Autocalypse Now: Restrict Autonomous Weapon Systems

By “Coach Vance” Trefethen

***Resolved: The United States federal government substantially reform the use of Artificial Intelligence technology.***

Case Summary: This plan restricts the US from deploying fully autonomous weapons that can kill without human involvement in the decision.

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Autocalypse Now: Restrict Autonomous Weapons Systems

The Status Quo is headed down a perilous path with a dangerous destination. Autonomous weapons systems are being developed that will seek and destroy targets without any human decision or accountability. This automated apocalypse – call it the “AUTOCALYPSE” if you will – threatens everything from good moral sense to nuclear annihilation. Please join us in affirming that: The United States Federal Government should substantially reform the use of artificial intelligence technology.

OBSERVATION 1. DEFINITIONS

Substantial

Merriam Webster Online Dictionary copyright 2021. <https://www.merriam-webster.com/dictionary/substantially> (accessed 28 May 2021)

**:**considerable in quantity **:**significantly great

Reform

Merriam Webster Online Dictionary copyright 2021 <https://www.merriam-webster.com/dictionary/reform> (accessed 28 May 2021)

**:**to put or change into an improved form or condition

Artificial Intelligence

Merriam Webster Online Dictionary copyright 2021. <https://www.merriam-webster.com/dictionary/artificial%20intelligence> (accessed 28 May 2021)

**:**the capability of a machine to imitate intelligent human behavior

Lethal Autonomous Weapons Systems or “LAWS”

Kelley M. Sayler 2020 (Analyst in Advanced Technology and Global Security at Congressional Research Service) last updated 1 Dec 2020 “Defense Primer: U.S. Policy on Lethal Autonomous Weapon Systems” <https://fas.org/sgp/crs/natsec/IF11150.pdf> (accessed 31 May 2020)

Lethal autonomous weapon systems (LAWS) are a special class of weapon systems that use sensor suites and computer algorithms to independently identify a target and employ an onboard weapon system to engage and destroy the target without manual human control of the system.

OBSERVATION 2. INHERENCY, the structure of the Status Quo. Some key facts:

FACT 1. Permissive Policy. US policy has no restriction on Lethal Autonomous Weapons Systems

Kelley M. Sayler 2020 (Analyst in Advanced Technology and Global Security at Congressional Research Service) last updated 1 Dec 2020 “Defense Primer: U.S. Policy on Lethal Autonomous Weapon Systems” <https://fas.org/sgp/crs/natsec/IF11150.pdf> (accessed 31 May 2020)

Although these systems are not yet in widespread development, it is believed they would enable military operations in communications-degraded or -denied environments in which traditional systems may not be able to operate. Contrary to a number of news reports, U.S. policy does not prohibit the development or employment of LAWS.

FACT 2. Magic Moment. Now is the critical time because of the implications for foreign policy and the future of war

Kelley M. Sayler 2020 (Analyst in Advanced Technology and Global Security at Congressional Research Service) last updated 1 Dec 2020 “Defense Primer: U.S. Policy on Lethal Autonomous Weapon Systems” <https://fas.org/sgp/crs/natsec/IF11150.pdf> (accessed 31 May 2020)

Although the United States does not currently have LAWS in its inventory, some senior military and defense leaders have stated that the United States may be compelled to develop LAWS in the future if potential U.S. adversaries choose to do so. At the same time, a growing number of states and nongovernmental organizations are appealing to the international community for regulation of or a ban on LAWS due to ethical concerns. Developments in both autonomous weapons technology and international discussions of LAWS could hold implications for congressional oversight, defense investments, military concepts of operations, treaty-making, and the future of war.

OBSERVATION 3. We offer the following PLAN implemented by the President and Secretary of Defense

1. Ban US government use of autonomous weapons where targeting decisions are made without human intervention.

2. Funding through existing budgets of existing agencies, and Congress cancels all funding for any development or deployment of weapons in violation of the plan.
3. Enforcement through the military chain of command or federal civilian workforce disciplinary rules.
4. Timeline: Plan takes effect one day after an affirmative ballot.
5. All Affirmative speeches may clarify

OBSERVATION 4. ADVANTAGES

ADVANTAGE 1. Apocalypse Avoided.

A. The Link: Validation Vulnerable. Artificial intelligence defeats or fails to follow safeguards

[Heather M. Roff](https://www.newamerica.org/our-people/heather-roff/) & Peter W. Singer 2016. (Roff - research scientist at Arizona State University, a senior research fellow at the University of Oxford, and a fellow at New America. [Singer](http://www.pwsinger.com/) is strategist at New America) 6 Sept 2016 “e Next President Will Decide the Fate of Killer Robots—and the Future of War” <https://www.wired.com/2016/09/next-president-will-decide-fate-killer-robots-future-war/> (accessed 31 May 2020)

Which leads to a second area of concern: the advancement of artificial intelligence. Learning systems are the future of computing and autonomy. They'll be useful for everything from navigation to weapons systems target-recognition. By learning how to deal with new kinds of targets not previously selected or identified by its human creators, they'll be able to keep up with the decoys, deception, or ruses that an adversary is likely to try to use. But such new capabilities introduce a question not answered in our old policy. While the US presently puts a premium on verification, validation, testing, and evaluation to determine the likely behaviors of a system, learning systems by their very definition might not act in perfectly predictable manners. To put it another way, traditional testing, verification and validation procedures may not work when the technology is literally designed to learn and thus change.

