# AI Projects Neg

## Inherency Answers

### SQ Solves

#### US and NATO tech already counters malicious AI

Sanur Sharma May 30, 2022 [ Associate Fellow at Manohar Parrikar Institute for Defence Studies and Analyses.; NATO’s AI Push And Military Implications – Analysis; EurasiaReview]

The technological advancements in Artificial Intelligence (AI), machine learning, big data analytics, robotics, quantum computing and virtual reality have led to the rise in use of autonomous systems in military applications. This is changing the face of the battlefield by enabling new forms of military functions, over and above the conventional systems, thus enabling the execution of higher coercive actions. The North Atlantic Treaty Organization (NATO) countries are also adopting such emerging technologies to maintain their strategic advantage and to mitigate transnational threats. Russia’s offensive cyber hostilities and China’s military adoption of AI for augmenting its high-tech warfare mechanisms have emerged as the contributing factors for NATO to upscale its technological efforts in Emerging and Disruptive Technologies (EDTs). NATO is making ambitious investments in EDTs to ensure interoperability and standardisation among member states. This Issue Brief takes stock of the current strategic surge by NATO in AI adoption and its ongoing efforts to exploit EDTs for defence innovation and adoption. It discusses the role of AI in contemporary conflicts, specifically NATO’s response to the Russia–Ukraine conflict, and explores the vulnerabilities in the AI systems as well as the challenges and limitations in AI adoption by NATO. The US National Security Commission Report of 2021 states that China is leapfrogging to new technologies by investing in intelligentised warfare like swarm drones and using AI for reconnaissance, electromagnetic countermeasures and coordinated firepower strikes.1 The US is jointly working with its allies on the policy implications of such new technology. It is also partnering with countries like Canada, Denmark, Estonia, the UK, France and Norway, to work on military standards on AI.2 In October 2021, NATO formally adopted the first AI strategy on the responsible military use of AI with three core tasks: collective defence, crisis management and cooperative security.3 NATO’s strategy aims to accelerate the uptake of AI for military systems.4 The six principles of the NATO’s AI strategy include: Lawfulness, Responsibility and Accountability, Explainability and Traceability, Reliability, Governability and Bias Mitigation.5 This strategy aims to protect, monitor and innovate AI and related disruptive technologies in a phased manner to establish political support for AI military projects. The strategic surge in EDTs is driven by the accelerated investment towards the military adoption and innovation of EDTs and maintaining a sustainable innovation ecosystem that can be achieved through civil–military collaboration. In 2021, NATO endorsed the strategy on EDTs that included AI and machine learning among the seven identified key technologies (Data, AI, Autonomy, Quantum, Space, Biotechnology, and Hypersonic).6 The strategy plans to invest US$ 1 billion in building test centres across Europe and North America, focusing on emerging technologies like AI, Quantum and hypersonics.7 In the NATO Summit held at Brussels in 2021, as a part of the NATO 2030 Agenda, NATO’s new Defence Innovation Accelerator for the North Atlantic (DIANA) was launched. It aims to maintain NATO’s technological edge compared to nations like China and Russia, which are challenging the West with their accelerated investments to build technological capacity and use offensive subversive measures. DIANA has been assigned to manage the NATO Innovation Fund, receiving a funding of US$ 82.6 million a year for 15 years.8 It will explore the future roadmap of implementation of advanced technologies and competition to foster transatlantic cooperation.9 At present, there are 10 accelerator sites with more than 50 test centres in technological hubs across the states.10 The NATO advisory group on EDTs is an external body that advises NATO on the optimisation of its innovation efforts. This group provides recommendations on improving collaboration and partnerships with the private sector, industry, and academia. In addition, there are other bodies like the NATO Advisory board, Allied Command Transformation (ACT), NATO’s Science and Technology Organisation (STO), and NATO Communication and Information Agency (NCIA) that support the alliance’s adoption of deep technologies and EDTs. AI has been a contributing agent in weaponising cyberspace and augmenting cyberwarfare to the next level in modern battlefield scenarios. While some of its uses such as in scaling of data analytics, data fusion, deep fakes, cyber defence have matured, its use in autonomous weapon systems and other complex operational applications are at a nascent stage. AI has been aggressively used to spread disinformation in the Russia–Ukraine War. Machine learning algorithms have been used to amplify misleading and fake content on social media platforms, like doctored videos of invading forces and fake live streams. On the other hand, it has also been used for anomaly detection, identification of disinformation and for cybersecurity. AI uses natural language processing algorithms, machine learning and deep learning to identify anomalies in the text data, images and videos. Russia is said to have used AI-enabled systems not only on the battlefield but also in cyberspace, targeting the critical infrastructures of Ukraine.11 Russian troll farms have been alleged to have used AI-enabled systems to generate human faces for fake propagandist personas on social media platforms like Twitter, Instagram and Facebook.12 NATO countries have also used AI to help Ukraine counter such AI-based attacks. Private companies are also playing a role in the unfolding AI battlespace. US-based companies like Snorkel AI, a data science platform, has made its services accessible to federal authorities for the detection of anomalous signals and adversary communications in order to access high-value information for better decision-making.13 Similarly, Ukraine has been given free access to Clearview AI facial recognition software, which has a database of 2 billion photos crawled from Russian social media platforms. This software is being used for the detection of Russian forces and to identify the dead and gauge the spread of disinformation in cyberspace.14 AI’s analytical potential has been tapped by companies even before the Russia–Ukraine war started. In December 2021, a geospatial data firm, SpaceKnow, claimed to have detected a military presence in Yelna, a Russian town. The Russia–Ukraine conflict has become a test case for AI adoption in modern warfare. The US is using the conflict as a test-bed for many of its AI projects with the Pentagon’s ‘Maven’ project having contributed to the detection and classification of objects of interest from various drone footage through AI and Machine Learning (ML) algorithms. It has been reported that the Pentagon has been using AI and ML tools to collect a vast amount of data on the Russia–Ukraine war and analyse it to learn and generate battlefield intelligence about the Russian command and control strategies.15 The advanced AI-enabled systems with the US Department of Defense (DoD) are said to have been used for overseeing the battlefield and collecting and archiving signals intelligence. It was stated at the Defense One’s Genius AI Summit in April 2022 that all this information will be fed into systems for training of machine learning algorithms to support future decision-making processes.16 It is believed that the US and NATO allies have already built such AI-enabled cyber weapons and defences, information about which is said to be highly classified.17 The US DoD and its allies have taken advantage of these advanced tools to gather critical information from the publically available image data to thwart Russian attacks in Ukraine. This war data will also help NATO allies anticipate adversary attacks, their behaviour, and the use of advanced technologies in the real world by countries like China and Russia. This intelligence will also augment multifactor analysis and modelling changes dynamically by integrating different technological platforms. Due to the sanctions imposed on Russia as a result of the Russia–Ukraine war, its AI development is expected to slow down. The ongoing conflict highlights the constraints around the use of AI. Despite AI-enabled cyber-attacks and misinformation campaign by Russia, Ukraine has mounted effective counter-cyber operations.18 Russia’s limited use of AI in the conflict can be explained through the existing vulnerabilities in the AI systems that can be exploited in many ways. One hypothesis for Russia’s limited use of AI could be the trust in such systems where it is a matter of lives and military objectives at stake.19 The vulnerabilities in the AI systems can include data poisoning and input attacks, attacking the supply pipelines by simply crafting data and feeding it to public resources, white-box and black-box attacks.20 There is always a chance of orchestrated and conflicting data in the face of AI models to derail them and to exploit the vulnerabilities in the algorithms, and active manipulation by the adversaries can be induced. Defense Advanced Research Projects Agency (DARPA) has launched a Guaranteeing AI Robustness against Deception (GARD) programme. Under this programme, development efforts are being made to establish a theoretical foundation for defensible ML and the creation and testing of such systems.21 The Army Research Laboratory (ARL) is working with the Internet of Battlefield Things Collaborative Research Alliance (IoBT-CRA) to explore the use of ML and intelligent technology on the battlefield and strengthen the collaboration between autonomous actors and human soldiers in combat. They are also working on methods to understand the challenges of AI-enabled systems employed on the battlefield and to make them less susceptible to attacks.22 AI technology in modern warfare will be an intractable weapon in future conflicts beyond Ukraine. Countries trying to achieve a technological edge over others have started considerable investments in AI technology to strengthen their militaries. NATO has invested US$ 1 billion to develop new AI defence technologies. The US DoD has also planned to invest US$ 874 million in AI-related technologies as a part of their army research and development budget (federal fiscal year 2022 DoD budget).23 The UK DoD is funding suppliers to work with Defence Science & Technology Lab (Dstl) on AI projects which were £7million for the year 2021/22 and is supposed to increase to £29 million in the next year.

## Competition Advantage Answers

### US Winning/Can’t Lose

#### US winning – China’s authoritarian ascendence will cause its downfall – the US will outcompete

Kroenig 20 (Matthew Kroenig is a professor of government and foreign service at Georgetown University, and the deputy director of the Scowcroft Center for Strategy and Security at the Atlantic Council, “Why the U.S. Will Outcompete China,” The Atlantic, 4/3/2020, <https://www.theatlantic.com/ideas/archive/2020/04/why-china-ill-equipped-great-power-rivalry/609364/)-> MP

National-security analysts see China as one of the greatest threats facing the United States and its allies. According to an emerging conventional wisdom, China has the leg up on the U.S. in part because its authoritarian government can strategically plan for the long term, unencumbered by competing branches of government, regular elections, and public opinion. Yet this faith in autocratic ascendance and democratic decline is contrary to historical fact. China may be able to put forth big, bold plans—the kinds of projects that analysts think of as long term—but the visionary projects of autocrats don’t usually pan out. Yes, democratic governments are obligated to answer to their citizens on regular intervals and are sensitive to public opinion—that’s actually democracies’ greatest source of strength. Democratic leaders have a harder time advancing big, bold agendas, but the upside of that difficulty is that the plans that do make it through the system have been carefully considered and enjoy domestic support. Historically speaking, once a democracy comes up with a successful strategy, it sticks with the plan, even through a succession of leadership. Washington has arguably followed the same basic, three-step geopolitical plan since 1945. First, the [United States built](https://www.amazon.com/Present-Creation-Years-State-Department/dp/0393304124) the current, rules-based international system by providing security in important geopolitical regions, constructing international institutions, and promoting free markets and democratic politics within its sphere of influence. Second, it welcomed into the club any country that played by the rules, even former adversaries, like Germany and Japan. And, third, the U.S. worked with its allies to defend the system from those countries or groups that would challenge it, including competitors such as Russia and China, rogue states such as Iran and North Korea, and terrorist networks. America can pursue long-term strategy in part because it enjoys domestic political stability. While new politicians seek to improve on their predecessor’s policies, the United States is unlikely to see the drastic shifts in strategy that come from the fall of one political system and the rise of another. Democratic elections may be messy, but they’re not as messy as coups or civil wars. Open societies have many other advantages as well. They facilitate innovation, trust in financial markets, and economic growth. Because democracies tend to be more reliable partners, they are typically skillful alliance builders, and they can accumulate resources without frightening their neighbors. They tend to make thoughtful, informed decisions on matters of war and peace, and to focus their security forces on external enemies, not their own populations. Autocratic systems simply cannot match this impressive array of economic, diplomatic, and military attributes. David Leonhardt [recently wrote](https://www.nytimes.com/2020/01/16/opinion/sunday/china-economy-trade.html) in The New York Times, “Chinese leaders stretching back to Deng Xiaoping have often thought in terms of decades.” Commonly cited examples of that long-term thinking include the Belt and Road Initiative, a program that invests in infrastructure overseas; Made in China 2025, an effort to subsidize China’s giant tech companies to become world leaders in 21st-century technologies, such as artificial intelligence; and Beijing’s promise to be a global superpower by 2049. Since putting in place sound economic reforms in the 1970s, China has seen its economy expand at eye-popping rates, to become the world’s second largest. Many [economists predict](https://www.newsweek.com/worlds-largest-economy-2030-will-be-china-followed-india-us-pushed-third-1286525) that China could even surpass the United States within the decade, and [some have suggested](http://content.time.com/time/world/article/0,8599,2043235,00.html) that China’s model of state-led capitalism will prove more successful, in terms of economic growth, than the U.S. template of free markets and open politics. I doubt these predictions. Because autocratic leaders are unconstrained and do not have to contend with a legislature or courts, they have an easier time taking their countries in new and radically different directions. Then, when the dictator changes his mind, he can do it again. Mao’s autocratic China ricocheted from one failed policy to another: the Great Leap Forward, then the Hundred Flowers Campaign, then the Cultural Revolution. Mao [aligned with the Soviet Union in 1950](https://www.fmprc.gov.cn/mfa_eng/ziliao_665539/3602_665543/3604_665547/t18011.shtml) only to nearly [fight a nuclear war](https://nsarchive2.gwu.edu/NSAEBB/NSAEBB49/index2.html) with Moscow in the next decade. Beginning in the time of Deng Xiaoping, China pursued a fairly constant strategy of liberalizing its economy at home and [“hiding its capabilities and biding its time”](https://www.ft.com/content/05cd86a6-b552-11e7-a398-73d59db9e399) abroad. But President Xi Jinping abandoned these dictums when he took over. As the most powerful leader since Mao—he has changed China’s constitution to set himself up as dictator for life—he could once again jerk China in several new directions, according to his whims, and back again. [According to the Asia Society](https://aspi.gistapp.com/winter-2020/page/overview), he has stalled or reversed course on eight of 10 categories of economic reform promised by the Chinese Communist Party (CCP) itself. Moreover, Xi is baring China’s teeth militarily, [taking contested territory](https://www.nytimes.com/2018/02/08/world/asia/south-china-seas-photos.html) from neighbors in the South China Sea and [conducting military exercises](https://www.nytimes.com/2017/07/25/world/europe/china-russia-baltic-navy-exercises.html) with Russia in Europe. The problem for Beijing is that stalled reforms will stymie its economic potential and its confrontational policies are provoking an international coalition to contain them. The [2017 U.S. National Security Strategy](https://www.whitehouse.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905-2.pdf) declared great-power competition with China the foremost security threat to the U.S.; the European Union labeled China a “systemic rival”; and Japan, Australia, India, and the United States have formed a new “quad” of powers to balance China in the Pacific. Furthermore, the plans often cited as evidence of China’s farsighted vision, the Belt and Road Initiative and Made in China 2025, were announced by Xi only in 2013 and 2015, respectively. Both are way too recent to be celebrated as brilliant examples of successful, long-term strategic planning. A certain level of domestic political stability is a prerequisite for charting a steady strategic course in foreign and domestic affairs. But autocratic regimes are notoriously brittle. While institutionalized political successions in democracies typically lead to changes of policy, political successions in autocracies are likely to result in regime collapse and war. China’s “5,000 [years of history](https://camphorpress.com/5000-years-of-history/)” were pockmarked by rebellion, revolution, and new dynasties. Fearing internal threats to domestic political stability—consider the [protests this year in Hong Kong](https://www.bbc.com/news/world-asia-china-49317695) and Xinjiang—the CCP [spends more on domestic security](https://www.wsj.com/articles/china-spends-more-on-domestic-security-as-xis-powers-grow-1520358522) than on its national defense. If you follow the money, the CCP is demonstrating that the government is more afraid of its own people than of the Pentagon. This domestic fragility will frustrate China’s efforts to design and execute farsighted plans. If threats to Chinese domestic stability were to materialize and the CCP were to collapse tomorrow, for example, Chinese grand strategy could undergo another seismic shift, including possibly opting out of competition with the United States altogether. [Shadi Hamid: China Is Avoiding Blame by Trolling the World](https://www.theatlantic.com/ideas/archive/2020/03/china-trolling-world-and-avoiding-blame/608332/) Autocracies have other vulnerabilities as well. State-led planning has never produced high rates of economic growth over the long term. Autocrats are poor alliance builders who fight with their supposed allies more than with their enemies. And the highest priority of autocratic security forces is repressing their own people, not defending the country. The world has undergone drastic changes in just the past few years, but these enduring patterns of international affairs have not. Some fear that Trump’s nationalist tendencies will erode the U.S. position, but the momentum of America’s successful grand strategy has kept the country on a fairly steady course. Despite Trump’s criticism of NATO, for example, two new countries have joined the alliance on his watch, including [North Macedonia this week](https://www.nytimes.com/reuters/2020/04/02/world/europe/02reuters-nato-northmacedonia.html). The coronavirus has upended a sense of security in the U.S., leading many people into the familiar trap of [lauding autocratic China’s firm response](https://www.nytimes.com/2020/03/19/world/asia/coronavirus-china-united-states.html) in contrast to the halting and patchwork measures in the United States. But there is good reason to believe that this assessment will be updated in America’s favor with the benefit of hindsight. Already we are seeing evidence that conditions are much worse in China than CCP officials are letting on and that China’s attempts at international “disaster diplomacy” are backfiring. It has been revealed that the CCP has continually [misrepresented](https://time.com/5813628/china-coronavirus-statistics-wuhan/) the numbers of COVID-19 infections and [deaths](https://www.bloomberg.com/news/articles/2020-03-27/stacks-of-urns-in-wuhan-prompt-new-questions-of-virus-s-toll) in China, and European nations have [rejected](https://www.bbc.com/news/world-europe-52092395) and returned faulty Chinese coronavirus testing kits. The great political theorist Niccolò Machiavelli considered a similar line of thinking in the 16th century, about whether republics or dictators charted a more stable course. He wrote, “I, therefore, disagree with the common opinion that a populace in power is unstable [and] changeable … The prince … unchecked by laws, will be more … unstable, and imprudent than a populace.” The U.S. political system certainly has problems. But democracy is the best machine ever invented for generating enormous power, wealth, and prestige on the international stage.

