

AI & Arms Race: The Rivalry Between the U.S. & China in the Field of Tech Supremacy

Kanij Fatima Maisha¹



Source: Bloomberg.com

Introduction

Arms race simply refers to the competition between at least two countries to acquire more advanced as well as the most powerful weapon system. When it is to the arms race, there will be the development of new technologies.² Be it nuclear weapons, missiles, military crafts, or artificial intelligence, it just takes a boon of time to escalate tensions between the competing powers. In this

¹Kanij Fatima Maisha is a Research Intern at the Bangladesh Institute of Peace and Security Studies (BIPSS). She completed her BSS (Hons) and currently pursuing her MSS degree in International Relations at the Bangladesh University of Professionals (BUP).

² “The AI Arms Race Is On. Start Worrying,” Time, February 16, 2023, <https://time.com/6255952/ai-impact-chatgpt-microsoft-google/>.

post-cold War period, when everything is motivated by national security concerns and economic interests, military superiority still takes the first place. Generative artificial intelligence is what unlocks the creativity and all the scientific discoveries in spurring the intense arms race between the United States and China in the field of tech supremacy.³

Artificial Intelligence in the Concept of Arms Race

Tech companies who have invested a great deal of money in artificial intelligence ultimately enhance the intense arms race in Silicon Valley. As a result, companies like Microsoft, Google all the global giant corporate companies seized control of the way to participate in the new infrastructure layer of the economy.⁴ In the concept of the arms race, accuracy, and precision take part in an important role as today, weapons are getting more heinous battlefields in turn of human combatants. Sending a vast amount of data and information back to analysts is becoming more challenging now. This is exactly where artificial intelligence enters the concept. Artificial intelligence has the capability of looking into big data to analyze information with the use of learning algorithms. It works in a way where it takes limited time to think, to relate to patterns, speech recognition, and the decision-making process.⁵

Artificial intelligence is the development of computer system in performing tasks that requires the intelligence of humans. AI undoubtedly benefits the military in several ways, starting from warfare systems, taking decisions strategically, target recognition, monitoring threats, simulation of combats, casualty care, and others.⁶

Brief Discussion of the AI in Military Application

1. Warfare Systems

AI makes efficient operations in aviation support and surveillance that require less maintenance.

2. Making Decisions Strategically

³ “The AI Arms Race Is On. Start Worrying.”

⁴ “The AI Arms Race Is On. Start Worrying.”

⁵ Alex Gatopoulos, “Project Force: AI and the Military – a Friend or Foe?,” accessed July 29, 2023, <https://www.aljazeera.com/features/2021/3/28/friend-or-foe-artificial-intelligence-and-the-military>.

⁶ Sentient Digital Inc, “Military Applications of AI in 2023,” *Sentient Digital, Inc.* (blog), January 31, 2023, <https://sdi.ai/blog/the-most-useful-military-applications-of-ai/>.

AI algorithms can perfectly take decisions in high-stress situations by analyzing the critical situation with less human input.

