Centre for International Governance Innovation

Digital Policy Hub

Digital Policy Hub – Working Paper

US-China Tech Rivalry: Convergent Technologies in Autonomous Weapons Systems

Amelia Hui

Fall 2024 cohort

About the Hub

The Digital Policy Hub at CIGI is a collaborative space for emerging scholars and innovative thinkers from the social, natural and applied sciences. It provides opportunities for undergraduate and graduate students and post-doctoral and visiting fellows to share and develop research on the rapid evolution and governance of transformative technologies. The Hub is founded on transdisciplinary approaches that seek to increase understanding of the socio-economic and technological impacts of digitalization and improve the quality and relevance of related research. Core research areas include data, economy and society; artificial intelligence; outer space; digitalization, security and democracy; and the environment and natural resources.

The Digital Policy Hub working papers are the product of research related to the Hub's identified themes prepared by participants during their fellowship.

About CIGI

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

Partners

Thank you to Mitacs for its partnership and support of Digital Policy Hub fellows through the Accelerate program. We would also like to acknowledge the many universities, governments and private sector partners for their involvement allowing CIGI to offer this holistic research environment.

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

Key Points

- Technological convergence describes the tendency for independent systems to merge or interact with each other, producing new outcomes. In the defence sector, converging technologies (CTs) are expanding the potential for innovation in the development of autonomous weapons systems (AWS).
- The United States and China are innovating stronger military technologies through civil-military fusion (CMF). China's initiatives are more state driven; the US approach focuses on bridging public and private sector ventures and leverages the free market more. These different approaches are somewhat expected, given both countries' systems and institutions, but they also demonstrate a greater merging of civil and military realms.
- Both states are leveraging CTs such as semiconductors and artificial intelligence (AI) to strengthen their weapons. Great power rivalry, coupled with a lack of incentives to stop progress, highlights non-compliance issues that may come with hardline bans against AWS development. States such as China and the United States can be framed as rivals but they fundamentally agree that AI should be developed and used safely.
- State actors must come to international agreements on what is considered appropriate ratios of human-to-machine judgement in military technology and frameworks for the safe use of CTs in the military domain. Continued academic and general discourse is necessary to further establish concrete policy.

Introduction

Independent technologies such as AI and the Internet of Things are increasingly merging across multiple domains. Technological convergence describes the phenomenon where two or more independent technologies integrate and form a new result, otherwise known as converging technologies (Park 2019). It is analogous to a compound word, where two separate entities create a new, distinct result, for example "cell" and "phone" — "cellphone." General examples of CTs include electric vehicles, cryptocurrency and, notably, AWS. This working paper will focus on the development of AWS in the context of the US-China rivalry. It looks at military AI approaches, the merging of chips and AI to produce AWS, and current governance frameworks. Overall, it is a preliminary overview to examine how private, public and state actors can regulate the use and development of CTs in the defence sector.

As technological competition rises, states have turned their attention to AWS;[1] they are often touted as the future of warfare (Office of the Director of National Intelligence 2021). The merging of chips and AI have resulted in the rapid development of AWS — a prime example of technological convergence. The acquisition of chips and development of AI are important for the military industry as they are broadly applicable.[2] Both technologies are integral to the future enhancement of military capabilities, particularly to quicken decision-making processes and data processing in AWS (O'Brien 2024). China and the United States are especially interested in competing in this domain to assert military power.

1 They are also often known as lethal autonomous weapon systems. In this paper, the term "autonomous weapon systems" will be used to encapsulate both "lethal" and "non-lethal" technology.

2 Especially in loitering munitions and other drones.

American and Chinese Military Strategy

The United States: Leveraging "Entrepreneurial Spirit"[3]

The US Department of Defense (DoD) is emphasizing the urgency to innovate in an era of strategic competition with China. It aims to maintain military power and leadership by accelerating the adoption of data, analytics and AI technologies into its defence sector (DoD 2023a, 1). In its 2023 National Defense Science and Technology Strategy, the United States acknowledges the importance of collaboration in technology and innovation to maintain military advantages (ibid.). It hopes to "sharpen [its] competitive edge" through three actions:

- investment in information systems and establishing processes for analysis that can better inform choices in science and technology (S&T) investments (ibid., 2);
- fostering a "more vibrant" defence innovation ecosystem, quickening the integration of new technology, and improving communication within and beyond the DoD (ibid.); and
- leveraging American "entrepreneurial spirit" and strengthening foundations for research and development (R&D) — this includes improving and nurturing talent, developing physical and digital infrastructures and stronger collaboration across all stakeholders (ibid., 1, 2).