B. The Impact: Nuclear Nightmare. Robots making decisions about nuclear weapons could kill millions of people

Zachary Kallenborn 2020. (expert on drone swarms, weapons of mass destruction, and WMD terrorism ) A Partial Ban on Autonomous Weapons Would Make Everyone Safer 14 Oct 2020 <https://foreignpolicy.com/2020/10/14/ai-drones-swarms-killer-robots-partial-ban-on-autonomous-weapons-would-make-everyone-safer/>

When robots make decisions on nuclear weapons, the fate of humanity is at stake. In 1983, at the height of the Cold War, a Soviet early warning system concluded the United States had launched five nuclear missiles at the Soviet Union. The computer expressed the highest degree of confidence in the conclusion. The likely response: immediate nuclear retaliation to level U.S. cities and kill millions of American civilians. Fortunately, Stanislav Petrov, the Soviet officer in charge of the warning system, concluded the computer was wrong. Petrov was correct. Without him, millions of people would be dead.

ADVANTAGE 2. Drone Danger Diminished.

Automated drone swarms can trigger nuclear attack on the United States

Michael T. Klare 2019 (professor emeritus of peace and world security studies at Hampshire College and senior visiting fellow at the Arms Control Association) Autonomous Weapons Systems and the Laws of War, March 2019 <https://www.armscontrol.org/act/2019-03/features/autonomous-weapons-systems-laws-war>

The Pentagon envisions a time when large numbers of drone ships and aircraft are released to search for enemy missile-launching submarines and other critical assets, including mobile ballistic missile launchers. At present, U.S. adversaries rely on those missile systems to serve as an invulnerable second-strike deterrent to a U.S. disarming first strike. Should Russia or China ever perceive that swarming U.S. drones threaten the survival of their second-strike systems, those countries could feel pressured to launch their missiles when such swarms are detected, lest they lose their missiles to a feared U.S. first strike.

ADVANTAGE 3. Values Victory

A. Link: Missing Morality. Humanitarian principles require, even in war, that we avoid civilian casualties as much as possible. And A.I. can’t do it.

Michael T. Klare 2019 (professor emeritus of peace and world security studies at Hampshire College and senior visiting fellow at the Arms Control Association) Autonomous Weapons Systems and the Laws of War, March 2019 <https://www.armscontrol.org/act/2019-03/features/autonomous-weapons-systems-laws-war> (accessed 1 June 2021)

These questions arise with particular significance regarding two key aspects of international humanitarian law, the requirement for distinction and proportionality in the use of force against hostile groups interspersed with civilian communities. Distinction requires warring parties to discriminate between military and civilian objects and personnel during the course of combat and spare the latter from harm to the greatest extent possible. Proportionality requires militaries to apply no more force than needed to achieve the intended objective, while sparing civilian personnel and property from unnecessary collateral damage. These principles pose a particular challenge to fully autonomous weapons systems because they require a capacity to make fine distinctions in the heat of battle. It may be relatively easy in a large tank-on-tank battle, for example, to distinguish military from civilian vehicles; but in many recent conflicts, enemy combatants have armed ordinary pickup trucks and covered them with a tarpaulins, making them almost indistinguishable from civilian vehicles. Perhaps a hardened veteran could spot the difference, but an intelligent robot? Unlikely. Similarly, how does one gauge proportionality when attempting to attack enemy snipers firing from civilian-occupied tenement buildings? For robots, this could prove an insurmountable challenge.

B. The Impact: Repugnant Results. The risk of harm makes it morally repugnant to take lives without human involvement

Zachary Kallenborn 2020. (expert on drone swarms, weapons of mass destruction, and WMD terrorism ) A Partial Ban on Autonomous Weapons Would Make Everyone Safer 14 Oct 2020 <https://foreignpolicy.com/2020/10/14/ai-drones-swarms-killer-robots-partial-ban-on-autonomous-weapons-would-make-everyone-safer/>

The semiannual meetings are the first serious effort by global governments to control autonomous weapons. And the weapons pose serious risks to global security: Even the best artificial intelligence isn’t well suited to distinguishing farmers from soldiers and may be trained only on [laboratory data](https://foreignpolicy.com/2020/01/20/ai-autonomous-weapons-artificial-intelligence-the-killer-algorithms-nobodys-talking-about/) that is a poor substitute for real battlefields. As U.N. Secretary-General [António Guterres](https://news.un.org/en/story/2019/03/1035381) wrote on Twitter, “Autonomous machines with the power and discretion to select targets and take lives without human involvement are politically unacceptable, morally repugnant and should be prohibited by international law.”