#### US leading AI now.

NIST 22 (National Institute of Standards and Technology, agency of the United States Department of Commerce, April 5, 2022, https://www.nist.gov/artificial-intelligence/ai-standards-federal-engagement)

Federal agencies engaged in developing standards for artificial intelligence (AI) either because these activities are part of their assigned responsibilities or because AI is essential to their current or evolving missions. Executive Order (EO) 13859 directed agencies to ensure that "technical standards minimize vulnerability to attacks from malicious actors and reflect federal priorities for innovation, public trust, and public confidence in systems that use AI technologies" and to "develop international standards to promote and protect those priorities." NIST involved stakeholders from the private and public sectors in developing the U.S. Leadership in AI: A Plan for Federal Engagement in Developing Technical Standards and Related Tool, which was released in August 2019. The Plan provided guidance regarding priorities and appropriate levels of engagement in AI-standards-related matters. It also recommended that the "Federal Government should commit to deeper, consistent, long-term engagement in AI standards development activities to help the United States to speed the pace of reliable, robust, and trustworthy AI technology development." Since then, agencies which develop or use AI have made progress in bolstering AI standards-related knowledge, leadership, and coordination; promoted focused research on the trustworthiness of AI systems; supported and expanded public-private partnerships; and engaged internationally. Notable steps by agencies include: Established the role of Federal AI Standards Coordinator with responsibility to gather and share AI standards-related needs, strategics, roadmaps, terminology, use cases, and best practices in support of reliable, robust, and trustworthy AI in government operations. This responsibility resides with NIST. Created the AI Standards Coordination Working Group (AISCWG) to facilitate agency activities related to development and use of AI standards. Working under the charter of the Interagency Committee on Standards Policy (ICSP), and aligning its activities with the Federal AI Standards Coordinator, the AISCWG is responsible for promoting effective and consistent federal policies leveraging AI standards cited in the AI Standards Plan Multiple agencies are reviewing options to better position the Federal Government to gain access to new employees and to develop current employees to meet rapidly growing AI-capable workforce needs. That includes aiming to develop and provide a clear career development and promotion path that values and encourages participation in and expertise in AI standards and standards development. The National Defense Authorization Action of 2021 (NDAA) explicitly authorized NIST to carry out a wide range of AI standards-related functions. Over the past two years, NIST has expanded and made noteworthy progress in carrying out research that specifically addresses standards-oriented research recommendations in the AI Standards Plan. The National Science Foundation (NSF) is supporting several grant programs related to AI trustworthiness. Among them is the National AI Research Institutes program, which includes a growing number of partnerships with federal agencies and private companies. Strategic engagement in international AI standards was the focus of the U.S. Department of State's submission to Congress of "A Plan to Establish Exchanges and Partnerships between the United States and Its Allies to Create Standards for Artificial Intelligence Technologies." The US championed development of the first international principles for the responsible use of AI at the Organisation for Economic Co-operation and Development (OECD). Also, the US became a founding member of the Global Partnership on AI (GPAI). Through engagement in GPAI, the United States seeks to complement the more policy-oriented work of the OECD by increasing coordination on research and development and scaling up practical projects for implementing trustworthy AI.

### China Not a Threat

#### US-China AI competition is not zero-sum – collaboration with clear goals solves.

Sullivan 21 (Lieutenant Colonel Ryan Sullivan is an Army pilot by trade, who lived and studied at the prestigious Fudan University in Shanghai, China, as an Olmsted Scholar. He was one of just five Army officers selected that year. Ryan has taken his experience in and knowledge of China and combined that with graduate-level work in the field of Artificial Intelligence to deliver an in-depth study of the critical elements of U.S.-China competition in Artificial Intelligence. “US China AI Competition Factors,” 10/04/21 <https://www.airuniversity.af.edu/Portals/10/CASI/documents/Research/Cyber/2021-10-04%20US%20China%20AI%20Competition%20Factors.pdf?ver=KBcxNomlMXM86FnIuuvNEw%3D%3D>, p9)ZK

The U.S. and China remain the two nations best positioned to benefit from the increasing adoption of AI across society. Competition over AI is not zero-sum, in that both nations will derive value from AI growth, but the benefits are not shared equally. China’s substantial advantages in data and the size of its market lead experts to predict that China will account for nearly half of the estimated $15.7 trillion that AI will add to the global gross domestic product (GDP) by 2030, and almost double the expected growth in North America.23 AI’s economic benefits are undeniable, but AI competition with China goes beyond GDP growth and centers on the global diffusion of Chinese values, norms, and standards for AI utilization. That environment is very much undecided, as the international community struggles with challenges over data privacy, the role of AI-empowered multinational companies, and critical choke points in supply chains that impact the AI industry and threaten national security interests. This paper seeks to recognize that collaboration occurs between the U.S. and China and identifies efforts to address security concerns, collaborations, and even cooperation in areas of trans-national challenges that benefit all of humankind. The deteriorating bilateral relationships and mistrust likely prohibit bilateral cooperation in many areas. However, in working with like-minded nations with shared values, the U.S. can promote multilateral collaboration and cooperation opportunities for AI. Such engagements should not exclude China by design. However, the criteria for engagement must clarify that the values shared by democratic nations will help address the ethical concerns over AI and the adoption of technical standards. The current political environment and U.S. actions taken against universities and companies with ties to the PLA leave very little room for military-to-military (mil-to-mil) collaboration on AI, nor did research for this paper discover any indications from Chinese sources of a desire for mil-to-mil engagements. Nevertheless, in focusing on our allies and promoting interoperability, the Department of Defense (DoD) entities must remain aware that collaboration opportunities might arise in various areas of responsibility (AOR) and prepare appropriate guidance and safeguards for units based on current policies.

#### China and the US will collaborate on AI research even through strategic tensions

Andrews 3/16 (Edmund L. Andrews is a former economics reporter for The New York Times who served as a technology reporter in Washington, European economics correspondent and Washington economics correspondent, “China and the United States: Unlikely Partners in AI,” Stanford University Human-Centered Artificial Intelligence, 3/16/2022, <https://hai.stanford.edu/news/china-and-united-states-unlikely-partners-ai>) – MP

Despite both rivalry and rising tensions between the United States and China, the two nations have become the world’s leading collaborators in research on artificial intelligence. The newly released AI Index Report, which tracks AI trends on a host of fronts and is published by the Stanford Institute for Human-Centered Artificial Intelligence, finds that U.S. and Chinese AI researchers teamed up on far more published articles than collaborators between any other two nations. Overall, U.S.-China collaborations on AI research have quintupled since 2010 and totaled 9,660 papers in 2021—much faster than the increase in collaborations between any other two nations. Collaborations between the United States and United Kingdom, the second most prolific source of cross-border research, increased almost threefold to 3,560 papers. Read the 2022 AI Index The startling trend highlights a paradox. Even as China and the U.S. race for leadership in what they view as a strategically important technology, researchers on both sides appear to see benefits in sharing expertise and working together. “What’s clear is that the amount of collaboration between the United States and China has gone up dramatically, and it has gone up much more than collaborations between any two other countries,” says Raymond Perrault, Distinguished Computer Scientist at SRI International in Menlo Park and co-chair of the AI Index Steering Committee. To some extent, the surge in U.S.-China research simply reflects the fact that both nations have poured vast resources into artificial intelligence and produce huge amounts of research. On top of that, many Chinese researchers were trained in the United States and retain close professional ties to their American colleagues. But the practice is consistent with patterns observed during previous technological revolutions in textiles, steel, and chemical engineering. Research by Jeffrey Ding, a postdoctoral fellow at Stanford HAI, has shown that the full economic impact of historic tech advances stemmed less from which nation pioneered a technology than from which ones were best at applying it across a broad range of industries. That dispersion of technology requires sharing information across industries as well as borders, much as the United States catapulted applied British advances in steel machinery to develop manufacturing approaches that catapulted it to economic dominance. That said, the collaboration in AI comes at a time of growing friction between the United States and China over trade, human rights, and strategic power in the Pacific Rim. Former President Donald Trump villainized China over its trade practices, and President Joe Biden imposed a diplomatic boycott of the Beijing Olympics over China's human rights abuses. Indeed, the volume of published U.S.-China collaborations in AI has declined slightly from its peak in 2019. Perrault says it’s unclear whether the recent dip reflects a lag in data, a temporary disruption, or a more fundamental change. Collaborations have also declined slightly between most other nations, such as those between researchers in the United States, Canada, and Europe. Globally, AI research has soared over the past decade. The volume of peer-reviewed AI journal articles has more than doubled since 2015, hitting a new record of 172,000 papers in 2021. On top of that, researchers posted 56,000 pre-print articles in repositories specializing in AI. Chinese researchers have been the most prolific for the past several years, publishing 27.5% of all AI journal articles worldwide. American researchers accounted for 12%. Chinese journal articles also led those of every other nation in citations, an indicator of their scientific importance. And although the United States continues to receive more AI patents than any other nation, China is now filing more than half of all the world’s patent applications in the field. Image Graph showing increase in patent filings in China (51.69% of total) while patent filings in the U.S. fall (16.92%) AI research has also intensified in most other parts of the world, notably in the European Union, Canada, and Japan. The one notable exception is Russia, which has largely gone its own way. “Russia is way, way smaller in this area,’’ says Perrault. In the United States, 1,200 institutions published roughly 3,000 cross-border AI collaborations in 2021. In China, 500 institutions published 2,000 cross-border projects. By contrast only 60 Russian institutions teamed up on 600 AI projects.

#### AI collaboration between US-China are vital, and a translated Chinese report confirms development is NOT zero-sum.

Sullivan 21 (Lieutenant Colonel Sullivan is an Army pilot by trade, who lived and studied at the prestigious Fudan University in Shanghai, China, as an Olmsted Scholar. He was one of just five Army officers selected that year. Ryan has taken his experience in and knowledge of China and combined that with graduate-level work in the field of Artificial Intelligence to deliver an in-depth study of the critical elements of U.S.-China competition in Artificial Intelligence.) “The U.S., China, and Artificial Intelligence Competition Factors” 2021-10-04 <https://www.airuniversity.af.edu/Portals/10/CASI/documents/Research/Cyber/2021-10-04%20US%20China%20AI%20Competition%20Factors.pdf?ver=KBcxNomlMXM86FnIuuvNEw%3D%3D> // ZX

The purpose of this research is to examine the critical elements of U.S.-China competition over Artificial Intelligence (AI) norms and determine if the resulting contest is inherently zero-sum. The paper explores SinoAmerican AI competition through the lenses of values, cohesion, influence, and legitimacy to better understand each nation’s positional advantages and identify possibilities for cooperation in bilateral or multilateral engagements. Those engagements will be part of the overall Sino-American struggle for influence within international institutions and standard-setting organizations (SSO) over technical standards and, more importantly, values, norms and ethics guiding AI applications.In the new world order, competition over the establishment of AI norms is not zero-sum; however, the continued deterioration in mutual trust and bilateral relations will test both the U.S. and China to avoid transactional engagements or challenges to core interests which could escalate AI competition into AI conflict. Hal Brands and Zack Cooper argue that “many American conceptions of the competition with China rest on the false premise that this contest will be neatly bipolar – a replay of the East-West standoff in Europe during the Cold War. A much messier world is taking shape.”2 This messiness stems from 21st-century competition, which a report from RAND views as mixed sum, as shared interest and objectives converge in an international system that currently displays elements of unipolarity, bipolarity, and multipolarity.3 AI will play an instrumental role in reshaping the world order and the degrees to which each polarity element exists. Neither the U.S. or China can achieve its objectives alone, and both must seek support from other nations to achieve their desired ends. AI and other emerging technology will empower developing nations and middle powers to play a more prominent role in constructing a world order. Those middle powers, or “third countries, such as India, Indonesia and Turkey,” no longer feel the need “to align entirely with the United States, nor with China, when they can gain by playing Washington and Beijing against each other to produce a “multipolar competition, not a bipolar one.”4 This paper assumes that the liberal framework remains intact, and that AI competition will occur in an increasingly multipolar world order. Despite breakdowns in bilateral relations, zero-sum conflict is not predestined, as Shanghai scholar Wu Xinbo notes, “promoting pragmatic cooperation and constructive competition, effective management, control of risks, and prevention of major conflicts between China and the United States remains the basic direction of China’s diplomacy with the United States.”11 Several U.S. scholars and leaders such as Elizabeth Economy and Graham Allison also advocate cooperative approaches to competition by promoting coopetition, coevolution, or rivalry partnerships.12 Such strategies are hard to imagine in a period of increasingly strained bilateral relations and diverging values, and are likely to fail if the leaders of both nations maintain a binary approach to engagement. This paper explores competition through the lens of values, cohesion, influence, and legitimacy to better understand each nation’s positional advantages and identify possibilities for cooperation in bilateral or multilateral engagements. The U.S. and China remain the two nations best positioned to benefit from the increasing adoption of AI across society. Competition over AI is not zero-sum, in that both nations will derive value from AI growth, but the benefits are not shared equally. China’s substantial advantages in data and the size of its market lead experts to predict that China will account for nearly half of the estimated $15.7 trillion that AI will add to the global gross domestic product (GDP) by 2030, and almost double the expected growth in North America. Values competition is not zero-sum, but diverging AI values represent the most significant challenge to cooperation and limits the extent to which Sino-American collaboration on AI can continue in some areas. The synergy of economic, political, and technological challenges that AI competition creates demands action. Our nation’s gravest risk is to remain on the sidelines of global leadership and allow the CCP to promote a values system that prioritizes the Party over the nation and its people as a viable alternative to democracy. Failure to address federal data privacy and consumer rights concerns leaves China and Europe as the only two models offering “guardrails against invasive data collection.”106 Challenges and opportunities in forming alliances and relying on the collective to balance other nations’ interests and needs present opportunities and risks. Regarding China, Graham Allison offers that “while U.S. planners must consider all reasonable contingencies, basing our strategy to meet the China challenge on the expectation that the Chinese economy or political system fails would be a mistake.”107 Finding ways to cooperate or collaborate would prove beneficial to the collective, but such choices on a state-to-state basis could very well lead to conflict. Attempting to challenge or contain China without allies seems unlikely to succeed in the long term.

#### Despite Advantages on both sides, US-China relations could solve AI MAD

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Clues for a Winning Strategy Is AI a race China is destined to win? With a population four times the size of the United States, there is no question that China will have the largest domestic market for AI applications. With many multiples of the United States in data, substantially larger numbers of computer scientists and a government for which there is a first-order priority, we can understand colleagues who are pessimistic. Indeed, it is our best judgment that on the current trajectory, while the United States will maintain a narrow lead over the next five years, China will then catch up and pass us quickly thereafter. Nonetheless, we believe that this is an arena in which the United States can compete—and win. Congress recently established the “National Security Commission on Artificial Intelligence,” with Eric Schmidt as its chair, and Bob Work, who served as Deputy Secretary of Defense under both Obama and Trump, as Vice Chair. Its mission is to develop that strategy “to ensure America’s national security enterprise has the tools it needs to maintain U.S. global leadership.”55 In the hope of being helpful to that effort, we conclude with five pointers toward a winning strategy. First, Americans must wake up to the challenge. Recognition that that the United States faces a serious competitor in a contest in which the outcome will be decisive for our future is necessary to get our competitive juices flowing. The Olympics offers an instructive analogy for thinking about a competitive strategy for AI. It also reminds us that competition is inherently a good thing. Competition produces superior performance. Participants in a marathon run faster than they do when running alone. Indeed, competition is a core American value. Free markets organize a competitive process that produces better products at cheaper prices. Science and its applications advance as research teams compete to better understand the world.56 Second, in this competition, the United States cannot hope to be the biggest—in that category, China wins by default due to the size of its population. However, what the United States can be is the smartest. In the seeking to improve and advance the most advanced of technologies, the brightest 0.0001 percent of individuals make the difference. The United States can succeed by recruiting talent from all 7.7 billion people on Earth and enabling these individuals to realize their full potential.57 In fact, U.S. companies have now recruited more than half of the top 100 recognized AI geniuses. In sharp contrast, China is a closed society—limited essentially to 1.4 billion Chinese speakers. Just 1000 foreign born individuals became Chinese citizens last year. So while the United States will not win competitions in which bulk numbers are the dominant factor, where brilliance, creativity and innovation matter most, the United States has a decisive advantage.58 Third, platforms matter. Here the United States begins with a huge sustainable competitive advantage: English is the universal language for science, business and the web. Chinese face the choice of either speaking English, or simply talking to themselves. Not only do the Chinese, but also the French and others often complain that this is unfair—and it may be. But it is a fact. To transform Singapore from a third-world city into one of the world’s most successful and prosperous global trading hubs, Lee Kuan Yew insisted on making English its first language. (Indeed, at one point in counseling Chinese leaders, he suggested that China make English its first language.) Today, more than half of the 7.5 billion people on Earth speak English—and another billion are seeking to learn. Fourth, American companies have a significant first mover advantage in the establishment of the major platforms in AI, including operating systems (Android and Apple), design of advanced semiconductors (arm), and killer apps—including Instagram, YouTube and Facebook. Instagram has 1 billion monthly active users; Facebook more than 2.4 billion. While Chinese competitors will certainly attempt to displace the current leaders in both platforms and applications, if American companies are smart enough to continue enlarging their users’ opportunities, improving their experiences, and expanding the number of people using their platforms and applications, Chinese and others who want to speak to the world could have to continue relying on U.S.-dominated platforms. Fifth, while competing vigorously with the intention of sustaining U.S. leadership, we must recognize at the same time the necessity of cooperation in areas where neither the United States nor China can secure its own minimum vital national interests without the help of the other. The consequences of human energy consumption on the climate offers a vivid illustration. If either the United States or China keeps emitting greenhouse gases at the current rate, in one hundred years, this could produce a biosphere in which neither nation can survive. Thus there is no viable alternative to cooperation. The same is true in other realms including preventing third party provocations—for example, in North Korea or Taiwan—from dragging the United States and China into a catastrophic war; and cooperation to prevent recurring financial crises like the Great Recession of 2008 from cascading into another Great Depression. We suspect there may be an analog in limiting the unconstrained advance of AI. The possibility that nations could simultaneously compete ruthlessly, on the one hand, while cooperating intensely, on the other, sounds to diplomats like a contradiction. In the world of business, however, it is called life. While no one has yet developed a felicitous term for what is sometimes called “coopetition,” Apple and Samsung offer a powerful example. The two are ruthless rivals in the global market for smartphones (where, in fact, over the past five years Samsung has become number one). But who is Apple’s largest supplier of components for smartphones? Samsung. Managing a relationship that is simultaneously competitive and cooperative requires vigilance, judgment and agility in adapting. But if, as we believe the evidence shows, technologies on a small globe have left the United States and China with two—and only two—options, we believe they can find ways to coexist, however uncomfortably, if their only alternative is mutual destruction.

### No Arms Race

#### We are not in an AI arms race – everything is gradual.

Horowitz and Scharre, 2021 - Director of the Emerging Capabilities Policy Office in the Office of the Under Secretary of Defense for Policy and  Vice President and Director of Studies at CNAS [Michael, Paul, January 12 2021, “AI and International Stability: Risks and Confidence- Building Measures”, <https://www.cnas.org/publications/reports/ai-and-international-stability-risks-and-confidence-building-measures>, Acc 6/18/22. M.A.]