The American strategy for AI integration in the military sector follows these set guidelines and the "AI Hierarchy of Needs."[4] The focus has shifted to employ AI to iterate and invest in data-driven or AI-empowered systems, incentivize more joint experimentation and concept development, and accelerate software acquisition and the procurement of emerging technologies (DoD 2023b, 7). Many of these initiatives are motivated by a desire to outpace China's growth (ibid.).

China: Becoming an S&T Superpower

China's military strategy is founded in a broader guiding ideology, which consolidates characteristics of Chinese identity such as Deng Xiaoping Theory and the "Three Represents"[5] to achieve "the great rejuvenation of the Chinese nation" (CSET 2019, 3). In practice, China aims to advance technological, economic and social development simultaneously, aiming to:

- reorganize and establish new groups of key national laboratories and "innovation bases" for emerging technology research (importantly, China hopes to diversify

3 Note: This paper was written before the second Trump administration.

4 The AI Hierarchy of Needs is made up of three pillars: responsible AI, insightful analytics and metrics, and quality data (DoD 2023b, 7).

5 The "Three Represents" encapsulates a vision for China focusing on advanced productivity, advanced culture and the principal interests of the Chinese population (Kwan 2002).

investors and promote the "modernization" of management, business and employment mechanisms) (The People's Government of Fujian Province 2021);

- bolster innovation by increasing R&D spending, granting tax deductions on R&D costs and offering other preferential tax treatment to high-tech enterprises (ibid.); and
- encourage collaboration between enterprises and universities and research institutes (ultimately, foster national talent to increase international competitiveness) (ibid.).

By 2030, China hopes to lead innovation globally; the country strives to be an established S&T superpower by 2050 (CSET 2019, 4–6). Notably, China wants to deepen CMF for innovation — directly addressing the notion of technological convergence (ibid., 12). Further, China hopes to become the world's leading AI power by 2030 and wants to develop the People's Liberation Army (PLA) into a "world class military" by 2049 (Nelson and Epstein 2022). Chinese President Xi Jinping continues to reinforce the nation's commitment to "intelligentization" alongside "informatization," expressing a desire to improve and speed up unmanned, intelligent combat capabilities (Kania 2020a, 84).

Technological Convergence in AWS

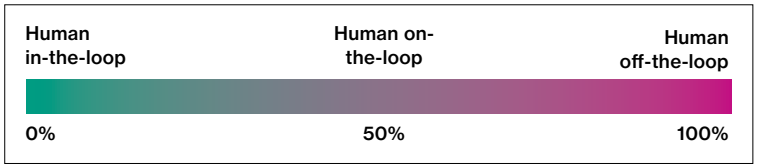
Semiconductors, AI and Weapon Systems

Although many parts merge to create AWS, two technologies are of particular interest considering US-China relations: semiconductors and AI. The United States has historically led innovation in the semiconductor industry (Miller 2022). However, its position has been threatened by an increasingly fragmented manufacturing process, offshoring and interstate competition — namely with China (Miller 2022; Hammer 2020, 39). China's decades-long campaign to become a semiconductor hub has been successful: its large market demand for chips, growing number of experts in the field and government support have been instrumental. Notably, both countries are also locked into a mutually dependent relationship. Twenty-five percent of the United States' semiconductor sales come from China, and American companies have benefitted from Chinese investment as it reduces the cost of manufacturing; Chinese tech companies also often rely on US chips and designs (Tian and Zhang 2022; Thomas 2021). Despite this, both nations are trying to decouple, recognizing geopolitical risks (Crow and Niblett 2024). Importantly, the fight over Taiwan — the source of 60 percent of the world's semiconductors — is increasing tensions (*The Economist* 2023). The United States and China are leveraging AI to display their innovative power; this translates especially in the battlefield through AWS.