2A Evidence: Autonomous Weapons

INHERENCY

A/T “SQ law has human control”

No, it requires human decision about when to deploy, not human control of the weapon itself as it’s being used

Kelley M. Sayler 2020 (Analyst in Advanced Technology and Global Security at Congressional Research Service) last updated 1 Dec 2020 “Defense Primer: U.S. Policy on Lethal Autonomous Weapon Systems” <https://fas.org/sgp/crs/natsec/IF11150.pdf> (accessed 31 May 2020)

DODD 3000.09 requires that all systems, including LAWS, be designed to “allow commanders and operators to exercise appropriate levels of human judgment over the use of force.” As noted in an August 2018 U.S. government white paper, “‘appropriate’ is a flexible term that reflects the fact that there is not a fixed, one-size-fits-all level of human judgment that should be applied to every context. What is ‘appropriate’ can differ across weapon systems, domains of warfare, types of warfare, operational contexts, and even across different functions in a weapon system.” Furthermore, “human judgment over the use of force” does not require manual human “control” of the weapon system, as is often reported, but rather broader human involvement in decisions about how, when, where, and why the weapon will be employed. This includes a human determination that the weapon will be used “with appropriate care and in accordance with the law of war, applicable treaties, weapon system safety rules, and applicable rules of engagement.”

Now is the critical moment: Developments in autonomous capability will likely race past human controls

Michael T. Klare 2019 (professor emeritus of peace and world security studies at Hampshire College and senior visiting fellow at the Arms Control Association) Autonomous Weapons Systems and the Laws of War, March 2019 <https://www.armscontrol.org/act/2019-03/features/autonomous-weapons-systems-laws-war> (accessed 1 June 2021) (brackets in original)

Arms racing behavior is a perennial concern for the great powers, because efforts by competing states to gain a technological advantage over their rivals, or to avoid falling behind, often lead to excessive and destabilizing arms buildups. A race in autonomy poses a particular danger because the consequences of investing machines with increased intelligence and decision-making authority are largely unknown and could prove catastrophic. In their haste to match the presumed progress of likely adversaries, states might field robotic weapons with considerable autonomy well before their abilities and limitations have been fully determined, resulting in unintended fatalities or uncontrolled escalation. Supposedly, those risks would be minimized by maintaining some degree of human control over all such machines, but the race to field increasingly capable robotic weapons could result in ever-diminishing oversight. “Despite [the Defense Department’s] insistence that a ‘man in the loop’ capability will always be part of RAS systems,” the CRS noted in 2018, “it is possible if not likely, that the U.S. military could feel compelled to develop…fully autonomous weapon systems in response to comparable enemy ground systems or other advanced threat systems that make any sort of ‘man in the loop’ role impractical.”

Because AI is developing so fast: We need safeguards now or we’ll get bad consequences in the future

Michael Klare 2018 (professor emeritus of peace and world security studies at Hampshire College and senior visiting fellow at the Arms Control Association) Army of None: Autonomous Weapons and the Future of War, Nov 2018 (“Scharre” is Paul Scharre, who did multiple tours to Iran and Afghanistan as an Army Ranger; led the working group that drafted Directive 3000.09, the Pentagon’s 2012 policy on autonomy in weapon systems) <https://www.armscontrol.org/act/2018-11/book-reviews/army-none-autonomous-weapons-future-war>

As Scharre persuasively demonstrates in this important new book, progress in autonomous weaponry is occurring much faster than attempts to understand or regulate such devices. Unless there is a concerted effort to grapple with the potential impacts of these new technologies and develop appropriate safeguards, we could face a future in which machines make momentous decisions we come to regret.

A/T “No autonomous systems in use”

US military working on at least 21 different systems and plans to do even more

[Heather M. Roff](https://www.newamerica.org/our-people/heather-roff/) & Peter W. Singer 2016. (Roff - research scientist at Arizona State University, a senior research fellow at the University of Oxford, and a fellow at New America. [Singer](http://www.pwsinger.com/) is strategist at New America) 6 Sept 2016 “e Next President Will Decide the Fate of Killer Robots—and the Future of War” <https://www.wired.com/2016/09/next-president-will-decide-fate-killer-robots-future-war/> (accessed 31 May 2020)

Indeed, by our count the US military is working on at least 21 different projects to increase the autonomous capacities of weapons systems in war. And just last week, the Pentagon's Defense Science Board released a [major new study](http://www.acq.osd.mil/dsb/reports/DSBSS15.pdf) on what it thinks should be the future of robotics, concluding that "autonomy will deliver substantial operational value across an increasingly diverse array of DoD missions, but the DoD must move more rapidly to realize this value."

Army has rollout plan for Robotic & Autonomous Systems (RAS)

Michael T. Klare 2019 (professor emeritus of peace and world security studies at Hampshire College and senior visiting fellow at the Arms Control Association) Autonomous Weapons Systems and the Laws of War, March 2019 <https://www.armscontrol.org/act/2019-03/features/autonomous-weapons-systems-laws-war>

The U.S. Army has devised a long-term strategy for the development of robotic and autonomous systems (RAS) and their integration into the combat force. To start, the Army envisions an evolutionary process under which it will first deploy unarmed, unmanned utility vehicles and trucks, followed by the introduction of armed robotic vehicles with ever-increasing degrees of autonomy. “The process to improve RAS autonomy,” the Army explained in 2017, “takes a progressive approach that begins with tethered systems, followed by wireless remote control, teleoperation, semi-autonomous functions, and then fully autonomous systems.”