AI is a general-purpose technology akin to computers or the internal combustion engine, not a discrete technology like missiles or aircraft. Thus, while concerns of an “AI arms race” are overblown, real risks exist.[2](https://www.cnas.org/publications/reports/ai-and-international-stability-risks-and-confidence-building-measures#fn2) Additionally, despite the rhetoric of many national leaders, military spending on AI is relatively modest to date. Rather than a fervent arms race, militaries’ pursuit of AI looks more like routine adoption of new technologies and a continuation of the multi-decade trend of adoption of computers, networking, and other information technologies. Nevertheless, the incorporation of AI into national security applications and warfare poses genuine risks. Recognizing the risks is not enough, however. Addressing them requires laying out suggestions for practical steps states can take to minimize risks stemming from military AI competition.[3](https://www.cnas.org/publications/reports/ai-and-international-stability-risks-and-confidence-building-measures#fn3) One approach states could take is adopting confidence-building measures (CBMs): unilateral, bilateral, and/or multilateral actions that states can take to build trust and prevent inadvertent military conflict. CBMs generally involve using transparency, notification, and monitoring to attempt to mitigate the risk of conflict.[4](https://www.cnas.org/publications/reports/ai-and-international-stability-risks-and-confidence-building-measures#fn4) There are challenges involved in CBM adoption due to differences in the character of international competition today versus during the Cold War, when CBMs became prominent as a concept. However, considering possibilities for CBMs and exploring ways to shape the dialogue about AI could make the adoption of stability-promoting CBMs more likely.

### Escalation Turn

#### Treating AI as an arms race causes crisis stability.

Scharre 2021 – Director of the Technology and National Security Program at the Center for a New American Security [Paul, 6/28/21,https://tnsr.org/2021/06/debunking-the-ai-arms-race-theory/, “Debunking the AI Arms Race Theory”, 6/18/22, LND]

Even if military AI spending does not rise to the level of an “arms race,” many nations are nevertheless engaged in a security competition in the adoption of military AI, a competition that does pose risks. The situation that states find themselves in with regard to AI competition is much more accurately described as a security dilemma,[16](https://tnsr.org/2021/06/debunking-the-ai-arms-race-theory/#_ftn16) a more generalized competitive dynamic between states than the more narrowly defined “arms race.” In his 1978 article, “Cooperation Under the Security Dilemma,” Robert Jervis defined the security dilemma as follows: “[M]any of the means by which a state tries to increase its security decrease the security of others.”[17](https://tnsr.org/2021/06/debunking-the-ai-arms-race-theory/#_ftn17) As Charles Glaser has pointed out, it is not obvious from this definition why it would be intrinsically bad for an increase in one state’s security to come at the expense of another’s security.[18](https://tnsr.org/2021/06/debunking-the-ai-arms-race-theory/#_ftn18) In fact, decreasing the security of other states could have beneficial effects in enhancing deterrence and reducing the risks of aggression or achieving a favorable balance of power in a region, which could lead to greater political influence. The problem comes in the second- and third-order effects that could develop when another state reacts to having its security reduced. Responses could include counterbalancing with a net effect of no change in security (or worsening security). Glaser argues that there are some situations in which security competition is a rational strategy for a state to pursue even if competitors will arm in response. In other situations, arming may be a suboptimal strategy for a state, which would be better served by restraint or pursuing arms control.[19](https://tnsr.org/2021/06/debunking-the-ai-arms-race-theory/#_ftn19) Security competition could even leave both states worse off than before. This can occur during a traditional arms race if nations expend vast sums of money in an unsuccessful attempt to gain an advantage over one another, with the result that both nations divert funds from non-defense expenditures. If the outcome of a security competition is the same relative military balance as before, the balance of power may not have meaningfully changed, but both nations could face diminished economic and social well-being at home relative to if they had avoided a security competition. Even absent this “guns vs. butter” tradeoff, however, there are other ways in which security competition can lead to a net negative outcome for both states. One way this could occur is if military innovation and the development of new capabilities alter the character of warfare in a manner that is more harmful, more destructive, less stable, or otherwise less desirable than before. In his 1997 article, “The Security Dilemma Revisited,” Glaser gave the example of military capabilities that shifted warfare to a more offense-dominant regime.[20](https://tnsr.org/2021/06/debunking-the-ai-arms-race-theory/#_ftn20) There are other ways in which warfare could evolve in a net negative direction as well. For example, in World War I, Germany’s interest in developing and deploying chemical weapons was spurred in part due to fears about France’s developments in poison gas.[21](https://tnsr.org/2021/06/debunking-the-ai-arms-race-theory/#_ftn21) The result was the introduction of a weapon that increased combatant suffering on both sides, without delivering a significant military advantage to either. The same could occur with AI: It could alter the character of warfare in a way that would be a net negative for all participants. One possibility for how AI could alter warfare in a manner that would leave all states worse off would be if it accelerated the tempo of war past the point of human control, making warfare faster, more violent, and less controllable. There are advantages to adding intelligence into machines, but given the limitations of AI systems today, the optimal model for achieving the highest quality decision-making would be a joint human-machine architecture that combines human and machine decision-making. One way in which machines outperform humans, however, is in speed. It is possible to envision a competitive dynamic in which countries feel compelled to automate increasing amounts of their military operations in order to keep pace with adversaries. Then-Deputy Secretary of Defense Robert O. Work summed up the dilemma when he asked, “If our competitors go to Terminators and we are still operating where the machines are helping the humans and it turns out the Terminators are able to make decisions faster, even if they’re bad, how would we respond?”[22](https://tnsr.org/2021/06/debunking-the-ai-arms-race-theory/#_ftn22) This is a classic security dilemma. One state’s pursuit of greater automation and faster reaction times undermines other states’ security and leads them to similarly pursue more automation just to keep up. If states fall victim to this trap, it could lead to all states being less secure, since the pursuit of greater automation would not merely be an evolution in weapons and countermeasures that simply leads to the creation of new weapons in the future warfare could shift to a qualitatively different regime in which humans have less control over lethal force as decisions become more automated and the accelerating tempo of operations pushes humans “out of the loop” of decision-making. Some Chinese scholars have hypothesized about a battlefield “singularity,” in which the pace of combat eclipses human decision-making.[23](https://tnsr.org/2021/06/debunking-the-ai-arms-race-theory/#_ftn23) U.S. scholars have used the term “hyperwar” to refer to a similar scenario.[24](https://tnsr.org/2021/06/debunking-the-ai-arms-race-theory/#_ftn24) While the speed of engagement necessitates automation in some limited areas today, such as immediate localized defense of ships, bases, and vehicles from rocket and missile attack, expanding this zone of machine control into broader areas of war would be a significant development. Less human control over warfare could lead to wars that are less controllable and that escalate more quickly or more widely than humans intend. Similarly, limiting escalation or terminating conflicts could be more challenging if the pace of operations on the battlefield exceeds human decision-making. Political leaders would have a command-and-control problem in which their military forces are operating “inside” (i.e., faster than) their own decision cycle. The net effect of the quite rational desire for nations to gain an edge in speed could lead to an outcome that is worse for all. Yet, competitive dynamics could nevertheless drive such a result. One state’s pursuit of greater automation and faster reaction times undermines other states’ security and leads them to similarly pursue more automation just to keep up. Financial markets provide an example of this dynamic in a non-military competitive environment. Automation introduced into financial markets, especially high-frequency trading in which trades are executed at super-human speeds in milliseconds, has contributed to unstable market conditions that can lead to “flash crashes,” in which prices rapidly and dramatically shift.[25](https://tnsr.org/2021/06/debunking-the-ai-arms-race-theory/#_ftn25) Financial regulators have responded by employing “circuit breakers” that automatically halt trading for a pre-determined period of time if the price moves too quickly.[26](https://tnsr.org/2021/06/debunking-the-ai-arms-race-theory/#_ftn26) Financial markets have the benefit of a regulator who can force cooperative measures on competitors to address suboptimal outcomes. Under conditions of anarchy in the international security environment, any such cooperation would have to come from state v s themselves.

### Deterrence Turn

#### Quick adoption of AI applications degrades nuclear deterrence and causes miscalculation and war.

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AI-augmented conventional capabilities might affect strategic stability between great military powers. The nuanced, multifaceted possible intersections of this emerging technology with a range of advanced conventional weapons can compromise nuclear capabilities, thus amplifying the potentially destabilizing effects of these weapons. This article argues that a new generation of artificial intelligence–enhanced conventional capabilities will exacerbate the risk of inadvertent escalation caused by the commingling of nuclear and nonnuclear weapons. The increasing speed of warfare will also undermine strategic stability and increase the risk of nuclear confrontation. The hyperbole surrounding artificial intelligence (AI) makes it easy to overstate the opportunities and understate the challenges posed by the development and deployment of AI in the military sphere.1 Commingling and entangling nuclear and nonnuclear capabilities and the increasing speed of warfare may well undermine strategic stability.2 From what we know today about emerging technology, new iterations of AI augmented advanced conventional capabilities will compound the risk of military escalation,3 especially inadvertent and accidental escalation.4 While the potential escalation risks posed by advances in military technology have been discussed lightly in the literature, the potential of military AI to compound the risk and spark inadvertent escalation is missing.5 This article addresses how and why AI could affect strategic stability between nuclear-armed great powers (especially China and the United States) and the multifaceted possible intersections of this disruptive technology with advanced conventional capabilities.6 Toward this end, the article conceptualizes and defines military-use AI and identifies a broad portfolio of nonnuclear weapons with “strategic effects”7 along with their attendant enabling systems, including specific AI innovations that pose the greatest risks to nuclear stability.8 Rather than provide a net assessment of all of the possible ways AI could influence strategic stability, the article instead examines the possible stability enhancing and destabilizing effects in the nuclear domain using two examples: swarming autonomous weapon systems (AWS) and hypersonic weapons.9 Four core themes help conceptualize military-relevant AI.10 First, AI does not exist in a vacuum.That is, in isolation AI will unlikely be a strategic game changer. Instead, it will mutually reinforce the destabilizing effects of existing advanced capabilities, thereby increasing the speed of warfare and compressing the decision-making time frame. Second, AI’s impact on stability, deterrence, and escalation will likely be determined as much by a state’s perception of its functionality than what it is capable of doing. In the case of nuclear policy, deterrence, and strategic calculations more broadly, the perception of an adversary’s capabilities and intentions is as important as its actual capability. In addition to the importance of military force postures, capabilities, and doctrine, the effects of AI will therefore also have a strong cognitive element, increasing the risk of inadvertent escalation as a result of misperception and misunderstanding. For the foreseeable future, military AI will include a fair degree of human agency, especially in the safety-critical nuclear domain. Thus, strategic calculations on the use of force made in collaboration with machines at various levels will continue to be informed and shaped by human perceptions. Third, the increasingly competitive and contested nuclear multipolar world order will compound the destabilizing effects of AI and, in turn, increase escalation risks in future warfare between great military powers—especially China and the United States. Moreover, the potential operational and strategic advantages offered by AI-augmented capabilities could prove irresistible to nuclear-armed strategic rivals. Thus motivated, adversaries could eschew the limitations of AI, compromising safety and verification standards to protect or attempt to capture technological superiority on the future digitized battlefield.11 Finally, and related, against this inopportune geopolitical backdrop, the perceived strategic benefits of AI powered weapons will likely attract states as a means to sustain or capture the technological upper hand over rivals. The most pressing risk posed to nuclear security is, therefore, the premature adoption of unsafe, errorprone, unverified, and unreliable AI technology in the context of nuclear weapons, which could have catastrophic implications.12 Military AI applications can be broadly categorized into those that have utility at a predominately operational or strategic level of warfare.13 At the operational level, applications include autonomy14 and robotics (especially drone swarming); multi-actor interaction during red teaming and war gaming; big data–driven modeling;15 and intelligence analysis to locate and monitor mobile missiles, submarines, mines, and troops movement.16 At a strategic level, applications include (1) intelligence, surveillance, and reconnaissance (ISR) and command, control, communications, and intelligence (C3I) systems (especially in complex, adversarial, and cluttered environments);17 (2)  enhanced missile defense with machine learning-augmented automatic target recognition (ATR) technology (i.e., improving target acquisition, tracking, guidance systems, and discrimination);18 conventional precision missile munitions (including but not limited to hypersonic variants) able to target strategic weapons; (3)  increased speed and scope of the observation, orientation, decision, and action (OODA) loop decision-making to augment air defense and electronic warfare (especially in antiaccess/area-denial [A2/AD] environments); and (4) AI-enhanced offensive and defensive cyber capabilities (e.g., machine learning techniques to infiltrate and uncover network vulnerabilities and to manipulate, spoof, and even destroy these networks).19 While the potential strategic effects of military AI are not unique or exclusive to this technology, the confluence of several trends weighs heavily on the pessimistic side of the instability-stability ledger: the rapid technological advancements and diffusion of military AI; the inherently destabilizing characteristics of AI technology (especially heightened speed of warfare, explainability, and vulnerability to cyberattack); the multifaceted possible intersections of AI with nuclear weapons; the interplay of these intersections with strategic nonnuclear capabilities; and the backdrop of a competitive multipolar nuclear world order, which may entice states to prematurely deploy unverified, unreliable, and unsafe AI-augmented weapons into combat situations. The historical record demonstrates that security competition—motivated by the desire to control warfare—tends to be ratcheted up because of the complexity of military technology and operations over time.20 As a result, the Clausewitzian conditions of “fog and friction” will likely become a ubiquitous outcome of the uncertainties created by increasingly complex and inherently escalatory technologies. From this perspective, the acceleration of modern warfare, the shortening of the decision-making time frame, and the commingling of military systems have occurred within the broader context of the computer revolution (e.g., remote sensing, data processing, acoustic sensors, communications, and cyber capabilities).21 These overarching trends do not rely on AI and would have likely occurred whether AI were involved or not. AI is best understood, therefore, as a potentially powerful force multiplier of these developments. Put another way, military AI, and the advanced capabilities it enables, is a natural manifestation—rather than the cause or origin—of an established trend, potentially leading states to adopt destabilizing launch postures due to the increasing speed of war and commingling.22 The following three case studies ground the discussion of the core themes related to AI and the risk of inadvertent escalation to illustrate how and why military AI applications fused with nonnuclear weapons might cause or exacerbate escalation risks in future warfare. They also illuminate how these AI-augmented capabilities would work and, despite the risks associated with the deployment of these systems, why militaries might deploy them nonetheless. Because military commanders are concerned with tightly controlling the rungs on the “escalation ladder,” they should, in theory, be against delegating too much decision-making authority to machines—especially involving nuclear weapons.23 Competitive pressures between great military powers and fear that others will gain the upper hand in the development and deployment of military AI (and the advanced weapon systems AI could empower) might overwhelm these concerns, however. By way of a caveat, the cases do not assume that militaries will necessarily be able to implement these augmented weapon systems in the near term. Disagreements exist among AI researchers and analysts about the significant operational challenges faced by states in the deployment of AI-augmented weapon systems. The proliferation of a broad range of AI-augmented autonomous weapon systems (most notably drones used in swarming tactics) could have far-reaching strategic implications for nuclear security and escalation in future warfare.24 Several observers anticipate that sophisticated AIaugmented AWSs will soon be deployed for a range of ISR and strike missions.25 Even if AWSs are used only for conventional operations, their proliferation could nonetheless have destabilizing implications and increase the risk of inadvertent nuclear escalation. For example, AIaugmented drone swarms may be used in offensive sorties targeting ground-based air defenses and by nuclear-armed states to defend their strategic assets (i.e., launch facilities and their attendant C3I and earlywarning systems), exerting pressure on a weaker nuclear-armed state to respond with nuclear weapons in a use-them-or-lose-them situation. Recent advances in AI and autonomy have substantially increased the perceived operational value that military great powers attach to the development of a range of AWSs,26 potentially making the delegation of lethal authority to AWSs an increasingly irresistible and destabilizing prospect.27 That is, in an effort to defend or capture the technological upper hand in the possession of cutting-edge war-fighting assets vis-à-vis strategic rivals’ traditionally conservative militaries, states may eschew the potential risks of deploying unreliable, unverified, and unsafe AWS. Today, the main risk for stability and escalation is the technical limitations of the current iteration of AI machine learning software (i.e., brittleness, explainability, unpredictability of machine learning, vulnerability to subversion or “data poisoning,” and the fallibility of AI systems to biases).28 To be sure, immature deployments of these nascent systems in a nuclear context would have severe consequences.29 Conceptually speaking, autonomous systems will incorporate AI technologies such as visual perception, speech, facial recognition, and decisionmaking tools to execute a range of core air interdiction, amphibious ground assaults, long-range strike, and maritime operations independent of human intervention and supervision.30Currently, only a few weapon systems select and engage their targets without human intervention. Loitering attack munitions (LAM)—also known as “loitering munitions” or “suicide drones”—pursue targets (such as enemy radars, ships, or tanks) based on preprogrammed targeting criteria and launch an attack when their sensors detect an enemy’s air defense radar.31 Compared to cruise missiles (designed to fulfill a similar function), LAMs use AI technology to shoot down incoming projectiles faster than a human operator ever could and can remain in flight (or loiter) for much longer periods. This attribute could complicate the ability of states to reliably and accurately detect and attribute autonomous attacks.32 A low-cost lone-wolf unmanned aerial vehicle (UAV) would, for example, not pose a significant threat to a US F-35 stealth fighter, but hundreds of AI machine learning autonomous drones in a swarming sortie may potentially evade and overwhelm an adversary’s sophisticated defense capabilities—even in heavily defended regions such as China’s east and coastal regions.33 Moreover, stealth variants of these systems34—coupled with miniaturized electromagnetic jammers and cyberweapons—may be used to interfere with or subvert an adversary’s targeting sensors and communications systems, undermining its multilayered air defenses in preparation for drone swarms and long-range stealth bomber offensive attacks.35 In 2011, for example, MQ-1 and MQ-9 drones in the Middle East were infected with hard-to-remove malicious malware, exposing the vulnerability of US subset systems to offensive cyber.36 This threat might, however, be countered (or mitigated) by the integration of future iterations of AI technology into stealth fighters such as the F-35.37 Manned F-35 fighters will soon be able to leverage AI to control small drone swarms in close proximity to the aircraft performing sensing, reconnaissance, and targeting functions, including countermeasures against swarm attacks.38 In the future, extended endurance of UAVs and support platforms could potentially increase the ability of drone swarms to survive these kinds of countermeasures.39 Several prominent researchers have opined that, notwithstanding the remaining technical challenges as well as the legal and ethical feasibility,40 we can expect to see operational AWSs in a matter of years.41 According to former US deputy secretary of defense Robert Work, the United States “will not delegate lethal authority to a machine to make a decision” in the use of military force. 42 Work adds, however, that such self-restraint could be tested if a strategic competitor (especially China and Russia) “is more willing to delegate authority to machines than we are and, as that competition unfolds, we’ll have to make decisions on how we can best compete” (emphasis added).43 In short, pre-delegating authority to machines, and taking human judgment further out of the crisis decision-making process, might severely challenge the safety, resilience, and credibility of nuclear weapons in future warfare.44 The historical record is replete with examples of near nuclear misses, demonstrating the importance of human judgment in mitigating the risk of miscalculation and misperception (i.e., of another’s intentions, redlines, and willingness to use force) between adversaries during crises.45 Despite these historical precedents, the risks associated with unpredictable AIaugmented autonomous systems operating in dynamic, complex, and possibly a priori unknown environments remain underappreciated by global defense communities.46 Eschewing these risks, China and Russia plan to incorporate AI into unmanned aerial and undersea vehicles for swarming missions infused with AI machine learning technology.47 Chinese strategists have reportedly researched data-link technologies for “bee swarm” UAVs, particularly emphasizing network architecture, navigation, and anti-jamming military operations for targeting US aircraft carriers.48 Drones used in swarms are conceptually well suited to conduct preemptive attacks and nuclear ISR missions against an adversary’s nuclear and nonnuclear mobile missile launchers and nuclear-powered ballistic missile submarines (SSBN), along with their attendant enabling facilities (e.g., C3I and early warning systems, antennas, sensors, and air intakes).49 The Defense Advanced Research Projects Agency (DARPA), for example, is developing an autonomous surface vehicle (ASV) double outrigger, Sea Hunter, currently being tested by the US Navy to support antisubmarine warfare operations (i.e., submarine reconnaissance).50 Some observers have posited that autonomous systems like Sea Hunter may render the underwater domain transparent, thereby eroding the second-strike deterrence utility of stealthy SSBNs. The technical feasibility of this hypothesis is highly contested, however.51 On the one hand, several experts argue that deployed in large swarms, these platforms could transform antisubmarine warfare, rendering at-sea nuclear deterrence vulnerable. On the other hand, some consider such a hypothesis technically premature because (1) it is unlikely that sensors on board AWSs would be able to reliably detect deeply submerged submarines; (2) the range of these sensors (and the drones themselves) would be limited by battery power over extended ranges;52 and (3) given the vast areas traversed by SSBNs on deterrence missions, the chance of detection is negligible even if large numbers of autonomous swarms were deployed.53 Thus, significant advances in power, sensor technology, and communications would be needed before these autonomous systems have a gamechanging strategic impact on deterrence.54 However, irrespective of the veracity of this emerging capability, the mere perception that nuclear capabilities face new strategic challenges would nonetheless elicit distrust between nuclear-armed adversaries—particularly where strategic force asymmetries exist. Moreover, DARPA’s Sea Hunter demonstrates how the emerging generation of autonomous weapons is expediting the completion of the iterative targeting cycle to support joint operations, thus increasing the uncertainty about the reliability and survivability of states’ nuclear second-strike capability and potentially triggering use-them-or-lose-them situations. Conceptually speaking, the most destabilizing impact of AI on nuclear deterrence would be the synthesis of autonomy with a range of machinelearning-augmented sensors, undermining states’ confidence in the survival of their second-strike capabilities and in extremis triggering a retaliatory first strike.55 Enhanced by the exponential growth in computing performance and coupled with advances in machine learning techniques that can rapidly process data in real time, AI will empower drone swarms to perform increasingly complex missions, such as hunting hitherto hidden nuclear deterrence forces.56 In short, the ability of future iterations of AI able to predict based on the fusion of expanded and dispersed data sets and then to locate, track, and target strategic missiles such as mobile ICBM launchers in underground silos, on board stealth aircraft, and in SSBNs is set to grow.57 Combining speed, persistence, scope, coordination, and battlefield mass, AWSs will offer states attractive asymmetric options to project military power within contested A2/AD zones.73 Enhanced by sophisticated machine learning neural networks, China’s manned and unmanned drone teaming operations could potentially impede future US freedom of navigation operations in the South China Seas.74 Its air- and sea-based drones linked to sophisticated neural networks could, for example, support the People’s Liberation Army’s manned and unmanned teaming operations. Were China to infuse its cruise missiles and hypersonic glide capabilities with AI and autonomy, close-range encounters in the Taiwan Straits and the East and South China Seas would become more complicated, accident- prone, and destabilizing—at both a conventional and nuclear level.75 China is reportedly developing and deploying UUVs to bolster its underwater monitoring and antisubmarine capabilities as part of a broader goal to establish an “underwater Great Wall” to challenge US undersea military primacy. US AI-enhanced UUVs could, for example, theoretically threaten China’s nuclear ballistic and nonnuclear attack submarines.76 A new generation of AI-augmented advanced conventional capabilities will exacerbate the risk of inadvertent escalation caused by the commingling of nuclear and strategic nonnuclear weapons (or conventional counterforce weapons) and the increasing speed of warfare, thereby undermining strategic stability and increasing the risk of nuclear confrontation. This conclusion is grounded in the overarching findings that relate to how and why AI could affect strategic stability between great military powers— especially China and the United States. If a state perceives that the survivability of its nuclear forces were at risk, advanced conventional capabilities (e.g., autonomous drone swarms and hypersonic weapons) augmented with AI machine learning techniques will have a destabilizing impact at a strategic level of conflict. AI’s effect on strategic stability will likely be determined by states’ perceptions of its operational utility rather than actual capability. If an adversary underestimated the potential threat posed by nascent and especially poorly conceptualized accident-prone autonomous systems, the consequences would be severely destabilizing. Despite the speed, diverse data pools, and processing power of algorithms compared to humans, complex AI-augmented systems will still depend on the assumptions encoded into them by human engineers to simply extrapolate inferences—potentially erroneous or biased—from complexity, resulting in unintended outcomes. One of the most significant escalatory risks caused by AI is likely to be, therefore, the perceived pressure exerted on nuclear powers in the use of AI-augmented conventional capabilities to adopt unstable nuclear postures (such as launch on warning, rescinding no-first-use pledges, or nuclear war fighting), or even to exercise a preemptive first nuclear strike during a crisis. In extremis, human commanders might lose control of the outbreak, course, and termination of warfare. Further, a competitive and contested multipolar nuclear environment will likely exacerbate the potentially destabilizing influence of AI, increasing that risk of inadvertent escalation to a nuclear level of conflict between great military powers. In today’s multipolar geopolitical order, therefore, relatively low-risk and low-cost AI-augmented AWS capability—with ambiguous rules of engagement and absent a robust normative and legal framework—will become an increasingly enticing asymmetric option to erode an advanced military’s deterrence and resolve. By disrupting effective and reliable flows of information and communication between adversaries and allies and within military organizations, AI-augmented conventional weapon systems (i.e., C3I, early warning systems, and ISR) could complicate escalation management during future crisis or conflict— especially involving China and the United States. A prominent theme that runs through the scenarios in this article—and central to understanding the potential impact of AI for strategic stability and nuclear security—is the concern that AI systems operating at machine speed will push the pace of combat to a point where machine actions surpass the cognitive and physical ability of human decision-makers to control or even comprehend events. Effective deterrence depends on the clear communication of credible threats and consequence of violation between adversaries, which assumes the sender and recipient of these signals share a common context allowing for mutual interpretation.103 For now, it remains axiomatic that human decisions escalate a situation; however, military technology like AI that enables offensive capabilities to operate at higher speed, range, and lethality will move a situation more quickly up the escalation rungs, crossing thresholds that can lead to a strategic level of conflict. These escalatory dynamics would be greatly amplified by the development and deployment of AI-augmented tools functioning at machine speed. Military AI could potentially push the pace of combat to a point where the actions of machines surpass the cognitive and physical ability of human decision-makers to control (or even fully understand) future warfare. Thus, until experts can unravel some of the unpredictable, brittle, inflexible, unexplainable features of AI, this technology will continue to outpace strategy, and human error and machine error will likely compound one another—with erratic and unintended effects.