AI progress is reliant on its corresponding hardware, namely advanced microelectronics, which provide the necessary enhanced processing power (Singh 2023, 1). As semiconductors and AI merge and become more advanced, so do AWS. On the hardware side, more transistors in a chip equates to increased power, resulting in enhanced capabilities (Miller 2022; Rose and Levantovscaia 2024). On the software side, AI is used in many capacities to strengthen AWS. Weapon systems use various algorithms,

including neural-network-powered[6] AI "agents," which are capable of autonomously performing tasks on behalf of a user or another system (Longpre, Storm and Shah 2022, 49; Gutowska 2024). These agents have been integrated into AWS for navigation, target tracking, interception decisions and threat assessment. Notably, this facilitates quicker decision making by streamlining data analysis (Marwala 2023). The level of reliance on the machine in this decision-making process can be thought of as a spectrum, conceptualized through a "loop" (see Figure 1). AWS used in the battlefield today largely operate unmanned: the decision to use force is made by an algorithm, with varying degrees of input by a human actor (Heyns 2016). Discussion surrounding the "loop" remains a key point of discourse.

Figure 1: Level of Machine Reliance in Decision Making in AWS



Source: Author.

The PLA has focused its efforts on the development of robotic and unmanned systems, and advanced missiles with precision guidance — some of which possess at least limited degrees of autonomy (Kania 2020b, 3). Overall, however, there is no direct evidence that the PLA has a formally constructed weapon system that can be considered fully "off-the-loop" (ibid., 4). The United States also does not have a fully "off-the-loop" system (DoD 2016). The DoD is ramping up autonomous weapons R&D but maintains that it will never fully "outsource" decision-making processes regarding force to a machine (De Vynck 2021). Both states remain committed to human oversight over autonomous machinery.

CMF

Dual-use technology enables state actors to speed up innovation in the military sector (Longpre, Storm, and Shah 2022, 48). For example, the same tools that self-driving cars might use — in tracking and identifying humans to steer clear of — can be re-tasked easily with finding and targeting military enemies. Recognizing this, both the United States and China are merging their public and private sectors to bolster military technological innovation. China's innovation strategy refers directly to encouraging a "two-way transfer and transformation of military-civil technology" to enhance military power. China also has a national CMF strategy that reiterates this (Xi 2017). Recently, China has pivoted to incentivizing its private technological firms to undertake military development projects; it hopes to harness private sector creativity and competition instead of relying solely on state-owned enterprises (Nouwens and Legarda 2018, 5). Similarly, the United States has long been leveraging and adopting commercial

6 Neural networks are a subset of machine learning algorithms, used to build models. Each network consists of layers of "neurons," which process data to recognize patterns and/or make predictions (IBM 2021).

technologies in its military sector (Vergun 2023). This CMF allows for both countries to advance more rapidly than they otherwise would.

The Chinese military industry is still primarily dominated by a small number of state-linked entities, while the American military industry is more aligned with the private sector. The patents filed by private and public sector actors in each state exemplify this. Isolating patents related to AWS using the search term "autonomous weapons systems" generates 5,627 results for China and 4,896 results for the United States. The use of the term "autonomous" in titles is only present in 176 and 156 results, for China and the United States, respectively (see Table 1). All direct mentions of "autonomous" in the patent's title were then extracted and filtered by current assignee to determine whether the patent was filed by a private or public sector entity (see Table 2).

Table 1: Google Patent Search Results for "Autonomous Weapons Systems"

Terms	Number of Patents Filed by China	Number of Patents Filed by the United States
"Autonomous weapons systems" as sorted by Google Patents[7]	5,627	4,896
Use of word "autonomous" in patent title	176	156

Source: Author (compiled based on Google Patents search).

