.

US Mission Lima. 2024. "Readout of President Joe Biden’s Meeting with President Xi Jinping of the People’s Republic of China." US Embassy in Peru, November 17. <https://pe.usembassy.gov/readout-of-president-joe-bidens-meeting-with-president-xi-jinping-of-the-peoples-republic-of-china/>.



67 Erb Street West
Waterloo, ON, Canada N2L 6C2
www.cigionline.org