#### Autonomous nuclear command-and-control makes miscalc inevitable---false alarms and automation bias

Horowitz 19 [Michael C. Horowitz (United States) is professor of political science at the University of Pennsylvania and the associate director of its Perry World House. May 2019 “Artificial intelligence and nuclear stability” THE IMPACT OF ARTIFICIAL INTELLIGENCE ON STRATEGIC STABILITY AND NUCLEAR RISK Volume I Euro-Atlantic Perspectives pp. 80-81 <https://www.sipri.org/sites/default/files/2019-05/sipri1905-ai-strategic-stability-nuclear-risk.pdf>] -os-

I. AI and nuclear command and control Excluding a first strike, the first step in the process leading up to the possible use of nuclear weapons is how a nuclear-armed state attempts to detect whether another country is launching nuclear weapons and how it responds. Many countries already automate parts of their nuclear weapon infrastructure, especially advanced nuclear powers such as the United States.3 This includes early warning, command and control, and missile targeting. Advances in AI could lead to the expansion of the use of autonomous systems in command and control. For example, states could decide to automate additional components of early warning because autonomous systems can detect patterns and changes in patterns faster than humans. This could have potential benefits for nuclear security and stability, because well-functioning algorithms could give decision makers more time in a complex environment. Moreover, autonomous systems could represent another form of redundancy that helps to ensure the dissemination of launch orders in the worst case. However, the 1983 Petrov incident illustrates a clear downside to fully automating command and control. In this case, the Soviet Oko satellite-based early-warning system reported a false alarm—the launch of five US intercontinental ballistic missiles (ICBMs). No missiles had been launched. Lieutenant Colonel Stanislav Petrov was the watch officer on duty. It was his job to alert Soviet leadership of a US attack. While the automated systems reported the ‘highest’ confidence that a missile strike was occurring, Petrov stated that he ‘had a funny feeling in [his] gut’. He instead reported a system malfunction, rather than a nuclear strike.4 The risk is that a future incident could lead to escalation, instead of a malfunction report, for two reasons. First, a decision to fully automate early warning would mean that there was no human operator—no Petrov—to prevent a false alarm from escalating. To be fair, however, it seems unlikely that a country would cut humans entirely out of the early-warning process. Second, automation bias could mean that a future Petrov trusts the algorithm and instead reports that an attack is under way.5 While also unlikely, academic research on automation bias suggests that this is a real risk.6

### Brittle AI Turn

#### The Pressure to deploy AI Rapidly makes accidents inevitable – the technology is brittle

Arnold and Toner, 2021 – Center for Security and Emerging Threats [Zachary and Helen, July, CSET Policy Brief. “AI Accidents: An Emerging Threat What Could Happen and What to Do” https://cset. georgetown.edu/wp-content/uploads/CSET-AI-Accidents-An-Emerging-Threat.pdf Acc 6/7/22 TA]

Despite these problems, AI systems are becoming integrated into the real world at a pace that is only expected to accelerate in the next decade.9 These systems may be fragile, but as companies, governments, and militaries decide when and how to deploy them, their huge potential benefits will often overshadow uncertain risks. Leaders in these organizations also may not be fully aware of these risks, and may face pressure from competitors willing to move quickly.10 To be sure, some industries are already deploying AI much faster than others, and a few sensitive sectors may remain “walled off” for some time.11 But eventually, the powerful incentives driving the spread of AI today are likely to make it pervasive. As our economy, security, and health become more and more dependent on AI systems, these systems’ fragilities will put lives at stake. Today, many are worried about AI being misused intentionally. An adversary could attack with swarms of drones; authoritarian governments are already using AI algorithms to discriminate on the basis of race or ideology. These risks are real, and they deserve attention. But unintended, accidental AI disasters are also an urgent concern. AI-related accidents are already making headlines, from inaccurate facial recognition systems causing false arrests to unexpected racial and gender discrimination by machine learning software.12 This is especially striking since AI has so far mostly been deployed in seemingly lower-stakes settings, such as newsfeed rankings, ad targeting, and speech recognition, with less deployment in higher stakes areas such as autonomous driving. Despite these initial accidents, governments, businesses, and militaries are preparing to use today’s flawed, fragile AI technologies in critical systems around the world. Future versions of AI technology may be less accident-prone, but there is no guarantee—and regardless, if rollout continues as expected, prior versions of the technology may already have been deployed at massive scale. The machine learning models of 2020 could easily still be in use decades in the future, just as airlines, stock exchanges, and federal agencies still rely today on COBOL, a programming language first deployed in 1960.13 In retrospect, even the most extreme technological accidents, from the Challenger disaster to the meltdown at Chernobyl, can seem both predictable and preventable.14 History is full of accidents that seem obvious in retrospect, but “no one could have seen coming” at the time. In other cases, known risks are brushed aside, or obvious fixes go unmade. Unless we act, there is no reason to think that the advent of AI will be any different. In fact, there are reasons to think AI could cause more accidents than other technologies that have caused high-profile disasters. Unlike the space shuttle or nuclear power plants, for example, AI will be pervasive throughout society, creating endless opportunities for things to go awry. What’s more, modern AI is so good at some tasks that even sophisticated users and developers can come to trust it implicitly.15 This degree of trust, placed in pervasive, fallible systems without any common sense, could have terrible consequences.

### Leaks/Theft Turn

#### Any innovation would be stolen by Russia and China – takes out advantage.

Christie ‘22(Edward Hunter Christie; Researcher, consultant, economist, EU affairs professional, former NATO official, public policy expert; “Defence cooperation in artificial intelligence: Bridging the transatlantic gap for a stronger Europe,” Sage Journals, March 31 2022; https://journals.sagepub.com/doi/full/10.1177/17816858221089372#)-amc

Both EU nations and the US are exposed to the same global environment and to similar strategic concerns, at the confluence of rapid technological change and global power shifts. Starting from around 2018, policy discourse in the US became particularly focused on fears of being overtaken by China technologically and militarily. A good illustration of these fears is a 2020 statement by the Director of the Federal Bureau of Investigation, who accused the Chinese government of ‘fighting a generational fight to surpass our country in economic and technological leadership’ and of ‘taking an all-tools and all-sectors approach . . . that demands our own all-tools and all-sectors approach in response’ ([Wray 2020](https://journals.sagepub.com/doi/full/10.1177/17816858221089372)). For military AI, China poses the greatest challenge to Western nations ([Kania 2019](https://journals.sagepub.com/doi/full/10.1177/17816858221089372)). However, Russia is also actively pursuing such capabilities ([Zysk 2021](https://journals.sagepub.com/doi/full/10.1177/17816858221089372); [Engvall 2021](https://journals.sagepub.com/doi/full/10.1177/17816858221089372)), including through espionage, for example against the Netherlands ([AIVD 2020](https://journals.sagepub.com/doi/full/10.1177/17816858221089372)) and France ([Follorou 2021](https://journals.sagepub.com/doi/full/10.1177/17816858221089372)). Nations on both sides of the Atlantic have recognised the rising challenge of Chinese and Russian government-sponsored industrial espionage aimed at the illegitimate acquisition of cutting-edge Western technologies. And both the US and the EU have adopted strengthened legislation in several key areas, including on the protection of trade secrets, on export controls for dual-use items and on the screening of foreign direct investment ([Christie 2021a](https://journals.sagepub.com/doi/full/10.1177/17816858221089372)). Another relevant area of work is measures to better protect the university and research sector from espionage. A new toolkit of recommendations now exists at EU level ([European Commission 2022](https://journals.sagepub.com/doi/full/10.1177/17816858221089372)).

#### The US and allies need to reform methods of technology transfer to minimize Chinese threats and patch up vulnerabilities.

**Imbrie et al. ‘20** (Andrew Imbrie, Senior Fellow at Georgetown's Center for Security and Emerging Technology; Ryan Fedasiuk, Research Analyst at Georgetown's Center for Security and Emerging Technology; Catherine Aiken, Director of Data Science and Research at Georgetown's Center for Security and Emerging Technology; Tarun Chhabra, nonresident fellow with the Center for Security, Strategy, and Technology at the Brookings Institution; Husanjot Chahal, Research Analyst at Georgetown University's Center for Security and Emerging Technology; February 2022; “HOW THE UNITED STATES AND ITS ALLIES CAN DELIVER A DEMOCRATIC WAY OF AI”; CSET; <https://cset.georgetown.edu/publication/agile-alliances/)//akg>

The following 10 initiatives provide a roadmap for how the United States and its allies can defend against threats, network to seize opportunities, and project influence to safeguard democracy in the age of AI. Initiative 1: Prevent the transfer of sensitive technical information. The Chinese government undertakes multiple, coordinated efforts to obtain sensitive information from U.S. AI researchers. Many of these pathways and access points for technology transfer are legal or extralegal and therefore poorly understood or monitored by Western intelligence agencies.28 Common vectors include technology transfer centers and forums, copyright infringement, and grant and funding opportunities for Chinese undergraduate, graduate, and post-doctoral researchers to study abroad and collaborate with foreign universities, research labs, and companies.29 International partners share U.S. concerns about the transfer of sensitive technology: just over half of survey respondents indicated that their government has concerns about foreign talent studying or working in fields with military or national security applications, and a majority of officials (60 percent) stated that their governments have policies in place to counter the transfer of sensitive technologies.30 A third of respondents did not know if their governments shared such concerns, indicating an opportunity for U.S. leadership on this issue. The United States could improve coordination with allies and partners to counter technology transfer in several ways. Officials from each surveyed country indicated interest in coordinating with the United States to prevent the transfer of sensitive technology. This initiative received the second highest level of agreement, just after coordinated AI norms and standards. Respondents from Japan, Australia, Italy, and France were particularly interested in collaboration around tech transfer policies. The United States should work with its allies and partners to build an empirical base of knowledge on this issue, supported by robust data collection and analysis. Survey results suggest that allies believe international management is required to counter cyber exploitation, with nearly 75 percent of officials noting it as a trend requiring international coordination. By launching a multilateral cyber defense initiative, the United States and its allies could strengthen the capabilities of small- to medium-sized enterprises at risk of intellectual property theft and industrial espionage.31