Table 1: Google Patent Search Results for "Autonomous Weapons Systems"

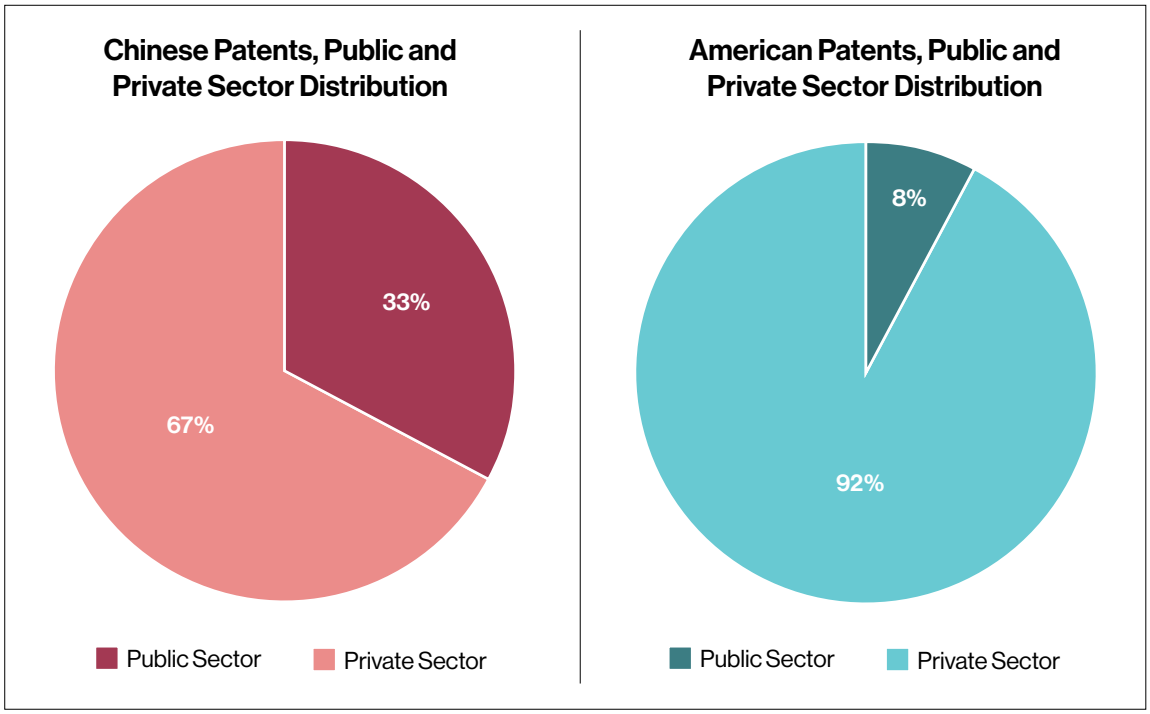
China	
Current Assignee Type	**Instances**
University	52
Military-affiliated (PLA)	11
Corporation	64
Factory	2
Institute	45
Foreign	1
Individual	1
Total Instances: 176	
United States	
Current Assignee Type	**Instances**
University	3
Military-affiliated (DoD, Navy, Air Force, etc.)	10
Corporation	120
Individuals	21
Foreign	2
Total Instances: 156	

Source: Author (compiled based on Google Patents search).

7 See https://patents.google.com/xhr/query?url=q%3D(autonomous%2Bweapons%2Bsystems)%26oq%33Dautonomous%2Bweapons%2Bsystems%26clustered%3Dtrue&exp=&download=true.

The instances were sorted into either "public sector" or "private sector." "Universities," "corporations," "individuals" and "foreign" are considered private; "factory," "institute" and "[military]-affiliated" are considered public. Within this sample, China is leading in patents against the United States by 20 points. Patents filed in the United States are primarily under the private sector, whereas Chinese patents place comparatively more emphasis on the public sector. This distinction can be partially attributed to the differences between American and Chinese systems, institutions and culture. However, this ratio of public-to-private (see Figure 2) also points to an increasing trend of CMF in both states.

Figure 2: Chinese and American Patent Distribution Between Private and Public Sectors



Source: Author.

Existing Governance Frameworks and Challenges

Current Policies on CTs

Although the term "technological convergence" was coined in 1963, the phenomenon has taken on new meaning through emerging technologies (Rosenberg 1963, 423). Today, the potential effects of converging technologies are global, and ethical-regulatory challenges remain (Helbing and Ienca 2024, 14). There are few policies in place for the specific task of overseeing technological convergence. The Political Declaration on Responsible Use of Artificial Intelligence and Autonomy, for example, is a landmark document that aims to set

standards and provide international oversight (US Department of State 2023)[8] . However, the notion of CTs in the military realm remains relatively new; more discourse is necessary to further establish and have stakeholders agree to concrete policy.