Air Force and Army generals say US is moving to towards full autonomy for weapons targeting

[Will Knight](https://www.wired.com/author/will-knight) 2021 (senior writer for WIRED, covering artificial intelligence. He was previously a senior editor at *MIT Technology Review)10 May 2021 “*The Pentagon Inches Toward Letting AI Control Weapons”  <https://www.wired.com/story/pentagon-inches-toward-letting-ai-control-weapons/> (accessed 2 June 2021)

General [John Murray](https://www.ausa.org/people/gen-john-m-murray) of the US Army Futures Command told an audience at the US Military Academy last month that swarms of robots will force military planners, policymakers, and society to think about whether a person should make every decision about using lethal force in new autonomous systems. Murray asked: “Is it within a human's ability to pick out which ones have to be engaged” and then make 100 individual decisions? “Is it even necessary to have a human in the loop?” he added. Other comments from military commanders suggest interest in giving autonomous weapons systems more agency. At a conference on AI in the Air Force last week, Michael Kanaan, director of operations for the Air Force Artificial Intelligence Accelerator at MIT and a leading voice on AI within the US military, said thinking is evolving. He says AI should perform more identifying and distinguishing potential targets while humans make high-level decisions. “I think that's where we're going,” Kanaan says.

MINOR REPAIR / COUNTERPLAN RESPONSES

A/T “International cooperation” – International powers won’t agree to banning autonomous weapons any time soon

RAND Corporation study completed in 2018, published in 2020. (RAND is a non-profit research organization. Study was commissioned and funded by the US Air Force. Study authors were: [Forrest E. Morgan](https://www.rand.org/pubs/authors/m/morgan_forrest_e.html), [Benjamin Boudreaux](https://www.rand.org/about/people/b/boudreaux_benjamin.html), [Andrew J. Lohn](https://www.rand.org/pubs/authors/l/lohn_andrew_j.html), [Mark Ashby](https://www.rand.org/pubs/authors/a/ashby_mark.html), [Christian Curriden](https://www.rand.org/about/people/c/curriden_christian.html), [Kelly Klima](https://www.rand.org/about/people/k/klima_kelly.html), [Derek Grossman](https://www.rand.org/about/people/g/grossman_derek.html). Study was completed in Oct 2018 and released to the public in March 2020) Military Applications of Artificial Intelligence - Ethical Concerns in an Uncertain World <https://www.rand.org/pubs/research_reports/RR3139-1.html> (brackets added) (accessed 5 June 2021)

A significant number of countries supports a new, legally binding treaty that would ban the development and use of autonomous weapons. However, most of the major military powers— including the United States, the United Kingdom, and Russia—see significant value in military AI and do not wish to create new international constraints that could slow its technological development. Given the resistance of these major powers and other states, the international community is not likely to agree to a treaty banning or regulating the development of autonomous weapons or other applications of military AI anytime soon.

HARMS / SIGNIFICANCE

Nuclear weapons

Autonomous weapons + Nukes = Horrifying

Paul Scharre 2021 (multiple tours to Iran and Afghanistan as an Army Ranger; played a key role in establishing policies on emerging weapons technologies at the US Dept of Defense. Led the working group that drafted Directive 3000.09, the Pentagon’s 2012 policy on autonomy in weapon systems) April 2021 “What degree of human involvement should there be in the use of force?” <https://metis.unibw.de/assets/pdf/metis-interview04-2021_04-scharre-human_machine_interaction.pdf>

When I look at the track record of accidents with automation and autonomous weapons – things like the 2003 fratricide involving the US Patriot missile defence system, but also more broadly the military track record of safety – it doesn’t fill me with a great sense of confidence, quite honestly. Or you look at Scott Sagan’s work on nuclear safety, and it’s terrifying! It seems like only by the grace of God or sheer luck that we’ve not had a nuclear weapons accident or even an intentional use. So, when you look at things like nuclear safety and the track record even in advanced industrialized nations, it’s horrifying. And then you think to yourself that people understand that nuclear weapons are dangerous, and that this is actually the system trying its best. So, what concerns me about AI and autonomy is this veneer of superhuman-ness.

Detailed scenario for how autonomous weapons lead to escalation and increase the risk of nuclear war

Michael Klare 2018 (professor emeritus of peace and world security studies at Hampshire College and senior visiting fellow at the Arms Control Association) Army of None: Autonomous Weapons and the Future of War, Nov 2018 (“Scharre” is Paul Scharre, who did multiple tours to Iran and Afghanistan as an Army Ranger; played a key role in establishing policies on emerging weapons technologies at the US Dept of Defense; and led the working group that drafted Directive 3000.09, the Pentagon’s 2012 policy on autonomy in weapon systems) <https://www.armscontrol.org/act/2018-11/book-reviews/army-none-autonomous-weapons-future-war>

“Unlike humans,” Scharre writes, “autonomous weapons would have no ability to understand the consequences of their actions, no ability to step back from the brink of war.” Another worry is that dramatic increases in AI-driven image identification will be combined with improved drone technology to create autonomous systems capable of searching for and conceivably destroying ground-based mobile missile launchers and submerged submarines carrying ballistic missiles. Most major nuclear powers rely on mobile missile systems to ensure their ability to retaliate in the event of an enemy first strike, thereby bolstering deterrence of just such an attack. With existing technology, it is almost impossible to monitor the location of an adversary’s ground-based mobile launchers and missile-carrying submarines in real time, making a completely disarming first strike nearly impossible. Some analysts, including Scharre, worry that future AI-powered drones (ships, aircraft, and submersibles) will possess the capacity to achieve such monitoring, making a first strike of this sort theoretically possible. Indeed, Scharre describes several projects now underway, such as the Pentagon’s Sea Hunter vessel, that could lead in this direction. Even if such systems do not prove entirely reliable, their future deployment could lead national leaders to fear an enemy first strike in a crisis and so launch their own weapons before they can be destroyed. Alternatively, the other party, fearing precisely such a response, may fire first to avoid such an outcome.