## Cooperation Advantage Answers

### Democratic Norms Impossible

#### Democratic AI cannot be created due to cultural differences and data bias.

Rainie and Anderson 21 (Lee Rainie is the director of internet and technology research at Pew Research Center. Under his leadership, the Center has issued more than 650 reports based on its surveys that examine people’s online activities and the internet’s role in their lives. Digital futures consultant and researcher and full professor of emerging media and digital journalism at Elon University. Contract researcher for the Pew Research Center's Internet Project since 2003. Leader of Imagining the Internet, a massive research project revealing people's expectations for the future of communications networks.) “[EXPERTS DOUBT ETHICAL AI DESIGN WILL BE BROADLY ADOPTED AS THE NORM WITHIN THE NEXT DECADE](https://www.pewresearch.org/internet/2021/06/16/experts-doubt-ethical-ai-design-will-be-broadly-adopted-as-the-norm-within-the-next-decade/)” JUNE 16, 2021 <https://www.pewresearch.org/internet/2021/06/16/1-worries-about-developments-in-ai/> // ZX

It would be quite difficult – some might say impossible – to design broadly adopted ethical AI systems. A share of the experts responding noted that ethics are hard to define, implement and enforce. They said context matters when it comes to ethical considerations. Any attempt to fashion ethical rules generates countless varying scenarios in which applications of those rules can be messy. The nature and relative power of the actors in any given scenario also matter. Social standards and norms evolve and can become wholly different as cultures change. Few people have much education or training in ethics. Additionally, good and bad actors exploit loopholes and gray areas where ethical rules aren’t crisp, so workarounds, patches or other remedies are often created with varying levels of success. The experts who expressed worries also invoked governance concerns. They asked: Whose ethical systems should be applied? Who gets to make that decision? Who has responsibility to care about implementing ethical AI? Who might enforce ethical regimes once they are established? How? A large number of respondents argued that geopolitical and economic competition are the main drivers for AI developers, while moral concerns take a back seat. A share of these experts said creators of AI tools work in groups that have little or no incentive to design systems that address ethical concerns. Some respondents noted that, even if workable ethics requirements might be established, they could not be applied or governed because most AI design is proprietary, hidden and complex. How can harmful AI “outcomes” be diagnosed and addressed if the basis for AI “decisions” cannot be discerned? Some of these experts also note that existing AI systems and databases are often used to build new AI applications. That means the biases and ethically troubling aspects of current systems are being designed into the new systems. They say diagnosing and unwinding the pre-existing problems may be difficult if not impossible to achieve. A portion of these experts infused their answers with questions that amount to this overarching question: How can ethical standards be defined and applied for a global, cross-cultural, ever-evolving, ever-expanding universe of diverse black-box systems in which bad actors and misinformation thrive? A selection of respondents’ comments on this broad topic is organized over the next 20 pages under these subheadings: 1) It can be hard to agree as to what constitutes ethical behavior. 2) Humans are the problem: Whose ethics? Who decides? Who cares? Who enforces? 3) Like all tools, AI can be used for good or ill, which makes standards-setting a challenge. 4) Further AI evolution itself raises questions and complications. Stephen Downes, senior research officer for digital technologies with the National Research Council of Canada, observed, “The problem with the application of ethical principles to artificial intelligence is that there is no common agreement about what those are. While it is common to assume there is some sort of unanimity about ethical principles, this unanimity is rarely broader than a single culture, profession or social group. This is made manifest by the ease with which we perpetuate unfairness, injustice and even violence and death to other people. No nation is immune. “Ultimately, our AI will be an extension of ourselves, and the ethics of our AI will be an extension of our own ethics. To the extent that we can build a more ethical society, whatever that means, we will build more ethical AI, even if only by providing our AI with the models and examples it needs in order to be able to distinguish right from wrong. I am hopeful that the magnification of the ethical consequences of our actions may lead us to be more mindful of them; I am fearful that they may not.” “Assuming that we could effectively regulate it, we face another major hurdle: What do we mean by ‘ethical?’ Putting aside philosophical debates, we face practical problems in defining ethical AI. We do not have to look far to see similar challenges. During the past few years, what is or is not ethical behavior in U.S. politics has been up for debate. Other countries have faced similar problems. “Even if we could decide on a definition [for ethics] in the U.S., it would likely vary from the definitions used in other countries. Given AI’s ability to fluidly cross borders, regulating AI would prove troublesome. We also will find that ethical constraints may be at odds with other self-interests. Situational ethics could easily arise when we face military or intelligence threats, economic competitive threats, and even political threats. An architect of practice specializing in AI for a major global technology company said, “The European Union has the most concrete proposals, and I believe we will see their legislation in place within three years. My hope is that we will see a ripple effect in the U.S. like we did from GDPR – global companies had to comply with GDPR, so some good actions happened in the U.S. as a result. … We may be more likely to see a continuation of individual cities and states imposing their own application-specific laws (e.g., facial-recognition technology limits in Oakland, Boston, etc.). The reasons I am doubtful that the majority of AI apps will be ethical/benefit the social good are: Even the EU’s proposals are limited in what they will require; China will never limit AI for social benefit over the government’s benefit; The ability to create a collection of oversight organizations with the budget to audit and truly punish offenders is unlikely. A researcher in bioinformatics and computational biology observed, “Take into account the actions of the CCP [Chinese Communist Party] in China. They have been leading the way recently in demonstrating how these tools can be used in unethical ways. And the United States has failed to make strong commitments to ethics in AI, unlike EU nations. AI and the ethics surrounding its use could be one of the major ideological platforms for the incoming next Cold War. I am most concerned about the use of AI to further invade privacy and erode trust in institutions. I also worry about its use to shape policy in nontransparent, noninterpretable and nonreproducible ways. There is also the risk that some of the large datasets that are the fundamental to a lot of decision-making – from facial recognition, to criminal sentencing, to loan applications – being conducted using AI that are critically biased and will continue to produce biased outcomes if they are used without undergoing severe audits – issues with transparency compound these problems. Advances to medical treatment using AI run the risk of not being fairly distributed as well.” Gus Hosein, executive director of Privacy International, observed, “Unless AI becomes a competition problem and gets dominated by huge American and Chinese companies, then the chances of ethical AI are low, which is a horrible reality. If it becomes widespread in deployment, as we’ve seen with facial recognition, then the only way to stem its deployment in unethical ways is to come up with clear bans and forced transparency. This is why AI is so challenging. Equally, it’s quite pointless, but that won’t stop us from trying to deploy it everywhere. The underlying data quality and societal issues mean that AI will just punish people in new, different and the same ways. If we continue to be obsessed with innovators and innovation rather than social infrastructure, then we are screwed.” <https://www.pewresearch.org/internet/2021/06/16/2-hopes-about-developments-in-ethical-ai/>

### Regulations Fail

#### Multilateral regulation on autonomous weapons fails – allies and adversaries proliferate and no compliance

Anderson and Waxman 13 [Ken Anderson, Professor of Law at AUWCL, is a leading international and national security law scholar who has recently been focusing extensively on the regulation of emerging technologies, especially automation, robotics, and AI. Matthew C. Waxman is a nationally known authority on national security law, cybersecurity, terrorism, intelligence, and armed conflict. He brings the perspective of a former senior government official to his scholarship on war powers, the regulation of military technology, counterterrorism, surveillance, and cybersecurity. “Law and Ethics for Autonomous Weapon Systems: Why a Ban Won't Work and How the Laws of War Can,” 4/10/13, https://scholarship.law.columbia.edu/cgi/viewcontent.cgi?article=2804&context=faculty\_scholarship]//PJ

In any case, ambitions for a multilateral treaty regulating or prohibiting autonomous weapon systems are misguided for several reasons. For starters, limitations on autonomous military technologies, although quite likely to find wide superficial acceptance among some states and some non-governmental groups and actors, will have little traction among those most likely to develop and use them. Some states may want the United States to be more aggressive in adopting the latest technologies, given that possible adversaries are likely to have far fewer compunctions about their own autonomous weapon systems, and others are likely to favor any technological development that extends the reach and impact of U.S. and allied forces or enhances their own ability to counter adversaries’ capabilities. Even states and groups inclined to support treaty prohibitions or limitations will find it difficult to reach agreement on scope or definitions because lethal autonomy will be introduced incrementally—as battlefield machines become smarter and faster, and the real-time human role in controlling them gradually recedes, agreeing on what constitutes a prohibited autonomous weapon will be unattainable. Even assuming agreement could be reached, there are the general challenges of compliance: the collective action problems of failure and defection that afflict all such treaty regimes, especially when dealing with dual-use (civilian and military) underlying technologies. Finally, there are serious humanitarian risks to prohibition, given the possibility that autonomous weapons systems could in the long run be more discriminating and ethically preferable to alternatives. If all such systems are prohibited, and particularly if even research and development of relevant technologies is also prohibited, one never gets the benefits that might come from new technologies— and future generations will not even be aware of the potential benefits that were given up, because these prohibitions on development meant they were never even pursued. Prohibition precludes the possibility of such benefits, and proponents of it must acknowledge and bear responsibility for this risk.

### No Democracy Impact

#### Democracy is resilient, but it solves nothing.

Doorenspleet 19 Renske Doorenspleet, Politics Professor at the University of Warwick. [Rethinking the Value of Democracy: A Comparative Perspective, Palgrave Macmillan, p. 239-243]

The value of democracy has been taken for granted until recently, but this assumption seems to be under threat now more than ever before. As was explained in Chapter 1, democracy’s claim to be valuable does not rest on just one particular merit, and scholars tend to distinguish three different types of values (Sen 1999). This book focused on the instrumental value of democracy (and hence not on the intrinsic and constructive value), and investigated the value of democracy for peace (Chapters 3 and 4), control of corruption (Chapter 5) and economic development (Chapter 6). This study was based on a search of an enormous academic database for certain keywords,6 then pruned the thousands of articles down to a few hundred articles (see Appendix) which statistically analysed the connection between the democracy and the four expected outcomes. The frst fiding is that a reverse wave away from democracy has not happened (see Chapter 2). Not yet, at least. Democracy is not doing worse than before, at least not in comparative perspective. While it is true that there is a dramatic decline in democracy in some countries,7 a general trend downwards cannot yet be detected. It would be better to talk about ‘stagnation’, as not many dictatorships have democratized recently, while democracies have not yet collapsed. Another fnding is that the instrumental value of democracy is very questionable. The feld has been deeply polarized between researchers who endorse a link between democracy and positive outcomes, and those who reject this optimistic idea and instead emphasize the negative effects of democracy. There has been ‘no consensus’ in the quantitative literature on whether democracy has instrumental value which leads some beneficial general outcomes. Some scholars claim there is a consensus, but they only do so by ignoring a huge amount of literature which rejects their own point of view. After undertaking a large-scale analysis of carefully selected articles published on the topic (see Appendix), this book can conclude that the connections between democracy and expected benefts are not as strong as they seem. Hence, we should not overstate the links between the phenomena. The overall evidence is weak. Take the expected impact of democracy on peace for example. As Chapter 3 showed, the study of democracy and interstate war has been a fourishing theme in political science, particularly since the 1970s. However, there are four reasons why democracy does not cause peace between countries, and why the empirical support for the popular idea of democratic peace is quite weak. Most statistical studies have not found a strong correlation between democracy and interstate war at the dyadic level. They show that there are other—more powerful—explanations for war and peace, and even that the impact of democracy is a spurious one (caveat 1). Moreover, the theoretical foundation of the democratic peace hypothesis is weak, and the causal mechanisms are unclear (caveat 2). In addition, democracies are not necessarily more peaceful in general, and the evidence for the democratic peace hypothesis at the monadic level is inconclusive (caveat 3). Finally, the process of democratization is dangerous. Living in a democratizing country means living in a less peaceful country (caveat 4). With regard to peace between countries, we cannot defend the idea that democracy has instrumental value. Can the (instrumental) value of democracy be found in the prevention of civil war? Or is the evidence for the opposite idea more convincing, and does democracy have a ‘dark side’ which makes civil war more likely? The findings are confusing, which is exacerbated by the fact that different aspects of civil war (prevalence, onset, duration and severity) are mixed up in some civil war studies. Moreover, defining civil war is a delicate, politically sensitive issue. Determining whether there is a civil war in a particular country is incredibly diffcult, while measurements suffer from many weaknesses (caveat 1). Moreover, there is no linear link: civil wars are just as unlikely in democracies as in dictatorships (caveat 2). Civil war is most likely in times of political change. Democratization is a very unpredictable, dangerous process, increasing the chance of civil war significantly. Hybrid systems are at risk as well: the chance of civil war is much higher compared to other political systems (caveat 3). More specifcally, both the strength and type of political institutions matter when explaining civil war. However, the type of political system (e.g. democracy or dictatorship) is not the decisive factor at all (caveat 4). Finally, democracy has only limited explanatory power (caveat 5). Economic factors are far more significant than political factors (such as having a democratic system) when explaining the onset, duration and severity of civil war. To prevent civil war, it would make more sense to make poorer countries richer, instead of promoting democracy. Helping countries to democratize would even be a very dangerous idea, as countries with changing levels of democracy are most vulnerable, making civil wars most likely. It is true that there is evidence that the chance of civil war decreases when the extent of democracy increases considerably. The problem however is that most countries do not go through big political changes but through small changes instead; those small steps—away or towards more democracy—are dangerous. Not only is the onset of civil war likely under such circumstances, but civil wars also tend to be longer, and the confict is more cruel leading to more victims, destruction and killings (see Chapter 4). A more encouraging story can be told around the value for democracy to control corruption in a country (see Chapter 5). Fighting corruption has been high on the agenda of international organizations such as the World Bank and the IMF. Moreover, the theme of corruption has been studied thoroughly in many different academic disciplines—mainly in economics, but also in sociology, political science and law. Democracy has often been suggested as one of the remedies when fghting against high levels of continuous corruption. So far, the statistical evidence has strongly supported this idea. As Chapter 5 showed, dozens of studies with broad quantitative, cross-national and comparative research have found statistically signifcant associations between (less) democracy and (more) corruption. However, there are vast problems around conceptualization (caveat 1) and measurement (caveat 2) of ‘corruption’. Another caveat is that democratizing countries are the poorest performers with regard to controlling corruption (caveat 3). Moreover, it is not democracy in general, but particular political institutions which have an impact on the control of corruption; and a free press also helps a lot in order to limit corruptive practices in a country (caveat 4). In addition, democracies seem to be less affected by corruption than dictatorships, but at the same time, there is clear evidence that economic factors have more explanatory power (caveat 5). In conclusion, more democracy means less corruption, but we need to be modest (as other factors matter more) and cautious (as there are many caveats). The perceived impact of democracy on development has been highly contested as well (see Chapter 6). Some scholars argue that democratic systems have a positive impact, while others argue that high levels of democracy actually reduce the levels of economic growth and development. Particularly since the 1990s, statistical studies have focused on this debate, and the empirical evidence is clear: there is no direct impact of democracy on development. Hence, both approaches cannot be supported (see caveat 1). The indirect impact via other factors is also questionable (caveat 2). Moreover, there is too much variation in levels of economic growth and development among the dictatorial systems, and there are huge regional differences (caveat 3). Adopting a one-size-ftsall approach would not be wise at all. In addition, in order to increase development, it would be better to focus on alternative factors such as improving institutional quality and good governance (caveat 4). There is not suffcient evidence to state that democracy has instrumental value, at least not with regard to economic growth. However, future research needs to include broader concepts and measurements of development in their models, as so far studies have mainly focused on explaining cross-national differences in growth of GDP (caveat 5). Overall, the instrumental value of democracy is—at best—tentative, or—if being less mild—simply non-existent. Democracy is not necessarily better than any alternative form of government. With regard to many of the expected benefts—such as less war, less corruption and more economic development—democracy does deliver, but so do nondemocratic systems. High or low levels of democracy do not make a distinctive difference. Mid-range democracy levels do matter though. Hybrid systems can be associated with many negative outcomes, while this is also the case for democratizing countries. Moreover, other explanations—typically certain favourable economic factors in a country—are much more powerful to explain the expected benefts, at least compared to the single fact that a country is a democracy or not. The impact of democracy fades away in the powerful shadows of the economic factors.8

#### Democracy doesn’t solve war --- increases hostility.

Ghatak et al. 17—Sam Ghatak is a Lecturer in Political Science at the University of Tennessee Knoxville; Aaron Gold is a PhD Student in Political Science at UT Knoxville; Brandon C. Prins is a Professor and Director of Graduate Studies of Political Science at UT Knoxville [“External threat and the limits of democratic pacifism,” *Conflict Management and Peace Science*, Vol. 34, No. 2, p. 141-159, Emory Libraries]

Conclusion

It has become a stylized fact that dyadic democracy lowers the hazard of armed conflict. While the Democratic Peace has faced many challenges, we believe the most significant challenge has come from the argument that the pacifying effect of democracy is epiphenomenal to territorial issues, specifically the external threats that they pose. This argument sees the lower hazards of armed conflict among democracies not as a product of shared norms or institutional structures, but as a result of settled borders. Territory, though, remains only one geo-political context generating threat, insecurity, and a higher likelihood of armed conflict. Strategic rivalry also serves as an environment associated with fear, a lack of trust, and an expectation of future conflict. Efforts to assess democratic pacifism have largely ignored rivalry as a context conditioning the behavior of democratic leaders. To be sure, research demonstrates rivals to have higher probabilities of armed conflict and democracies rarely to be rivals. But fundamental to the Democratic Peace is the notion that even in the face of difficult security challenges and salient issues, dyadic democracy will associate with a lower likelihood of militarized aggression. But the presence of an external threat, be that threat disputed territory or strategic rivalry, may be the key mechanism by which democratic leaders, owing to audience costs, resolve and electoral pressures, fail to resolve problems nonviolently.

This study has sought a ‘‘hard test’’ of the Democratic Peace by testing the conditional effects of joint democracy on armed conflict when external threat is present. We test three measures of threat: territorial contention, strategic rivalry, and a threat index that sums the first two measures. For robustness checks, we use two additional measures of our dependent variable: fatal MID onset, and event data from the Armed Conflict Database, which can be found in our Online Appendix. As most studies report, democratic dyads are associated with less armed conflict than mixed-regime and autocratic dyads. In every one of our models, when we control for each measure of external threat, joint democracy is strongly negative and significant and each measure of threat is strongly positive and significant. Here, liberal institutions maintain their pacific ability and external threats clearly increase conflict propensities. However, when we test the interactive relationship between democracy and our measures of external threat, the pacifying effect of democracy is less visible. Park and James (2015) find some evidence that when faced with an external threat in the form of territorial contention, the pacifying effect of joint democracy holds up. This study does not fully support the claims of Park and James (2015). Using a longer timeframe, we find more consistent evidence that when faced with an external threat, be it territorial contention, strategic rivalry, or a combination, democratic pacifism does not survive. What are the implications of our study? First, while it is clear that we do not observe a large amount of armed conflict among democratic states, if we organize interstate relationships along a continuum from highly hostile to highly friendly, we are probably observing what Goertz et al. (2016) and Owsiak et al. (2016) refer to as ‘‘lesser rivalries’’ in which ‘‘both the frequency and severity of violent interaction decline. Yet, the sentiments of threat, enmity, and competition that remain—along with the persistence of unresolved issues—mean that lesser rivalries still experience isolated violent episodes (e.g., militarized interstate disputes), diplomatic hostility, and non-violent crises’’ (Owsiak et al., 2016). Second, our findings show that the pacific benefits of liberal institutions or externalized norms are not always able to lower the likelihood of armed conflict when faced with external threats, whether those hazards are disputed territory, strategic rivalry, or a combination of the two. The structural environment clearly influences democratic leaders in their foreign policy actions more than has heretofore been appreciated. Audience costs, resolve, and electoral pressures, produced from external threats, are powerful forces that are present even in jointly democratic relationships. These forces make it difficult for leaders to trust one another, which inhibits conflict resolution and facilitates persistent hostility. It does appear, then, that there is a limit to the Democratic Peace.