American and Chinese Perspectives

AWS that function without human control or oversight are prohibited by the United Nations.[9] However, issues regarding the level of "human control and oversight" remain. This problem is echoed in both the United States' and China's perspectives toward international regulation of AWS, as summarized through two key documents: the US DoD Directive 3000.09 "Autonomy in Weapons Systems" and China's statement at the 2023 Meeting of the High Contracting Parties to the Convention on Certain Conventional Weapons (CCW). In the American case, Directive 3000.09 requires that all systems be designed to "allow commanders and operators to exercise appropriate levels of human judgement over the use of force" (Office of the Under Secretary of Defense for Policy 2023, 3). This premise ensures that all R&D related to autonomous military innovation includes at least some level of human input; however, "appropriate" is a vague term, meaning this delineation of "human judgement over the use of force" can shift dramatically on a case-by-case basis. In the Chinese case, Ambassador Shen Jian's statement highlights China's alignment with the American perspective about human judgement. China agrees with a "people-centred approach" and the notion of "AI for good," noting that ethics should be put above all when it comes to AI (Delegation of China 2021). Importantly, China also believes that all countries should fully enjoy the right to peaceful use of dual-use nature technology. Overall, relations between China and the United States are often thought of as a rivalry; however, they share complementary views on some aspects of AI governance. The two nations held their first intergovernmental meeting on AI on May 14, 2024. Although this did not yield concrete decisions or deliverables, it represents a step forward in China-US diplomacy.

Recommendations

- **Encourage further academic and general discourse on CTs.** More academic and general discourse on the safe use of CT in the military sector would help stakeholders build a more nuanced framework for development. A bottom-up model where students and professionals alike are included in the conversation may bolster creative solutions. For universities, discussions and workshops about CTs and CT governance could be integrated into curricula. On a larger scale, international fora such as the CCW should continue to yield space for frameworks such as the Political Declaration, especially regarding AWS; individual states can then interpret and learn as needed. Nations should continue to reach a mutual understanding on how to ensure military CTs are developed responsibly.

- **Redefine appropriate levels of human judgement in AWS.** States should agree on internationally recognized definitions of what are considered appropriate levels of human judgement in AWS. These definitions should align with the interests of each state,

8 The declaration has been endorsed by 58 states as of November 27, 2024. It provides a framework to build an international consensus around responsible behaviour and guide state development and use of military AI.

9 See https://disarmament.unoda.org/the-convention-on-certain-conventional-weapons/background-on-laws-in-the-ccw/.

their militaries and their operators. Although the notion of the "loop" may be helpful in conceptualizing levels of machine-to-human decision making, this should not be codified into definitions; the concept can be easily muddled and may apply in contradictory ways based on the situation. As these definitions become clearer, international frameworks for the degree of human-machine decision making in AWS and approaches for safe integration of CTs can be established.

- **Foster further bilateral and multilateral discussion between great powers and other stakeholders.** Unyielding innovation rivalry between the great powers is dangerous given CTs' propensity to apply to the military sector: discussion and mutual agreement is necessary to prevent further tension in weapons development. The United States, China and other states should partake in further discussion — such as the intergovernmental meeting on AI between the United States and China —about R&D policy driving CMF and maintaining standards concerning AI weapons.

Acknowledgements

The author would like to thank Maya Povhe, Xingqiang (Alex) He, professors Victor Falkenheim and Joseph Wong, and the CIGI team.

About the Author

Amelia Hui is a second-year public policy and political science student at the University of Toronto. As a former undergraduate fellow at the Digital Policy Hub, her research focused on technological convergence in the development of Chinese and American lethal autonomous weapons, its regulatory implications, and its impact on public-private partnerships.

Work Cited

Crow, Alexis and Robin Niblett. 2024. “Demystifying decoupling: what’s really at stake in the US-China relationship.” World Economic Forum, January 5. www.weforum.org/stories/2024/01/demystifying-the-idea-of-trade-decoupling/.