A/T “Weapons becoming more autonomous for years, no big deal”

But new advances in AI are making it more dangerous now

[Will Knight](https://www.wired.com/author/will-knight) 2021 (senior writer for WIRED, covering artificial intelligence. He was previously a senior editor at *MIT Technology Review)10 May 2021 “*The Pentagon Inches Toward Letting AI Control Weapons”  <https://www.wired.com/story/pentagon-inches-toward-letting-ai-control-weapons/> (accessed 2 June 2021)

To some degree, the project is part of a long history of autonomy in weapons systems, with some missiles already capable of carrying out limited missions independent of human control. But it also shows how recent advances in AI will make autonomy more attractive and inevitable in certain situations. What's more, it highlights the trust that will be placed in technology that can still behave unpredictably.

Clear differences between past weapons systems and modern AI, and the differences matter a great deal

Paul Scharre 2019. (multiple tours to Iran and Afghanistan as an Army Ranger; played a key role in establishing policies on emerging weapons technologies at the US Dept of Defense. Led the working group that drafted Directive 3000.09, the Pentagon’s 2012 policy on autonomy in weapon systems) 24 Oct 2019 “AI Spotlight: Paul Scharre On Weapons, Autonomy, And Warfare” <https://www.forbes.com/sites/aswinpranam/2019/10/24/ai-spotlight-paul-scharre-on-weapons-autonomy-and-warfare/?sh=c12c2e2630cc> (accessed 3 June 2021)

An autonomous weapon, quite simply, makes its own decisions of whom to engage in the battlefield. The core challenge is in figuring out which of those decisions matter. For example, modern-day missiles and torpedoes maneuver on their own to course-correct and adjust positioning. Do these decisions matter on a grand scale? Not so much. But munitions that can make kill decisions on their own, without human supervision, matter a great deal.

Rapid advances in AI are moving weapons to a whole new level

[Will Knight](https://www.wired.com/author/will-knight) 2021 (senior writer for WIRED, covering artificial intelligence. He was previously a senior editor at *MIT Technology Review)10 May 2021 “*The Pentagon Inches Toward Letting AI Control Weapons”  <https://www.wired.com/story/pentagon-inches-toward-letting-ai-control-weapons/> (accessed 2 June 2021)

The US and other nations have used autonomy in weapons systems for decades. Some missiles can, for instance, autonomously identify and attack enemies within a given area. But rapid advances in AI algorithms will change how the military uses such systems. Off-the-shelf AI code capable of controlling robots and identifying landmarks and targets, often with high reliability, will make it possible to deploy more systems in a wider range of situations.

Ethics

It’s more than just “if” a person is killed, “how” they are killed matters too. Autonomous killing is bad in that regard

*International Committee of the Red Cross 2018. Paper submitted to the April 9–13 (2018) meeting in Geneva of the Convention on Conventional Weapons Group of Governmental Experts* <https://www.armscontrol.org/act/2018-07/features/document-ethics-autonomous-weapon-systems-ethical-basis-human-control>

Closely linked are concerns about a loss of human dignity. In other words, it matters not just *if* a person is killed or injured but *how* they are killed or injured, including the process by which these decisions are made. It is argued that, if human agency is lacking to the extent that machines have effectively, and functionally, been delegated these decisions, then it undermines the human dignity of those combatants targeted, and of civilians that are put at risk as a consequence of legitimate attacks on military targets.

Autonomous killing is ethically bad because it removes responsibility and accountability

*International Committee of the Red Cross 2018. Paper submitted to the April 9–13 (2018) meeting in Geneva of the Convention on Conventional Weapons Group of Governmental Experts* <https://www.armscontrol.org/act/2018-07/features/document-ethics-autonomous-weapon-systems-ethical-basis-human-control>

The need for human agency is also linked to moral responsibility and accountability for decisions to use force. These are human responsibilities (both ethical and legal), which cannot be transferred to inanimate machines, or computer algorithms. Predictability and reliability in using an autonomous weapon system are ways of connecting human agency and intent to the eventual consequences of an attack. However, as weapons that self-initiate attacks, autonomous weapon systems all raise questions about predictability, owing to varying degrees of uncertainty as to exactly when, where and/or why a resulting attack will take place. The application of AI and machine learning to targeting functions raises fundamental questions of inherent unpredictability.

SOLVENCY / ADVOCACY

We must ban autonomous drone swarms, chemical, biological, radiological and nuclear weapons

Zachary Kallenborn 2020. (expert on drone swarms, weapons of mass destruction, and WMD terrorism ) A Partial Ban on Autonomous Weapons Would Make Everyone Safer 14 Oct 2020 <https://foreignpolicy.com/2020/10/14/ai-drones-swarms-killer-robots-partial-ban-on-autonomous-weapons-would-make-everyone-safer/> (accessed 31 May 2021)

Instead of a broad ban on all autonomous weapons, the international community should identify and focus restrictions on the highest-risk weapons: drone swarms and autonomous chemical, biological, radiological, and nuclear weapons, known as CBRN weapons. A narrower focus would increase the likelihood of global agreement, while providing a normative foundation for broader restrictions.