### Democracy Bad Turn – Disease

#### Democracy makes disease control impossible

Zhifa Zhou 21, Associate Professor at the Institute of African Studies at Zhejiang Normal University and Pan Qu, Postgraduate at the Institute of African Studies at Zhejiang Normal University, “The Root Cause of the Failure of American COVID-19 Governance Based on the Criticism of Liberal Democracy From Error-Tolerant Democracy”, Philosophy Study, Volume 11, Number 7, July 2021, https://www.davidpublisher.com/Public/uploads/Contribute/60ff9cfb4589c.pdf

Introduction

Whether liberal democracy contributed to the COVID-19 governance was a hot topic in 2020 (“Democracy and Rise of Authoritarianism in COVID-19 World”, 2020). At the end of January, 2020, when COVID-19 witnessed the lockdown of Wuhan City, the West generally agreed that China lacked freedom of speech and the inertia of a rigid bureaucratic structure, and the national censorship system kept the whistle blower Dr. Wenliang Li silent, which led to the disease out of control (Mérieau, 2020). Democracies’ confidence mainly came from Amartya Sen’s research on the famine. Sen (1999) has claimed that no substantial famine has ever occurred in any independent and democratic country with a relatively free press and there is no exception to this rule. Citizens in democracies can expect governments to be more candid, transparent, and responsible in dealing with all kinds of crises, which authoritarian countries usually cannot (Berengaut, 2020; Bollyky & Kickbusch, 2020). So Steve Bloomfield (2020) has regarded that if China had a free press and transparent government, the pandemic could be brought under control before the outbreak. In conclusion, freedom plus democracy equals the COVID-19 antidote according to Western standards, although Wilson and Wisongye have found that social media rumors can exploit the right to freedom of speech and erode people’s health benefits (New York Times, 2021; Bollyky & Kickbusch, 2020). However, since March, 2020, with Western democracies seriously affected by COVID-19, their superiority of the political system has begun to expose its untrue and fatal defects. Especially when Wuhan began to lift its blockade on April 8, 2020 (People.cn, 2020), scholars and journalists began to question whether democracies had the ability to deal with the crisis better than China (Mérieau, 2020). Liberal democracy in the United States has not proved that it is more conducive to the COVID-19 governance than authoritarianism since 2020. From a global perspective, not only do most democracies fail to contain the spread of COVID-19, but almost all of the 10 most affected countries are liberal democracies (Coronavirus Resource Center, 2021). Their policy responses have a poor effect in reducing the death toll in early stages of the crisis, as shown that democratic political institutions may be at a disadvantage in responding quickly to COVID-19 (Cepaluni, Dorsch, & Branyiczki, 2020). More surprising is that the COVID-19 pandemic is so serious in the United States, yet no government officials have been removed from office because of their inactivity in fighting against the corona-virus. People doubt whether American accountability mechanism is still working. However, two impeachments against President Trump indicate that it seems to function quite well (Valenta & Valenta, 2017; Herb, Raju, Fox, & Mattingly, 2021). The direct loss to the United States caused by Russiagate and incitement of insurrection is far less than the pain caused by the failure of the COVID-19 governance, but no any official in the United States is responsible for it. If it again faces infectious diseases similar to COVID-19, will it repeat this unprecedented tragedy? Can liberal democracy and the separation and balance of powers push American president to act more aggressively? Error-tolerantism explains that the fundamental reason for the failure of American COVID-19 governance is a serious misunderstanding of the concept of freedom (Zhou, 2018; 2019; Zhou, Tan, & Liu, 2020). Liberalism has witnessed a rare scene: In the context of COVID-19, the president, governors, magistrates, and the public (Emery, Schwebke, & Park, 2020; Sullum, 2020; Behrmann, 2020; Kenton, 2020; Strano, 2020) have severe misunderstanding of freedom that cost more than American 600,000 lives (Coronavirus Resource Center, 2021). In response to the above phenomenon, error-tolerantism as the development of liberalism defines liberty from a new perspective and shows a stronger explanatory power than liberalism (Zhou et al., 2020). The right paradigm of error-tolerantism, the right to be wrong (right to trial and error) as an original right and mutual empowerment theory, instead of natural rights theory and social contract theory, divides liberty into the right to liberty in innovative fields, right to be wrong as an original right, and the right to be right in non-innovative fields as sub-rights. The lockdown of Wuhan means that Chinese government has excised the power to be wrong as an original power, but the West criticized it with the right to liberty at the level of sub-rights, which is the first error in understanding liberty during American COVID-19 governance; after Wuhan effectively controlled COVID-19, its governance has transformed from an innovative field to a non-innovative one. Then, liberties in non-innovative fields as the sub-rights level, such as wearing face masks, keeping social distancing, showing health codes, are formed definitely (Zhou et al., 2020). However, wearing masks has been regarded as a sign of political oppression rather than a simple hygienic measure by the United States (Kahanel, 2021). Since liberalism has a major misunderstanding of the concept of liberty, liberal democracy based on the philosophy of liberalism should be deeply reflected or even reconstructed, and it is very reasonable for error-tolerant democracy constructed based on error-tolerantism to explore the defects of liberal democracy in American COVID-19 governance. Therefore, we first review scholars’ relevant research on American democracy and the COVID-19 governance, and then based on the theory of error-tolerant democracy, discuss the defects of liberal democracy and American political system that are unable to cope with the crisis of the century.

#### Future pandemics are inevitable---extinction

Dr. Matt Boyd 21, Research Director at Adapt Research Ltd, PhD in Philosophy of Evolution & Cognition from the Victoria University of Wellington, BA from Massey University, and Nick Wilson, Research Professor in the Department of Public Health at the University of Otago, “Optimizing Island Refuges Against global Catastrophic and Existential Biological Threats: Priorities and Preparations”, Risk Analysis: An International Journal, Wiley Online Library

1 INTRODUCTION Our world is vulnerable to global catastrophic risks (GCRs) or existential risks (Bostrom, 2019; Ord, 2020). GCRs are so disastrous because they affect one or more systems critical to humanity, and spread to affect the entire planet (Avin et al., 2018). Existential risks threaten to eliminate humanity or permanently curtail its potential (Ord, 2020). Some of these risks are natural, for example asteroid or comet impact, supervolcanic eruption, naturally occurring pandemic, or various cosmic events (Bostrom & Cirkovic, 2008; Ord, 2020). Many others are the result of human activities, for example nuclear war, anthropogenic climate change, nonaligned artificial intelligence, engineered biological threats, geoengineering, or inescapable totalitarianism (Bostrom & Cirkovic, 2008; Ord, 2020). There are three phases to an existential catastrophe: origin, scale up, and reaching every last human (Cotton-Barratt, Daniel, & Sandberg, 2020). Following any near miss, there would be a period where recovery of humanity's long-term potential may or may not be realized (Baum et al., 2019). Failure to anticipate or mitigate these threats risks undesirable trajectories for human civilization (Baum et al., 2019). In addition to the present generation's obvious self-interest in continuing to exist, the perspective of long-termism suggests that humanity ought to mitigate these risks due to the potential immense value of future human generations (Beckstead, 2013), a desire to see aspects of the human project continue across time and perhaps the universe (Bostrom, 2003; Scheffler, 2013), and the potential cosmic significance of preserving intelligent life on Earth (Ord, 2020). A number of philosophical defenses of long-termism have been published (Beckstead, 2013; Greaves & MacAskill, 2019). Importantly, these long-term outcomes are largely under human control because most of the risk is probably anthropogenic (Beard & Torres, 2020; Ord, 2020). 1.1 Mitigating Existential Threats It is too simplistic to think of existential risks as mere causes that are followed by a sequence of effects. We should think of risks as the product of hazards, vulnerabilities, and exposures (Liu, Lauta, & Maas, 2018). Hazards are the precipitating cause of a catastrophe, vulnerabilities are the inability of critical systems to withstand hazards, and exposures are the features of human society that turn this system damage into harm to populations (Beard & Torres, 2020). Mitigation of existential threats involves preventing their emergence, responding if the threat spreads, and building resilience so the threat does not lead to the death of every last human or leave humanity with permanently curtailed prospects (Cotton-Barratt et al., 2020). After a threat has passed, there may also be a series of limiters that might prevent the reemergence of a flourishing humanity (Baum et al., 2019). One such limiting factor could be the loss of technological society and know-how. In order to achieve immunity from existential threat, humanity will need a period where it preserves its potential and protects itself from risks (Ord, 2020). Various methods have been proposed to address vulnerabilities and hence shift the probability of existential risk. These suggestions include: improved international focus, governance, and cooperation such as through the United Nations (Boyd & Wilson, 2020), imitating existing frameworks such as the Sendai framework for disaster risk reduction (Avin et al., 2018), achieving the United Nations Sustainable Development Goals (Cernev & Fenner, 2020), or extreme surveillance for threats (Bostrom, 2019). Toby Ord lists 38 specific measures across eight existential threats, and an additional 12 avenues to explore that address risks in general terms (Ord, 2020). 1.2 Biological Threats Pandemic viruses with high case fatality could potentially infect a majority of the population. Deliberate biological events (DBEs) have occurred before (Millet & Snyder-Beattie, 2017a), will likely occur again, and could pose a threat to humans as great as nuclear war (Kosal, 2020). New technologies such as artificial intelligence could amplify biothreats in a number of ways (O'Brien & Nelson, 2020). These risks are increased because the Biological Weapons Convention (BWC) has no verification system (Dando, 2016), and has been violated in the past (Gronvall, 2018). It would only take one unanticipated or accidental event for a bioweapon (or laboratory accident) to become a catastrophic threat. The U.S. National Academies of Sciences specifically warns against synthetic biology and xenobiology (Gomez-Tatay & Hernandez-Andreu, 2019) and it is argued that a state-sponsored bioweapon attack is the greatest current threat (Sandberg & Nelson, 2020). See the Supporting Information for further details on biological threats. Global preparedness through the One Health approach, global health security projects, and the need to integrate health and the GCR field (Millet & Snyder-Beattie, 2017b) are important. But as the COVID-19 pandemic has shown, there may be important overlooked aspects or misunderstood risks that could make any suite of general preparation inadequate. Therefore, last lines of defense may be required, such as refuges.

## AI Bad

### AI Hurts Alliances

#### AI hampers military operations – compressing negotiation timelines and hurting alliances

Greenberg ‘20(Erik Lin-Greenberg, , “Article Title,” Journal/Magazine/etc, “Allies and artificial intelligence: Obstacles to operations and decision making”, Texas National Security Review, 3(2), 56–76, March 05 2020, https://tnsr.org/2020/03/allies-and-artificial-intelligence-obstacles-to-operations-and-decision-making/)-amc

Drawing from theories of alliance politics and analysis of emerging AI technologies, I map out two areas where AI could hamper multinational military operations. First, AI could pose challenges to operational coordination by complicating burden-sharing and the interoperability of multinational forces. Not all alliance or coalition members will possess AI capabilities, raising barriers to military cooperation as AI-enabled warfare becomes increasingly common. States with AI technologies will also need to overcome political barriers to sharing the sensitive data required to develop and operate AI-enabled systems. At the same time, rivals can stymie multinational coordination by using AI to launch deception campaigns aimed at interfering with an alliance’s military command-and-control processes. Second, AI could hamper alliance and coalition decision-making by straining the processes and relationships that undergird decisions on the use of force. By increasing the speed of warfare, AI could decrease the time leaders, from the tactical to strategic levels, have to debate policies and make decisions. These compressed timelines may not allow for the complex negotiations and compromises that are defining characteristics of alliance politics.[10](https://tnsr.org/2020/03/allies-and-artificial-intelligence-obstacles-to-operations-and-decision-making/" \l "_ftn10) Decision-making may be further hampered if the “black box” and unexplainable nature of AI causes leaders to lack confidence in AI-enabled systems. And, just as adversaries could use AI to interfere with command and control, they could also use AI to launch misinformation campaigns that sow discord among allies and heighten fears that allies will renege on their commitments.

### AI Causes Miscalc

#### AI systems operate in an opaque “black box” – they’re hard to understand and correct, contributing to the fog of war

Greenberg ‘20(Erik Lin-Greenberg, , “Article Title,” Journal/Magazine/etc, “Allies and artificial intelligence: Obstacles to operations and decision making”, Texas National Security Review, 3(2), 56–76, March 05 2020, <https://tnsr.org/2020/03/allies-and-artificial-intelligence-obstacles-to-operations-and-decision-making/)-amc>

AI can also strain alliance decision-making by fueling uncertainty about information and military actions. Unlike human analysts or military personnel who can be asked to explain and justify their findings or decisions, AI generally operates in a “black box.” [97](https://tnsr.org/2020/03/allies-and-artificial-intelligence-obstacles-to-operations-and-decision-making/" \l "_ftn97) The neural networks that underpin many cutting-edge AI systems are opaque and offer little insight into how they arrive at their conclusions.[98](https://tnsr.org/2020/03/allies-and-artificial-intelligence-obstacles-to-operations-and-decision-making/" \l "_ftn98) These networks rely on deep learning, a process that passes information from large data sets through a hierarchy of digital nodes that analyze data inputs and make predictions using mathematical rules. As data flows through the neural network, the net makes internal adjustments to refine the quality of outputs. Researchers are often unable to explain how neural nets make these internal adjustments. Because of this lack of “explainability,” users of AI systems may have difficulty understanding failures and correcting errors.[99](https://tnsr.org/2020/03/allies-and-artificial-intelligence-obstacles-to-operations-and-decision-making/" \l "_ftn99) Policymakers have called for the development of more transparent AI systems, and researchers are working to develop explainable AI tools that peer inside the AI black box.[100](https://tnsr.org/2020/03/allies-and-artificial-intelligence-obstacles-to-operations-and-decision-making/" \l "_ftn100) Yet, many decision-makers remain uncomfortable with the uncertainty surrounding AI-enabled systems. The commander of the U.S. Air Force’s Air Combat Command, for instance, publicly explained that he was not yet willing to rely on AI programs to analyze the full-motion video collected by reconnaissance drones. He argued that although systems are improving, they are still unable to consistently provide accurate analysis.[101](https://tnsr.org/2020/03/allies-and-artificial-intelligence-obstacles-to-operations-and-decision-making/" \l "_ftn101) So long as the decisions and analysis of AI systems remain opaque, military commanders may be reluctant to trust AI-enabled systems. And if used, AI may contribute to the fog of war, rather than reduce it, making it difficult to make decisions using information delivered by AI technologies.

### AI Causes Escalation

#### Unregulated AI weapons directly undermine humanitarian law, contributes to escalation

Marijan 3/30 (Branka Marijan leads the research on the military and security implications of emerging technologies at Ploughshares, “AI-Influenced Weapons Need Better Regulation,” Scientific American, 3/30/2022, https://www.scientificamerican.com/article/ai-influenced-weapons-need-better-regulation/)-MP

Data fed into AI-based systems can teach remote weapons what a target looks like, and what to do upon reaching that target. While similar to facial recognition tools, AI technologies for military use have different implications, particularly when they are meant to destroy and kill, and as such, experts have raised concerns about their introduction into dynamic war contexts. And while Russia may have been successful in thwarting real-time discussion of these weapons, it isn’t alone. The U.S., India and Israel are all fighting regulation of these dangerous systems. AI might be more mature and well-known in its use in cyberwarfare, including to supercharge malware attacks or to better impersonate trusted users in order to access to critical infrastructure, such as the electric grid. But, major powers are using it to develop physically destructive weapons. Russia has already made important advances in autonomous tanks, machines that can run without human operators who could theoretically override mistakes, while the United States has demonstrated a number of capabilities, including munitions that can destroy a surface vessel using a swarm of drones. AI is employed in the development of swarming technologies and loitering munitions, also called kamikaze drones. Rather than the futuristic robots seen in science-fiction movies, these systems use previously existing military platforms that leverage AI technologies. Simply, a few lines of code and new sensors can make a difference in whether a military system is functioning autonomously or under human control. Crucially, introducing AI into decision-making by militaries could lead to overrealiance on the technology, shaping military decision-making and potentially escalating conflicts. AI-based warfare might seem like a video game, but last September, according to Secretary of the Air Force Frank Kendall, the U.S. Air Force, for the first time, used AI to help to identify a target or targets in “a live operational kill chain.” Presumably, this means AI was used to identify and kill human targets. Little information was provided about the mission, including whether any casualties that occurred were the intended targets. What inputs were used to identify such individuals and could there have been possible errors in identification? AI technologies have been shown to be biased, particularly against women and people in minority communities. False identifications disproportionately impact already marginalized and racialized groups. If recent social media discussions among the AI community are any indication, the developers, largely from the private sector, who are creating the new technologies that some militaries are already deploying are largely unaware of their impact. Tech journalist Jeremy Kahn argues in Fortune that a dangerous disconnect exists between developers and leading militaries, including U.S. and Russian, which are using AI in decision-making and data analysis. The developers seem to be unaware of the general-purpose nature of some of the tools they are building and how militaries could use them in warfare, including to target civilians. Undoubtedly, lessons from the current invasion will also shape the technology projects the militaries pursue. At the moment, the United States is at the head of the pack, but a joint statement by Russia and China in early February notes that they aim to “jointly build international relations of a new type,” and specifically points to their aim to shape governance of new technologies, including what I believe will be military uses of AI. Independently, the U.S. and its allies are developing norms on responsible military uses of AI, but generally are not talking with potential adversaries. In general, states with more technologically advanced militaries have been unwilling to accept any constraints on the developments of AI technology. This is where international diplomacy is critical: there must be constraints on these types of weapons, and everyone has to agree to shared standards and transparency in use of the technologies. The war in Ukraine should be a wake-up call regarding the use of technology in warfare, and the need to regulate AI technologies to ensure civilian protection. Unchecked and potentially hasty development of military applications of artificial intelligence will continue to undermine international humanitarian law and norms regarding civilian protection. Though the international order is in disarray, the solutions to current and future crises are diplomatic, not military, and the next gathering of the U.N. or another group needs to rapidly address this new era of warfare.