CSET. 2019. “Outline of the National Innovation-Driven Development Strategy.” Center for Security and Emerging Technology, December 11. https://cset.georgetown.edu/publication/outline-of-the-national-innovation-driven-development-strategy/.

Delegation of China. 2021. “Position Paper of the People’s Republic of China on Regulating Military Applications of Artificial Intelligence (AI).” Ministry of Foreign Affairs for the The People’s Republic of China. December 14. www.fmprc.gov.cn/eng/zy/wjzc/202405/t20240531_11367523.html.

De Vynck, Gerrit. 2021. “The U.S. says humans will always be in control of AI weapons. But the age of autonomous war is already here.” *The Washington Post*, July 7. www.washingtonpost.com/technology/2021/07/07/ai-weapons-us-military/.

DoD. 2016. “Remarks by Deputy Secretary Work on Third Offset Strategy.” DoD, April 28. www.defense.gov/News/Speeches/Speech/Article/753482/remarks-by-deputy-secretary-work-on-third-offset-strategy/.

– – –. 2023a. “National Defense Science and Technology Strategy 2023.” DoD. www.cto.mil/wp-content/uploads/2024/05/2023-NDSTS.pdf.

– – –. 2023b. *Data, Analytics, and Artificial Intelligence Adoption Strategy*. DoD, June 27. https://media.defense.gov/2023/Nov/02/2003333300/-1/1/1/DOD_DATA_ANALYTICS_AI_ADOPTION_STRATEGY.PDF.

Gutowska, Anna. 2024. “What are AI Agents?” IBM, July 3. www.ibm.com/think/topics/ai-agents.

Hammer, Alexander. 2020. “Exporting U.S. Innovative Capacity to China? A Case Study of Semiconductor Manufacturing Equipment.” In *China’s Uneven High-Tech Drive: Implications for the United States*, edited by Scott Kennedy, 37–41. Center for Strategic and International Studies. www.jstor.org/stable/resrep22605.13.

Helbing, Dirk and Marcello Ienca. 2024. “Why converging technologies need converging international regulation.” *Ethics and Information Technology* 26, 15. https://doi.org/10.1007/s10676-024-09756-8.

Heyns, Christof. 2016. “Human Rights and the use of Autonomous Weapons Systems (AWS) During Domestic Law Enforcement.” *Human Rights Quarterly* 38 (2): 350–78. www.jstor.org/stable/24738054.

IBM. 2021. “What is a neural network?” IBM, October 6. www.ibm.com/topics/neural-networks.

Kania, Elsa B. 2020a. “‘AI Weapons’ in China’s Military Innovation.” Brookings, April. www.brookings.edu/wp-content/uploads/2020/04/FP_20200427_ai_weapons_kania_v2.pdf.

– – –. 2020b. “Minds at War: China’s Pursuit of Military Advantage through Cognitive Science and Biotechnology.” *Prism* 8 (3): 83–101. https://ndupress.ndu.edu/Portals/68/Documents/prism/prism_8-3/prism_8-3_Kania_82-101.pdf.

Kwan, Chi Hung. 2002. “‘Three Represents Theory’ aims for ‘Peaceful Evolution.’” Research Institute of Economy, Trade and Industry (RIETI), August 23. www.rieti.go.jp/en/china/02082301.html.

Longpre, Shayne, Marcus Storm and Rishi Shah. 2022. “Lethal autonomous weapons systems & artificial intelligence: Trends, challenges, and policies.” *MIT Science Policy Review* 3: 47–56. www.sciencepolicyreview.org/wp-content/uploads/securepdfs/2022/10/v3_AI_Defense-1.pdf.

Marwala, Tshilidzi. 2023. “Militarization of AI Has Severe Implications for Global Security and Warfare.” United Nations University, July 24. https://unu.edu/article/militarization-ai-has-severe-implications-global-security-and-warfare.

Miller, Chris. 2022. *Chip War: The Fight for the World’s Most Critical Technology*. New York, NY: Simon and Schuster.