Human oversight is necessary because certain behaviors even in war should not be allowed to occur

Michael Klare 2018 (professor emeritus of peace and world security studies at Hampshire College and senior visiting fellow at the Arms Control Association) Army of None: Autonomous Weapons and the Future of War, Nov 2018 (“Scharre” is Paul Scharre, who did multiple tours to Iran and Afghanistan as an Army Ranger; played a key role in establishing policies on emerging weapons technologies at the US Dept of Defense; and led the working group that drafted Directive 3000.09, the Pentagon’s 2012 policy on autonomy in weapon systems) <https://www.armscontrol.org/act/2018-11/book-reviews/army-none-autonomous-weapons-future-war>

War is an ugly, brutal activity; and humans, despite numerous efforts over the centuries, have failed to prevent its regular recurrence. Yet, humans have sought to impose some limits on killing, believing that basic morality or religious principle forbids bloodletting of certain kinds, such as the killing of unarmed civilians or wounded enemy soldiers. Efforts have been made to formalize these natural inhibitions in law or religious scripture, but it has often proved difficult to inscribe precisely what is deemed acceptable and what is not. Yet, as Scharre notes, there are situations in which it is self-evident to humans that certain behaviors should not be allowed to occur. However smart the machines are made, he argues, they are never likely to acquire the capacity to make such judgments in the heat of battle and so require some human oversight.

International Committee of the Red Cross (ICRC): Human control must be maintained to uphold moral responsibility

*International Committee of the Red Cross 2018. Paper submitted to the April 9–13 (2018) meeting in Geneva of the Convention on Conventional Weapons Group of Governmental Experts* <https://www.armscontrol.org/act/2018-07/features/document-ethics-autonomous-weapon-systems-ethical-basis-human-control>

Context also affects ethical assessments. Constraints on the time-frame of operation and scope of movement over an area are key factors, as are the task for which the weapon is used and the operating environment. However, perhaps the most important factor is the type of target, since core ethical concerns about human agency, human dignity and moral responsibility are most acute in relation to the notion of anti-personnel autonomous weapon systems that target humans directly. From the ICRC’s perspective, ethical considerations parallel the requirement for a minimum level of human control over weapon systems and the use of force to ensure legal compliance. From an ethical viewpoint, “meaningful”, “effective” or “appropriate” human control would be the type and degree of control that preserves human agency and upholds moral responsibility in decisions to use force. This requires a sufficiently direct and close connection to be maintained between the human intent of the user and the eventual consequences of the operation of the weapon system in a specific attack.

We must restrict autonomous weapons to prevent “catastrophic outcomes”

Michael Klare 2018 (professor emeritus of peace and world security studies at Hampshire College and senior visiting fellow at the Arms Control Association) Army of None: Autonomous Weapons and the Future of War, Nov 2018 (“Scharre” is Paul Scharre, who did multiple tours to Iran and Afghanistan as an Army Ranger; led the working group that drafted Directive 3000.09, the Pentagon’s 2012 policy on autonomy in weapon systems) <https://www.armscontrol.org/act/2018-11/book-reviews/army-none-autonomous-weapons-future-war>

As Scharre laments, policymakers have devoted far too little attention to these potentially escalatory consequences of fielding increasingly capable autonomous weapons systems. Although the record of attempts to control emerging technologies through international agreements is decidedly mixed, he argues that some constraints are essential to ensure continued human supervision of critical battlefield decisions. Humans, he concludes, act as an essential “fail-safe” to prevent catastrophic outcomes.

Ethics, compassion, valuing human life and dignity – all require we reject fully autonomous weapons

Bonnie Docherty 2018 (senior researcher in the arms division of Human Rights Watch and a lecturer on law at Harvard Law School’s International Human Rights Clinic) Oct 2018 “REMARKS: Banning ‘Killer Robots’: The Legal Obligations of the Martens Clause” <https://www.armscontrol.org/act/2018-10/features/remarks-banning-%E2%80%98killer-robots%E2%80%99-legal-obligations-martens-clause>

Fully autonomous weapons would lack compassion, which motivates humans to minimize suffering and killing. They also would lack the legal and ethical judgment necessary to determine the best means for protecting civilians on a case-by-case basis in complex and unpredictable combat environments. As inanimate machines, fully autonomous weapons could not appreciate the value of human life and the significance of its loss. They would base life-and-death determinations on algorithms, objectifying their human targets, whether civilians or combatants. They would thus fail to respect human dignity.