### AI Unethical

#### AI is widely accepted as an ethical nightmare

Casey-Maslin 21(Stuart Casey Maslin 12-21, 2 international lawyer specialising in the use of force and the protection of civilians, <https://www.cambridge.org/core/books/right-to-life-under-international-law/832ED196FB17B46DA1AE50143290F038>) Roho

introduction 19.01 This chapter considers whether the autonomous use of force is compatible with respect for and protection of the right to life. The development of artificial intelligence has given rise to autonomy from human beings in the decision to target individuals with force and the ability to kill them. While weapons systems incorporating features of automaticity of action and reaction have existed for many years, the ever-increasing sophistication – and phenomenal speed – of decision-making by machine mean that both as a means of warfare and in law enforcement, autonomous weapons systems may become commonplace in years to come. Indeed, the informal architect of the US Department of Defense’s first policy on autonomous weapons systems has claimed that the rise of artificial intelligence ‘will transform warfare’.1 Whether that is desirable or ethical2 is not considered hereunder; this chapter focuses on whether the use of autonomous weapons systems can comply with the right to life, and, if so, under which circumstances. 19.02 In this regard, with respect to the right to life under the 1966 International Covenant on Civil and Political Rights3 (ICCPR), the UN Human Rights Committee has affirmed that ‘the development of autonomous weapon systems lacking in human compassion and judgment raises difficult legal and ethical questions concerning the right to life, including questions relating to legal responsibility for their use’.4 The Committee affirmed that ‘such weapon systems should not be developed and put into operation, either in times of war or in times of peace, unless it has been established that their use conforms with article 6 and other relevant norms of international law’.5 19.03 Thus the Committee did not consider autonomous weapon systems to be inherently ROHO unlawful; rather, it noted the requirement that their use be confirmed to comply with, in particular, international human rights law and international humanitarian law. The duty to review new weapons for their potential compliance with international humanitarian law and other salient branches of international law is a customary rule6 that was first codified in the 1977 Additional Protocol I to the four Geneva Conventions of 1949.7 19.04 In August 2020, Human RightsWatch asserted that ‘the challenge of killer robots [fully autonomous lethal weapons systems], like climate change, is widely regarded as a grave threat to humanity that deserves urgent multilateral action’.8 In support of this assertion, it refers to the endorsement by the Minister for Foreign Affairs of both France and Germany of an ‘Alliance for Multilateralism’9 declaration concerning lethal autonomous weapons systems. Presented during theUNGeneral Assembly on 26 September 2019, with the support of several other nations including Canada, Chile, Ghana, Mexico, and Singapore, the declaration’s explicit support for the ‘Eleven Principles’ elaborated by the Group of Governmental Experts (GGE) created under the UN Convention on Certain Conventional Weapons10 (CCW) marked the first time such a high-level group has acknowledged concerns’ over fully autonomous weapons systems.11 The Eleven Principles include the stipulation that ‘human responsibility for decisions on the use of weapons systems must be retained since accountability cannot be transferred to machines. This should be considered across the entire life cycle of the weapons system.’12 19.05 In September 2020, the influential Non-Aligned Movement (NAM)13 expressed its view, in a Working Paper submitted on its behalf by Venezuela in the context of the discussions under CCW auspices, that ‘Lethal Autonomous Weapon Systems (LAWS) raise several ethical, legal, moral and technical, as well as international peace and security related questions which should be thoroughly deliberated and examined in the context of conformity to international law including international humanitarian law and international human rights law.’14 The NAM further declared that it was ‘pleased’ that, while divergences remained, a ‘general sense has developed’ among States Parties to the CCW ‘that all weapons, including those with autonomous functions, must remain under the direct control and supervision of humans at all times and must comply with international law, including International Humanitarian Law and International Human Rights Law’.15 19.06 With respect to the right to life under the 1981 African Charter on Human and Peoples’ Rights,16 the General Comment issued by the African Commission on Human and Peoples’ Rights in 2015 was similarly normative. The General Comment declares that ‘any machine autonomy in the selection of human targets or the use of force should be subject to meaningful human control. The use of such new technologies should follow the established rules of international law.’17 This effectively outlaws the use of fully autonomous weapons systems, deeming them incompatible with the right to life. There has also been opposition from a great number of artificial intelligence (AI) and robotics researchers. In an Open Letter published on the Future of Life Institute, the signatories declare that ‘we believe that AI has great potential to benefit humanity in many ways, and that the goal of the field should be to do so. Starting a military AI arms race is a bad idea, and should be prevented by a ban on offensive autonomous weapons beyond meaningful human control.’18 19.07 There are four main concerns about autonomous use of force under the right to life. First, it is questioned whether an autonomous weapons system is, or will ever be, capable of accurately identifying as a target only those individuals who may be lawfully targeted with force in the circumstances prevailing at the time. Second, it is interrogated whether a decision to use potentially lethal force may lawfully be left to a computer algorithm rather than to a human being. Third, it is unclear whether such a system is able to function in a manner that enables a person to be safely arrested with the minimum necessary use of force in a law enforcement operation or allows the acceptance of a surrender by a person participating directly in hostilities during an armed conflict, as the law of armed conflict/ international humanitarian law requires. Fourth, if a machine violates the applicable law, who is to be held accountable and on what legal basis? 19.08 Discussions on the issue of regulation of lethal autonomous weapons systems (deliberately, if ironically, attracting the acronym ‘LAWS’) have been ongoing for several years in the context of the CCW. But these discussions have not crystallised in an agreement to negotiate a treaty to at least constrain, and possibly prohibit, such weapons systems as a means of warfare beyond the elaboration of the Eleven Principles.19 Moreover, the CCW has never been used as a forum to regulate the use of force in law enforcement. Indeed, the Eleven Guiding Principles, published in an annex to the report on the 2019 Session of the GGE considering the question under the auspices of the CCW, mention neither human rights nor situations of law enforcement.20 19.09 This chapter moves next to consider the definitions of autonomy and a fully autonomous weapon/lethal autonomous weapons system. The chapter then looks briefly at machine autonomy and the types of autonomous weapons systems that have either been procured and deployed or which are known to be under development. It considers their legality both under the right to life during peacetime or in law enforcement during armed conflict and as a means of warfare in the conduct of hostilities during and in connection with an armed conflict. key definitions 19.10 There is not – or at least not yet – an agreed definition under international law of either a fully autonomous weapon or a lethal autonomous weapons system. In November 2019, the report on discussions in the CCWnoted that no consensus existed among States Parties as to even the desirability of agreeing upon a definition. The report stated that ‘the concept of autonomy being a spectrum, . . . the difficulty of defining a clear point between semi- and fully autonomous systems was underlined’.21 19.11 Autonomy ordinarily means ‘freedom from external control or influence’.22 Aptly enough, as the Oxford English Dictionary recalls, the etymology of the word is from the Greek αυτο ομος, which means ‘having its own laws’.23 Or, in the rather wordier definition of autonomy proposed by the US Department of Defense in the context of weapons systems: ‘Autonomy is the computational capability for intelligent behavior that can perform complex missions in challenging environments with greatly reduced need for human intervention, while promoting effective man-machine interaction.’24 19.12 More straightforward was the Department of Defense’s proposed definition in 2012 of a (fully) autonomous weapons system: ‘a weapon system that, once activated, can select and engage targets without further intervention by a human operator’.25 The definition, the Department of Defense confirmed, ‘includes human-supervised autonomous weapon systems that are designed to allow human operators to override operation of the weapon system, but can select and engage targets without further human input after activation’.26 The definition, ‘elegant in its simplicity’, was praised by Brazil as being of ‘great usefulness’27 (although it wrongly ascribed the origin of the definition to a joint report of June 2020 by the Stockholm International Peace Research Institute (SIPRI) and the International Committee of the Red Cross (ICRC)).28 Brazil went on to offer its own, more ‘comprehensive’ definition of a lethal autonomous weapons system in its paper on definitions of August 2020: An intelligent weapon system with autonomous operation mode (i.e., without human input after activation) capable of recognizing patterns in combat environments, and of learning to operate and make decisions regarding the critical functions of target identification, tracking, locking-on and engaging based on uploaded databases, acquired experiences and its own calculations and conclusions. It is not certain, however, that this definition adds great clarity. In particular, are these capabilities to be regarded as alternatives or as cumulative prerequisites? 19.13 The United Kingdom’s definition of an autonomous weapons system is different from that of most other States and has not evolved over time. In 2011, the then UK Ministry of Defence doctrine on unmanned aerial systems declared that autonomous systems ‘will, in effect, be self-aware and their response to inputs indistinguishable from, or even superior to, that of a manned aircraft. As such, they must be capable of achieving the same level of situational understanding as a human.’29 Without that higher level of awareness, the United Kingdom regarded a system as ‘automated’. As Scharre observed, the differing UK stance was ‘not a product of sloppy language’, it was ‘a deliberate choice’. It enabled the United Kingdom to claim that autonomous weapons systems ‘do not, and may never, exist’.30 19.14 In 2017, in its later Joint Doctrine Publication, the Ministry of Defence similarly distinguished between automated and autonomous systems. Reiterating the glossary incorporated in its 2011 doctrine, an automated (or automatic) system was one that, ‘in response to inputs from one or more sensors, is programmed to logically follow a predefined set of rules in order to provide an outcome. Knowing the set of rules under which it is operating means that its output is predictable.’31 In contrast, an autonomous system is capable of understanding higher-level intent and direction. From this understanding and its perception of its environment, such a system is able to take appropriate action to bring about a desired state. It is capable of deciding a course of action, from a number of alternatives, without depending on human oversight and control, although these may still be present. Although the overall activity of an autonomous unmanned aircraft will be predictable, individual actions may not be.32

#### When AI is fed real life data it inherently perpetuates prejudices already found in society

Franke ’21, (Ulrike Esther Franke, senior policy fellow at the European Council on Foreign Relations, “ARTIFICIAL DIVIDE: HOW EUROPE AND AMERICA COULD CLASH OVER AI,” ECRF, January 2021, <https://ecfr.eu/wp-content/uploads/Artificial-divide-How-Europe-and-America-could-clash-over-AI.pdf>)

Machine-learning systems are those that use computing power to execute algorithms that learn from data. This means that AI is only as good as the algorithm it uses and the data it is being trained on. If, for example, the data is incomplete or biased, the AI trained on it will be equally biased. AI researchers around the world, and especially researchers from minority groups, have raised the alarm about this particular risk, which has already materialised in several cases. In the US, a risk assessment tool used in Florida’s criminal justice system labelled African-American defendants as “high risk” at nearly twice the rate as white defendants. A hiring algorithm used at Amazon penalised applicants from women’s colleges, while a chatbot trained on Twitter interactions started to post racist tweets. The concern is that real-life data fed into machine-learning systems perpetuate existing human biases, and that – as humans tend to consider computers to be rational – these biases will effectively be sanctioned, thereby entrenching prejudice further in society. Furthermore, AI trained on datasets collected in one cultural context and deployed in another cultural context might effectively enable cultural imperialism. In response to these concerns, big tech firms have developed principles and guidelines, and created research groups and divisions, on ethical AI. More recently, however, scandals Artificial divide: How Europe and America could clash over AI – ECFR/367 4 have emerged over big tech employees reportedly being forced to leave their jobs for being too critical, heightening concerns that these companies are not taking the issue seriously enough. Related to concerns about bias are those about the transparency of how AI works. Employing machine-learning methods means that systems are no longer programmed – namely, told what to do by human beings – but instead learn how to behave either by themselves or under human supervision. It is difficult for a human to understand and track how an AI-enabled system has reached a conclusion. This makes it hard to challenge AI-enabled decisions, and to tell whether malicious actors have exploited the vulnerabilities of AI systems. Problematic context Even if AI-enabled systems were proven to be perfectly reliable and unbiased, there are contexts in which delegating decisions to machines may be inherently problematic. This includes using AIenabled systems to make decisions that have fundamental implications for an individual’s life, such as in a judicial or military context. In the military context, lethal autonomous weapon systems able to exert force without meaningful human control or supervision are particularly controversial. The concern is a moral one: should a machine – no matter how intelligent – be allowed to make decisions about the physical wellbeing, or indeed life and death, of a human being? The European Parliament answered this question in the negative, passing a resolution in 2018 that urged the EU and its member states “to work towards the start of international negotiations on a legally binding instrument prohibiting” such weapons.

#### Racism in AI is present and developing. Further implementation exacerbates structural racism and eliminates colored bodies. (really good structural impact card for soft left version, but might need to run with “AI norms spills over” type cards to be completely effective)

**Asaro 19** (Peter M. Asaro (M’10) Dr. Asaro received his PhD in the history, philosophy and sociology of science from the University of Illinois at UrbanaChampaign, Urbana, Illinois, USA, where he also earned a Master of Computer Science degree. He has held research positions at the Center for Information Technology and Policy at Princeton University, the Center for Cultural Analysis at Rutgers University, the HUMlab of Umeå University in Sweden, and the Austrian Academy of Sciences in Vienna. He has also developed technologies in the areas of virtual reality, data visualization and sonification, human-computer interaction, computer-supported cooperative work, artificial intelligence, machine learning, robot vision, and neuromorphic robotics at the National Center for Supercomputer Applications (NCSA), the Beckman Institute for Advanced Science and Technology, and Iguana Robotics, Inc., and was involved in the design of the natural language interface for the Wolfram|Alpha computational knowledge engine for Wolfram Research) October 17, 2019 Racism and Fully Autonomous Weapons [https://www.ohchr.org/sites/default/files/Documents/Issues/Racism/SR/Call/campaigntostopkillerrobots.pdf //](https://www.ohchr.org/sites/default/files/Documents/Issues/Racism/SR/Call/campaigntostopkillerrobots.pdf%20//) ZX

The rise of artificial intelligence is largely due to an increase in power, memory and speed of computers, and the availability of large quantities of data about many aspects of our lives. Through the commercial application of big-data, we are increasingly being sorted into different classifications and stereotypes. In its most benign form, this stereotyping is being used to sell us products via targeted advertising, however, in its most egregious application, we see the weaponization of new information technologies utilize similar classifications based on biased algorithms, to which the consequences for certain communities could be deadly. In this paper I focus on fully autonomous weapons that are currently being developed for military and law enforcement purposes; and their potential threat to the human rights of marginalized communities, in particular persons of color intersectionally. This paper will also consider the systemic nature of racism and how racism would be reinforced and perpetuated by fully autonomous weapons. Fully autonomous weapons can select and attack targets without meaningful human control, they operate based on algorithms and data analysis programming. In essence, this means that machines would have the power to make life-and-death decisions over human beings. The trend towards more autonomy in weaponry without adequate human oversight is alarming especially when we know that digital technologies are not racially neutral. Moreover, when it comes to artificial intelligence (AI) there is an increasing body of evidence that shows that racism operates at every level of the design process and continues to emerge in the production, implementation, distribution and regulation. In this regard AI not only embodies the values and beliefs of the society or individuals that produce them but acts to amplify these biases and the power disparities.iii One example of racism manifesting in AI is the under-representation problem in science, technology, engineering and mathematics (STEM) fields, which in itself is a manifestation of structural racism and patriarchy in western society. Technologies in the west are mostly developed by white males, and thus perform better for this group. A 2010 study by researchers at the National Institute of Standards and Technology (NIST) and the University of Texas, found that algorithms designed and tested in East Asia are better at recognizing East Asians, while those designed in Western countries are more accurate at detecting Caucasians. Similarly, sound detecting devices perform better at detecting male, Anglo-American voices and accents, as opposed to female voices, and non-Anglo-American accents. Research by Joy Buolamwini,v reveals that race, skin tone and gender are significant when it comes to facial recognition. Buolamwini demonstrates that facial recognition software recognizes male faces far more accurately than female faces, especially when these faces are white. For darker-skinned people however the error rates were over 19%, and unsurprisingly the systems performed especially badly when presented with the intersection between race and gender, evidenced by a 34.4% error margin when recognizing dark-skinned women. Despite the concerning error rates in these systems, commercially we already see adaptations of faulty facial recognition systems being rolled out in a variety of ways from soap dispensers to self-driving cars. The issue here is what happens if law enforcement and national security become reliant on a system that can recognize white males with just 1% error rate yet fails to recognize dark-skinned women more than one-third of the time? These types of applications of new information technology fail people of color intersectionally at a disturbing rate. The fact that these systems are commercially available reveals a blatant disregard for people of color, it also positions "whiteness" as the norm, the standard for objectivity and reason. These applications of new information technology including their weaponization favors whiteness at the expense of all others, it is not merely a disempowerment but an empowerment. In real terms, racism bolsters white people's life chances. As we all grew up in a white-dominated world it is not surprising that the vast majority of white people operate within, benefit from and reproduce a system that they barely notice. This is a long-held reality and it is a fundamental problem that we now see infiltrate technology. Historical or latent bias in data is another issue, this is created by frequency of occurrence, for example in 2016 an MBA student named Rosaliaviii discovered that googling "unprofessional hairstyles for work" yielded images of mainly black women with afro-Caribbean hair, conversely when she searched "professional hair" images of mostly coiffed white women emerged, similar google search results are still seen today. This is due to machine learning – algorithms; it collects the most frequently submitted entries and therefore reflects statistically popular racists sentiments. These learnt biases are further strengthened, thus racism continues to be reinforced. A more perilous example of this is in data-driven, predictive policing that uses crime statistics to identify "high crime" areas and then subjects these areas to higher and often more aggressive levels of policing. Crime happens everywhere, however when an area is over-policed such as communities of color that results in more people of color being arrested and flagged as "persons of interest" thus the cycle continues. In 2017, Amnesty International launched a report called "trapped in the Matrix",ix the report highlighted racially discriminatory practices by the UK police force and their use of a databasecalled the "Gangs Matrix" which inputs data on "suspected" gang members in London. As of October 2017, there were 3,806 people on the Matrix, 87% of those are from black, Asian and minority ethnic backgrounds and 78% are black, a disproportionate number given that the police's own figures show that only 27% of those responsible for serious youth violence are black. Amnesty stated that some police officers in the UK have been acting like they are in the "Wild West", making false assumptions about people based on their race, gender, age and socioeconomic status. As a result, individuals on the Matrix database are subject to chronic overpolicing. With black people six times more likely to be stopped and searched than white people, and ten times more likely to be convicted of drug-related offenses. This system not only interferes with their right to privacy, Amnesty claims that the police often share the Matrix with other local agencies such as job centers, housing associations, social services, schools and colleges. In several cases, this has led to devastating impacts on people's social and economic lives because they are listed as "nominal" gang members, a label which is deliberately vague and stigmatizing. The nature of systemic racism means that it is embedded in all areas of society, the effects of this type of oppression doesn't easily dissipate. Through the continual criminalization and stigmatization of people of color, systemic racism operates by creating winners and losers regardless of what people actually do. This is also the way that it redistributes opportunities and resources based on nothing other than privilege. Given that the UK, as well as five other countries are developing fully autonomous weapons to target, injure and kill based on data-inputs and pre-programmed algorithms, we can see how long-standing inherent biases, pose an ethical and human rights threat. Where some groups of people will be vastly more vulnerable than others, fully autonomous weapons would not only act to further entrench already existing inequalities but could exacerbate them and lead to deadly consequences. Legalities As AI technology advances, the question of who will be held accountable for human rights abuses is becoming increasingly urgent. Machine learning and AI, effect a range of human rights including privacy, freedom of expression, freedom of assembly, the right to non-discrimination and equality, the right to life and the right to human dignity. Holding those responsible for the unlawful killings of people of color by law enforcement and the military is already a huge challenge in many countries, however, this issue would be further impaired if the unlawful killing was committed by a fully autonomous weapon. Who would be held responsible: the programmer, manufacturer, commanding officer, or the machine itself? Lethal force by these weapons would make it even easier for people of color to be at the mercy of unlawful killings and far more difficult to obtain justice for victims of color and their families. According to Reni Eddo-Lodge racism perpetuates partly through malice, carelessness and ignorance, it acts to quietly assist some, while hindering others.xi It is within this framework that we must grapple with race and the weaponization of new information technologies. In this regard, we should ask ourselves who controls these technologies and what do they think they know about the people they are "classifying"? What are the politics of these relationships and the deeply-rooted systemic forms of discrimination? Who benefits from these technologies and how? There is a long history of people of color being experimented on for the sake of scientific advances from which they have suffered greatly but do not benefit. An example of this is from James Marion Sims, known as the father of gynecology for reducing maternal death rates in the US, in the 19th century. He conducted his research by performing painful and grotesque experiments on enslaved black women. "All of the early important reproductive health advances were devised by perfecting experiments on black women,".xii Today, the maternal death rate for black women in the US is three times higher than it is for white women. Thus, when it comes to new information technology, facial recognition systems, algorithms and automated and interactive machine decision-making, communities of color are often both deprived of their benefits and subjected to their consequences. This paradox where science is inflicted on communities of color rather than aided by it must be addressed. We must be vigilant against deeply rooted social problems taking root in the technical infrastructure that we create. We must work towards a zero policy on racism in technology, and not weaponize racism in technology. If racism and killer robots are allowed to co-exists these weapons will be used discriminately against people of color and other marginalized groups. For these and many other ethical, moral, human rights, legal and humanitarian reasons the Campaign to Stop Killer Robots, numerous governments, regional groups, tech workers, experts, scholars and the UN Secretary-General are all calling for a legally binding instrument to prohibit fully autonomous weapons xiii We call on the Special Rapporteur on contemporary forms of racism, racial discrimination, xenophobia and related intolerance to condemn fully autonomous weapons and the human rights threat they pose to people of color; and to support a prohibition treaty that will preserve meaningful human control over the use of force and prohibit fully autonomous weapons.