Nelson, Amy J. and Gerald L. Epstein. 2022. “The PLA’s Strategic Support Force and AI Innovation.” Brookings, December 23. www.brookings.edu/articles/the-plas-strategic-support-force-and-ai-innovation-china-military-tech/.

Nouwens, Meia and Helena Legarda. 2018. “China’s Declassification of Defence Patents: novel, but not (yet) a game changer.” International Institute for Strategic Studies. January. www.iiss.org/globalassets/media-library---content--migration/images/comment/military-balance-blog/2018/february/chinas-declassification-of-defence-patents.pdf.

O’Brien, Phillips Payson. 2024. “The Real AI Weapons Are Drones, Not Nukes.” *The Atlantic*, February 1. www.theatlantic.com/ideas/archive/2024/02/artificial-intelligence-war-autonomous-weapons/677306/.

Office of the Director of National Intelligence. 2021. “The Future of the Battlefield.” Global Trends. April. www.dni.gov/files/images/globalTrends/GT2040/NIC-2021-02493--Future-of-the-Battlefield--Unsourced--14May21.pdf.

Office of the Under Secretary of Defense for Policy. 2023. “DoD Directive 3000.09: Autonomy in Weapon Systems.” January 25. www.esd.whs.mil/portals/54/documents/dd/issuances/dodd/300009p.pdf.

Park, Suzy E. 2019. “Technological Convergence: Regulatory, Digital Privacy, and Data Security Issues.” Congressional Research Service, May 30. www.everycrsreport.com/reports/R45746.html.

Rose, Matthew and Kathryn Levantovscaia. 2024. “The drones are small – the arms race may not be. Here’s how the US can win.” *New Atlantacist* (blog), May 7. www.atlanticcouncil.org/blogs/new-atlanticist/the-drones-are-small-the-arms-race-may-not-be-heres-how-the-us-can-win/.

Rosenberg, Nathan. 1963. “Technological Change in the Machine Tool Industry, 1840–1910.” *The Journal of Economic History* 23 (4): 414–43. www.jstor.org/stable/2116207.

Singh, Manpreet. 2023. “Semiconductors and Artificial Intelligence.” Congressional Research Service, September 18. https://sgp.fas.org/crs/misc/IF12497.pdf.

The Economist. 2023. “Taiwan’s dominance of the chip industry makes it more important.” *The Economist*, March 6. www.economist.com/special-report/2023/03/06/taiwans-dominance-of-the-chip-industry-makes-it-more-important.

The People’s Government of Fujian Province. 2021. “Outline of the 14th Five-Year Plan (2021–2025) for National Economic and Social Development and Vision 2035 of the People’s Republic of China.” August 9. www.fujian.gov.cn/english/news/202108/t20210809_5665713.htm#C5.

Thomas, Christopher A. 2021. “Lagging but motivated: The state of China’s semiconductor industry.” Brookings, January 7. www.brookings.edu/articles/lagging-but-motivated-the-state-of-chinas-semiconductor-industry/.

Tian, Dexin and Die Zhang. 2022. “Book Reviews: The Great Tech Rivalry: China versus the U.S. by Graham Allison, Kevin Klyman, Karina Barbesino and Hugo Yen.” *Chinese Journal of Communication* 16 (4): 468–71. https://doi.org/10.1080/17544750.2023.2285990.

US Department of State. 2023. “Political Declaration on Responsible Military Use of Artificial Intelligence and Autonomy.” www.state.gov/bureau-of-arms-control-deterrence-and-stability/political-declaration-on-responsible-military-use-of-artificial-intelligence-and-autonomy.

Vergun, David. 2023. “DOD Modernization Relies on Rapidly Leveraging Commerical Technology.” DoD, January 25. www.defense.gov/News/News-Stories/Article/Article/3277453/dod-modernization-relies-on-rapidly-leveraging-commercial-technology/.

Xi, Jinping. 2017. “Secure a Decisive Victory in Building a Moderately Prosperous Society in All Respects and Strive for the Great Success of Socialism with Chinese Characteristics for a New Era.” Delivered at the 19th National Congress of the Communist Party of China, October 18. www.xinhuanet.com/english/download/Xi_Jinping’s_report_at_19th_CPC_National_Congress.pdf.