AI researchers, voices of conscience, industry representatives: Lots of advocacy for banning fully autonomous weapons on ethical grounds

Bonnie Docherty 2018 (senior researcher in the arms division of Human Rights Watch and a lecturer on law at Harvard Law School’s International Human Rights Clinic) Oct 2018 “REMARKS: Banning ‘Killer Robots’: The Legal Obligations of the Martens Clause” <https://www.armscontrol.org/act/2018-10/features/remarks-banning-%E2%80%98killer-robots%E2%80%99-legal-obligations-martens-clause>

Thousands of artificial intelligence and robotics researchers, along with companies and industry representatives, have called for a ban on fully autonomous weapons. Traditional voices of conscience—faith leaders and Nobel Peace Prize laureates—have echoed those calls, expressing moral outrage at the prospect of losing human control over the use of force. Civil society and the International Committee of the Red Cross have emphasized that law and ethics require human control over the critical functions of a weapon.

DISAD RESPONSES

A/T “Lost nuclear deterrence”

Risk of accidental nuclear war far outweighs any deterrence

Zachary Kallenborn 2020. (expert on drone swarms, weapons of mass destruction, and WMD terrorism ) A Partial Ban on Autonomous Weapons Would Make Everyone Safer 14 Oct 2020 <https://foreignpolicy.com/2020/10/14/ai-drones-swarms-killer-robots-partial-ban-on-autonomous-weapons-would-make-everyone-safer/> (accessed 31 May 2021)

Of course, a ban may require giving up capabilities like a nuclear “[dead hand](https://warontherocks.com/2019/08/america-needs-a-dead-hand/)”—in the words of proponents, “an automated strategic response system based on artificial intelligence”—but [nuclear weapons experts](https://thebulletin.org/2019/08/strangelove-redux-us-experts-propose-having-ai-control-nuclear-weapons/) are [overwhelmingly](https://defense360.csis.org/bad-idea-integrating-artificial-intelligence-with-nuclear-command-control-and-communications/) [against](https://warontherocks.com/2019/09/whither-skynet-an-american-dead-hand-should-remain-a-dead-issue/) the idea. The risks to great powers of increased CBRN weapons proliferation and accidental nuclear war are far greater than any deterrent advantage already gained with a robust conventional and nuclear force.

A/T “Lost military capabilities / can’t keep up with Russia & China”

Military benefits of autonomous weapons are overstated. Human intervention doesn’t degrade our capabilities

Paul Scharre 2021 (multiple tours to Iran and Afghanistan as an Army Ranger; played a key role in establishing policies on emerging weapons technologies at the US Dept of Defense. Led the working group that drafted Directive 3000.09, the Pentagon’s 2012 policy on autonomy in weapon systems) April 2021 “What degree of human involvement should there be in the use of force?” <https://metis.unibw.de/assets/pdf/metis-interview04-2021_04-scharre-human_machine_interaction.pdf>

The military benefits of fully autonomous weapons are probably overstated. I don’t think there’s zero benefit. But they get this hype and credence, as though they are this game changing “wonder weapon”, in part because there are debates about taking them away or prohibiting them. And as soon as you try to take away something from someone, they want it all the more. That’s just human nature. Compare a weapons system that has a high degree of automation but kept a human in the loop for actual target authorization, a semi-autonomous system, with one that is fully autonomous. There are some operational benefits of full autonomy. But it doesn’t take humans that much time to identify a target and verify it. In ground combat operations we have people, special operators, go into a room and make split-second decisions about “shoot” or “no shoot”

Russia & China reluctant to deploy fully autonomous weapons due to issues with loss of control

RAND Corporation study completed in 2018, published in 2020. (RAND is a non-profit research organization. Study was commissioned and funded by the US Air Force. Study authors were: [Forrest E. Morgan](https://www.rand.org/pubs/authors/m/morgan_forrest_e.html), [Benjamin Boudreaux](https://www.rand.org/about/people/b/boudreaux_benjamin.html), [Andrew J. Lohn](https://www.rand.org/pubs/authors/l/lohn_andrew_j.html), [Mark Ashby](https://www.rand.org/pubs/authors/a/ashby_mark.html), [Christian Curriden](https://www.rand.org/about/people/c/curriden_christian.html), [Kelly Klima](https://www.rand.org/about/people/k/klima_kelly.html), [Derek Grossman](https://www.rand.org/about/people/g/grossman_derek.html). Study was completed in Oct 2018 and released to the public in March 2020) Military Applications of Artificial Intelligence - Ethical Concerns in an Uncertain World <https://www.rand.org/pubs/research_reports/RR3139-1.html> (brackets added) (accessed 5 June 2021)

On the other hand, there is reason to believe that Beijing and Moscow do genuinely care about the operational and strategic risks entailed in military AI. No military or political leader wants lethal weapons that are unreliable, can be hacked, or might exhibit unpredictable emergent behaviors. Nor does any national leader want his or her military commanders advised by decision support systems that might recommend actions that are insensitive to escalation thresholds and thereby risk stability in a crisis or escalation in war. In fact, these concerns might be even greater in China and Russia than in some other countries, given their political and strategic cultures, which emphasize centralized control.