## No Solvency

### No Data Sharing

#### AI data sharing fails – that prevents development.

Lin-Greenburg 20(Erik Lin-Greenburg. Assistant Professor of Political and Member of Security Studies at MIT. "Allies and Artificial Intelligence: Obstacles". Spring 2020. Texas National Security Review. https://tnsr.org/wp-content/uploads/2020/03/TNSR-Vol-3-Issue-2-Lin-Greenberg.pdf. 6-21-2022.)-cg

To minimize these perceived risks, states often impose restrictions on information sharing. One of the most common control measures is sharing only finished intelligence — products such as briefings or reports derived from a variety of different intelligence sources. These products provide assessments, but generally omit technical data — like details about the information source — that could reveal intelligence-gathering procedures and methods. Although data sharing is a type of intelligence sharing, developing and operating AI-enabled systems may require the exchange of more complete raw data in far larger quantities than traditional intelligence sharing. Raw data, which includes imagery files and signals intercepts, can include metadata such as spectral signatures of imagery or characteristics of electronic emissions that can be used to feed AI systems. Since this information can expose precise capabilities and shortcomings of a state’s intelligence systems, decision-makers may be hesitant to share it — especially in the large quantities needed to develop and run many AI-enabled systems. There are also technical obstacles to data sharing. Just as the U.S. intelligence community and military stores information in non-standardized formats on multiple systems, so too do national security institutions in other allied states. Across an alliance, the same type of data might reside on hundreds of different networks and in different formats, making it difficult to share data or to develop interoperable systems. To use data from other alliance partners, data must first be located, transferred out of a state’s classified computer network, and reformatted into a standardized, usable form. Given that the U.S. military has faced significant data management challenges in its own AI development, we should expect alliances — with their greater number of institutional actors and data sources — to encounter even greater obstacles to data sharing.

### No Interoperability

#### Interoperability efforts fail – EU-US spending gaps and production challenges mean there’s no single solution to the AI problem

Christie ‘22(Edward Hunter Christie; Researcher, consultant, economist, EU affairs professional, former NATO official, public policy expert; “Defence cooperation in artificial intelligence: Bridging the transatlantic gap for a stronger Europe,” Sage Journals, March 31 2022; https://journals.sagepub.com/doi/full/10.1177/17816858221089372#)-amc

The first general challenge to interoperability is the overall gap between the US and Europe in terms of total defence investment, as well as in terms of civilian technological attainment with respect to AI and related technologies. There is no single solution to this problem, which is much broader in scope than traditional military–technical standards, such as those pursued in the NATO context through existing mechanisms. For this broad challenge, overall policy decisions relating to national investment choices and technology policy coordination between the two sides of the Atlantic are of particular importance. Further discussion of this follows in the sections on investment challenges and international security challenges. A second challenge to interoperability is that, as far as digital technologies are concerned, the civilian sector of the economy, on both sides of the Atlantic, is more advanced, more dynamic and also not especially oriented towards meeting military needs. For decades, the military sector has represented only a very small share of the total sales volume of the computing and semiconductor industries. The same pattern is repeating itself currently with AI. This stands in great contrast to narrower dual-use technologies, for example aerospace, where the military sector remains inherently important. With digital technologies, defence institutions are under much more pressure to either adapt to civilian industry products and standards or to pay a significant premium to suppliers to secure military-grade equipment and software. A third challenge to interoperability lies in how AI is implemented in practice. To set up a bespoke machine-learning algorithm in a given data environment, best practice in the software industry is to pursue some variant of ‘agile’ development. This involves a very different product-development cycle, essentially proceeding with multiple rapid iterations of an imperfect product that is released in preliminary versions and later revised—like software products released in various ‘beta versions’—with upgrades developed over time. This contrasts greatly with the traditional production of major military platforms, which puts a premium on strict quality control and compliance with requirements at every development step—an approach referred to in the software industry as ‘waterfall’ development ([Christie 2021b](https://journals.sagepub.com/doi/full/10.1177/17816858221089372), 87). Agile product development may pose challenges to interoperability. Unless very tight standards are applied, there is a considerable risk of divergences in how different national institutions go about solving a particular AI or data analytics problem.

### No Cooperation

#### NATO won’t cooperation – no trust. US allies fail to see the US as a reliable partner on AI due to lack of confidence and strategies, domestic priorities, and desire to “win” against China.

**Imbrie et al. ‘20** (Andrew Imbrie, Senior Fellow at Georgetown's Center for Security and Emerging Technology; Ryan Fedasiuk, Research Analyst at Georgetown's Center for Security and Emerging Technology; Catherine Aiken, Director of Data Science and Research at Georgetown's Center for Security and Emerging Technology; Tarun Chhabra, nonresident fellow with the Center for Security, Strategy, and Technology at the Brookings Institution; Husanjot Chahal, Research Analyst at Georgetown University's Center for Security and Emerging Technology; February 2022; “HOW THE UNITED STATES AND ITS ALLIES CAN DELIVER A DEMOCRATIC WAY OF AI”; CSET; <https://cset.georgetown.edu/publication/agile-alliances/>)//akg

Our cross-national survey of government officials asked questions about national AI R&D priorities, international coordination and data sharing preferences, AI talent development strategies, and perceptions of other countries’ approaches to AI. Table 1 outlines the findings on national AI priorities. Officials cited four primary areas of concern around AI: domestic social and economic issues, domestic security, international security, and ethics. Domestic economic and social issues were the most prevalent area of concern, primarily labor market impacts and privacy. In terms of optimism, almost all officials focused on AI’s potential to advance domestic industry, services, and governance. Benefits for health, education, and infrastructure were especially prevalent. National R&D priorities focus on increasing research coordination and capabilities and boosting domestic industry. Priorities to advance capabilities included increasing investment, fostering technical innovation, establishing AI centers, developing international research initiatives, and training AI talent. Allies and partners prioritize AI R&D investments that support domestic ecosystems, with a focus on improving health, education, transportation, and public goods provision. AI R&D priorities are not determined solely by government actors; industry actors play an important role in the process, as well. Officials noted multiple channels for industry consultation and stressed that the voice of the private sector is important in shaping national AI strategies. Some officials highlighted that industry takes the lead in determining R&D priorities, with government backing and support. A few officials noted that national R&D priorities are still in flux, indicating room for U.S. leadership on this front. All surveyed officials indicated that they engage with international partners on AI-related issues. Bilateral efforts were the most cited avenue of international collaboration on AI, in four cases (EU, Australia, Czech Republic, and Italy) involving the United States. Multilateral fora were another common and increasingly relevant avenue for collaboration. The Organization for Economic Cooperation and Development (OECD) was the most cited multilateral forum, while multiple officials indicated engagement through the EU, Group of Seven (G7), Group of Twenty, or the newly created Global Partnership on AI (GPAI). Current international efforts focus on developing shared ethical standards, in part following the lead of the OECD and EU on defining AI standards. Other officials noted collaboration around workforce challenges, data policies, climate change, and lethal autonomous weapons systems (LAWS). Partners’ active engagement and interest in international collaboration around AI is matched with positive perceptions of the United States’ role as an AI partner. Eighty percent of officials said their country considers the United States to be a reliable partner on AI issues. The remaining three officials, representing the EU, Germany, and France, suggested that while they consider the United States a like-minded ally and continue to value U.S. partnership, recent exchanges have been less fruitful and current approaches raise general concerns regarding U.S. reliability as an AI partner. Officials also rated the United States highly in terms of commitment to responsible use of AI with an average rating similar to the average rating of their own countries, or institutions, in the case of the EU, and a significantly higher rating than they assigned to China’s commitment to responsible AI (7.3, 7.9, and 3.8 out of 10, respectively). In citing obstacles to collaboration with the United States, officials were split between placing blame on the United States and on their own country. Multiple officials noted threats to industry and industrial competition, trade issues, different domestic priorities, or a lack of agreed upon strategy or common structures as obstacles to collaboration. Others specified that the U.S. desire to “win” relative to China, lack of data privacy protection, or unwillingness to engage inhibited collaboration. They also noted a lack of confidence in current U.S. goals or appropriate U.S. points of contact. Obstacles stemming from their own government included a lack of regulatory framework or set policies, alternative political priorities, a preference for multilateral fora, or insufficient resources. The survey results indicate that there is space for the United States to engage with international partners and, despite some specific but not insurmountable points of difference, a high degree of alignment on AI interests and priorities.

#### NATO countries have fundamentally differing stances on AI

Heikkila ’21 (Melissa Heikkila, senior reporter for AI at Politico and MIT technology review, March 29th 2021, “NATO wants to set AI standards. If only its members agreed on the basics.” Politico, <https://www.politico.eu/article/nato-ai-artificial-intelligence-standards-priorities/)-Cayden> Mayer

On paper, NATO is the ideal organization to go about setting standards for military applications of artificial intelligence. But the widely divergent priorities and budgets of its 30 members could get in the way. The Western military alliance has identified artificial intelligence as a key technology needed to maintain an edge over adversaries, and it wants to lead the way in establishing common ground rules for its use. “We need each other more than ever. No country alone or no continent alone can compete in this era of great power competition,” NATO Deputy Secretary-General Mircea Geoană, the alliance’s second in command, said in an interview with POLITICO. The standard-setting effort comes as China is pressing ahead with AI applications in the military largely free of democratic oversight. David van Weel, NATO’s assistant secretary general for emerging security challenges, said Beijing's lack of concern with the tech's ethical implications has sped along the integration of AI into the military apparatus. "I'm ... not sure that they're having the same debates on principles of responsible use or they're definitely not applying our democratic values to these technologies,” he said. Meanwhile, the EU — which has pledged to roll out the world's first binding rules on AI in coming weeks — is seeking closer collaboration with Washington to oversee emerging technologies, including artificial intelligence. But those efforts have been slow in getting off the ground. For Geoană, that collaboration will happen at NATO, which is working closely with the European Union as it prepares AI regulation focusing on “high risk” applications. The pitch NATO does not regulate, but “once NATO sets a standard, it becomes in terms of defensive security the gold standard in that respective field,” Geoană said. The alliance's own AI strategy, to be released before the summer, will identify ways to operate AI systems responsibly, identify military applications for the technology, and provide a “platform for allies to test their AI to see whether it's up to NATO standards,” van Weel said. The strategy will also set ethical guidelines around how to govern AI systems, for example by ensuring systems can be shut down by a human at all times, and to maintain accountability by ensuring a human is responsible for the actions of AI systems. “If an adversary would use autonomous AI powered systems in a way that is not compatible with our values and morals, it would still have defense implications because we would need to defend and deter against those systems,” van Weel said. “We need to be aware of that and we need to flag legislators when we feel that our restrictions are coming into the realm of [being detrimental to] our defense and deterrence,” he continued. Mission impossible? The problem is that NATO's members are at very different stages when it comes to thinking about AI in the military context. The U.S., the world's biggest military spender, has prioritized the use of AI in the defense realm. But in Europe, most countries — France and the Netherlands excepting — barely mention the technology’s defense and military implications in their national AI strategies. “It’s absolutely no surprise that the U.S. had a military AI strategy before it has a national AI strategy," but the Europeans "did it exactly the other way around," said Ulrike Franke, a senior policy fellow at the European Council on Foreign Relations, said: That echoes familiar transatlantic differences — and previous U.S. President Donald Trump's complaints — over defense spending, but also highlights the different approaches to AI regulation more broadly. The EU's AI strategy takes a cautious line, touting itself as "human-centric," focused on taming corporate excesses and keeping citizens' data safe. The U.S., which tends to be light on regulation and keen on defense, sees things differently. There are also divergences over what technologies the alliance ought to develop, including lethal autonomous weapons systems — often dubbed “killer robots” — programmed to identify and destroy targets without human control. Powerful NATO members including France, the U.K., and the U.S. have developed these technologies and oppose a treaty on these weapons, while others like Belgium and Germany have expressed serious concerns about the technology. These weapons systems have also faced fierce public opposition from civil society and human rights groups, including from United Nations Secretary-General António Guterres, who in 2018 called for a ban. Geoană said the alliance has “retained autonomous weapon systems as part of the interests of NATO.” The group hopes that its upcoming recommendations will allow the ethical use of the technology without “stifling innovation.” Staying relevant These issues threaten to hamper NATO's standard-setting drive. "I think there’s a certain danger that if NATO doesn’t take this on as a real challenge, that it may be marginalized by other such efforts,” Franke said. She pointed to the U.S.-led AI Partnership for Defense, which consists of 13 countries from Europe and Asia to collaborate on AI use in the military context — a forum which could supplant NATO as the standard-setting body. That could have consequences for human rights, too. “NATO… is a great place to responsibly think about how to harness the good parts of this technology and how to prohibit the parts that would be catastrophic for humanitarian law and human rights law, and people at the end of the day,” said Verity Coyle, a senior adviser at Amnesty International, which is part of the Stop Killer Robots campaign. “Without oversight mechanisms to ensure ethical standards and measures, which would guarantee that this technology will operate under meaningful human control” NATO’s strategy could head into an “ethical vacuum,” Coyle said. Franke said it's better for the alliance to focus on the basics, like increased data sharing to develop and train military AI and cooperating on using artificial intelligence in logistics. “If NATO countries were to cooperate on that, that could create good procedures and set precedents. And I think we should then move on to the more controversial things such as autonomous weapons systems,” she said.

### Alt Cause

#### There’s not enough AI workers to solve---shortages means innovations won’t be effective

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A key requisite for all organizational innovations to occur and for Big Data analysis to be effective is the development and incorporation of a Big Data culture. Chief data officers and senior data-related leadership positions will acquire crucial importance in the analysis of information and in the actual decision-making process, but these positions require a special mix of talent and tools that are currently scarce in many large organizations, especially in the public sector. The organizations that are implementing big data analysis seem especially in need of ‘translators’ – professionals that can ensure effective communication between the Big Data analysis unit and other parts of the organization, where workers are not data scientist and may not be ready to work directly on complex models. However, organizations willing to use Big Data are also in need of real data scientists and analysts, because sophisticated techniques and data analysis tools eventually rely on talented humans who know how to manage the tools and interpret data. As a result, attracting new types of talented young workers and retaining them creating new career paths and opportunities will represent both an essential organizational innovation and an important challenge. In fact, some members of the WG highlighted that it will not even be easy to find many workers with the appropriate knowledge and skills to perform the new tasks in old and complex organizations. It is possible to find computer scientists, but sometimes these individuals do not seem to fit well with large organizations whose main core business has not much to do with computer science. At the moment, it is even more difficult to find translators, since in principle these workers should be social scientists with an expertise in Big Data analysis, but most academic institutions are not ready to forge these profiles. For what concerns NATO and national armed forces, this educational task is not even performed by military academies, even though some experiments are emerging. The ideal profile would include technical awareness, quantitative analytical skills, broad vision, flexibility and open-mindedness – and this explains why it is not easy to produce it.