China & Russia are not going to use completely autonomous military AI systems. They will maintain human control

RAND Corporation study completed in 2018, published in 2020. (RAND is a non-profit research organization. Study was commissioned and funded by the US Air Force. Study authors were: [Forrest E. Morgan](https://www.rand.org/pubs/authors/m/morgan_forrest_e.html), [Benjamin Boudreaux](https://www.rand.org/about/people/b/boudreaux_benjamin.html), [Andrew J. Lohn](https://www.rand.org/pubs/authors/l/lohn_andrew_j.html), [Mark Ashby](https://www.rand.org/pubs/authors/a/ashby_mark.html), [Christian Curriden](https://www.rand.org/about/people/c/curriden_christian.html), [Kelly Klima](https://www.rand.org/about/people/k/klima_kelly.html), [Derek Grossman](https://www.rand.org/about/people/g/grossman_derek.html). Study was completed in Oct 2018 and released to the public in March 2020) Military Applications of Artificial Intelligence - Ethical Concerns in an Uncertain World <https://www.rand.org/pubs/research_reports/RR3139-1.html> (brackets added) (accessed 5 June 2021)

Yet even China and Russia have noted the importance of human operators in exercising some degree of supervision or oversight over military AI systems. And as mentioned above, these states, like the United States and its allies, have national interests in mitigating operational and strategic risks by ensuring human control over military AI and will likely want to ensure that military commanders have control over weapon systems.

A/T “Loss of technological leadership”

We can develop AI technology to the fullest, and we can and should do so while maintaining human control

RAND Corporation study completed in 2018, published in 2020. (RAND is a non-profit research organization. Study was commissioned and funded by the US Air Force. Study authors were: [Forrest E. Morgan](https://www.rand.org/pubs/authors/m/morgan_forrest_e.html), [Benjamin Boudreaux](https://www.rand.org/about/people/b/boudreaux_benjamin.html), [Andrew J. Lohn](https://www.rand.org/pubs/authors/l/lohn_andrew_j.html), [Mark Ashby](https://www.rand.org/pubs/authors/a/ashby_mark.html), [Christian Curriden](https://www.rand.org/about/people/c/curriden_christian.html), [Kelly Klima](https://www.rand.org/about/people/k/klima_kelly.html), [Derek Grossman](https://www.rand.org/about/people/g/grossman_derek.html). Study was completed in Oct 2018 and released to the public in March 2020) Military Applications of Artificial Intelligence - Ethical Concerns in an Uncertain World <https://www.rand.org/pubs/research_reports/RR3139-1.html> (brackets added) (accessed 5 June 2021)

Organize, train, and equip forces to prevail in a world in which military systems empowered by AI are prominent in all domains. Although it is impossible to predict how soon military AI will be so capable that it changes the character of war, this research suggests that significant advances will occur in the next 10–15 years. China, Russia, and other state and nonstate actors are aggressively pursuing AI capabilities. The United States must stay at the forefront of military AI capability development. While U.S. leaders must always be cognizant of the dangers and potential costs of an arms race, not to compete in an arena where potential adversaries are developing dangerous capabilities is to cede the field. That would be unacceptable. Instead, military AI development should be pursued with all necessary precautions to mitigate risks and to ensure that appropriate human judgment is applied in all phases of development, testing, and employment. Before LAWS are employed, commanders will need to develop rules of engagement that ensure human control is exercised at levels appropriate to the operational and strategic context of each situation. Professional military education will need to include instruction on the risks and responsibilities of operating AI-empowered military systems. Operators will need to be trained in realistic environments in order to develop the appropriate levels of trust, neither overtrusting nor undertrusting the systems under their control, to avoid automation surprise.

A/T “Hegemony”

China isn’t interested in replacing US hegemony

World Economic Forum 2019 (international organization for public-private cooperation; non-profit foundation headquartered in Switzerland) Is a U.S. – China power transition inevitable? 15 Jan 2019 <https://www.weforum.org/agenda/2019/01/is-a-us-china-power-transition-inevitable/> (accessed 5 June 2021)

Perhaps most critically, though, China has evinced little desire to replace the United States in its present capacity. While increasingly global in scope, Beijing's foreign policy remains parochial in objectives, aimed more at sustaining its growth and cementing its centrality within the Asia-Pacific than at furnishing global public goods. The economist Charles Kindleberger [observed (TXT)](http://bev.berkeley.edu/fp/readings/WorldinDepression.txt) in 1973 that the Great Depression persisted “because the international economic system was rendered unstable by British inability and United States unwillingness to assume responsibility for stabilizing it.” We may witness a variant of this dynamic nine decades on, with neither the lone superpower nor its putative replacement able or willing to invest in the current order's modernization. Should that dynamic indeed prevail, China might continue to chip away at America's margin of pre-eminence without actually ascending to the commanding heights of geopolitics.

Neither China nor Russia are a threat to the US, just moving the world back into healthy balance of power

Vijay Prashad 2018 (Indian historian, editor and journalist. He is a writing fellow and chief correspondent at [Globetrotter](https://independentmediainstitute.org/globetrotter/), a project of the Independent Media Institute) A paranoid America is greatly exaggerating Russian power 22 Feb 2018 <https://www.salon.com/2018/02/22/a-paranoid-america-is-greatly-exaggerating-russian-power_partner/> (accessed 5 June 2021)

But it remains a defensive statement. Neither China nor Russia is making a push to become the global powerhouse. They are merely seeking to rebalance a world order that has — since the end of the Cold War — tilted unhealthily towards the United States. So is Russia a threat? Is China a threat? The question really is, to whom? They are threats to any assertion of US dominance over the planet. But they are no threat to the United States as such. They are committed to a multi-polar planet: a sensible solution in our very unstable and dangerous times.