3. Simulation of Combats

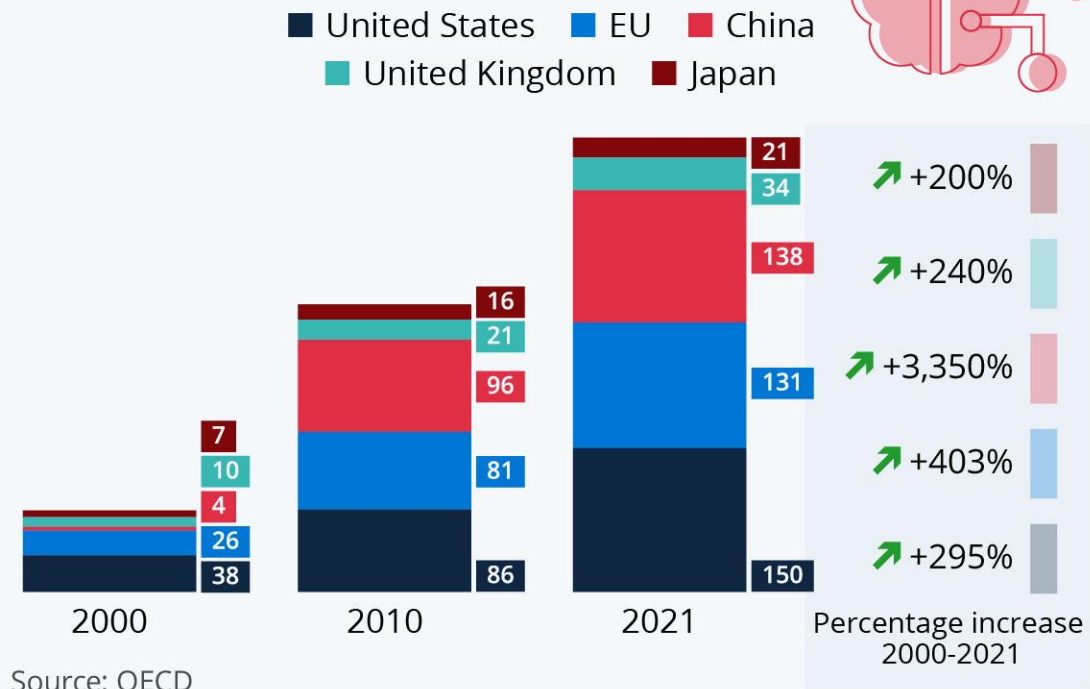
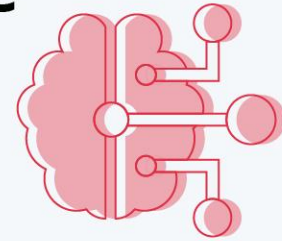
Combat simulation is a virtual wargame where any army can train its soldiers using digitized models even during the operation.

4. Monitoring of Threats

To gain and analyze information based on military activities, AI is required. AI has a better situation awareness mechanism to aid defense personnel to monitor threats and leverage the situation.

China's Race Towards AI Research Dominance

AI research papers published per year by selected countries (in thousands)



Source: OECD



AI in Military Applications: In Sum

AI or artificial intelligence not only has importance in information processing on the battlefield but also serves some key applications as well. Those key applications are:⁷

1. Experimenting with the technology of AI and integrating with Drones or Robotics.
2. Developing the system of ‘Collaborative Combat’ that integrates the interaction of human-machine.
3. Cyber-operations.
4. Detecting and countering earlier predicted cyber-attacks.
5. Optimizing the available deployments of military units of the enemy.
6. Autonomous vehicles that would evacuate wounded soldiers from the battlefield.
7. Functioning as cognitive warfare that supports disinformation campaigns.
8. Infiltrating a rival’s network by manipulating its algorithms, and corrupting data.

Adopting Artificial Intelligence in Military: The United States and China

Peer Competitor: The United States

With the Pentagon’s Defense Advanced Research Project Agency (DARPA), the United States military branch has already funneled money into the key research areas of artificial intelligence and invested in particularly civilian AI. Here is the interesting fact that AI for civilian use is tackling terrorist attacks, infrastructure failure, and other natural disasters that can affect the lives of citizens. AI and other tools of machine learning keep you ahead of adversaries with the help of homeland security and law enforcement operators.⁸

In certain cases, AI aims to provide robotic assistance on the battleground where military forces cannot reach. But ultimately, with the help of artificial intelligence, it has become easy to maintain

⁷ Gabriel Dominguez, “The next Arms Race: China Leverages AI for Edge in Future Wars,” The Japan Times, April 20, 2023, <https://www.japantimes.co.jp/news/2023/04/20/asia-pacific/china-ai-future-wars/>.

⁸ “AI for Civilian Services,” accessed July 29, 2023, <https://www.boozallen.com/markets/civil-government/ai-for-government.html>.

or expand the idea of warfighting in terms of capacity without even causing any increase in manpower.

According to Secretary of Defense Lloyd Austin,⁹

1. The U.S. will spend around \$1.5 billion on the research and development of artificial intelligence in the next 5 years.
2. The United States addresses China as the pressing challenge in the field of AI in the arms race.
3. As per Lloyd Austin, the AI use must be ‘responsible, equitable, governable, reliable, and traceable’ enough to use for a range of missions.

Peer Competitor: China

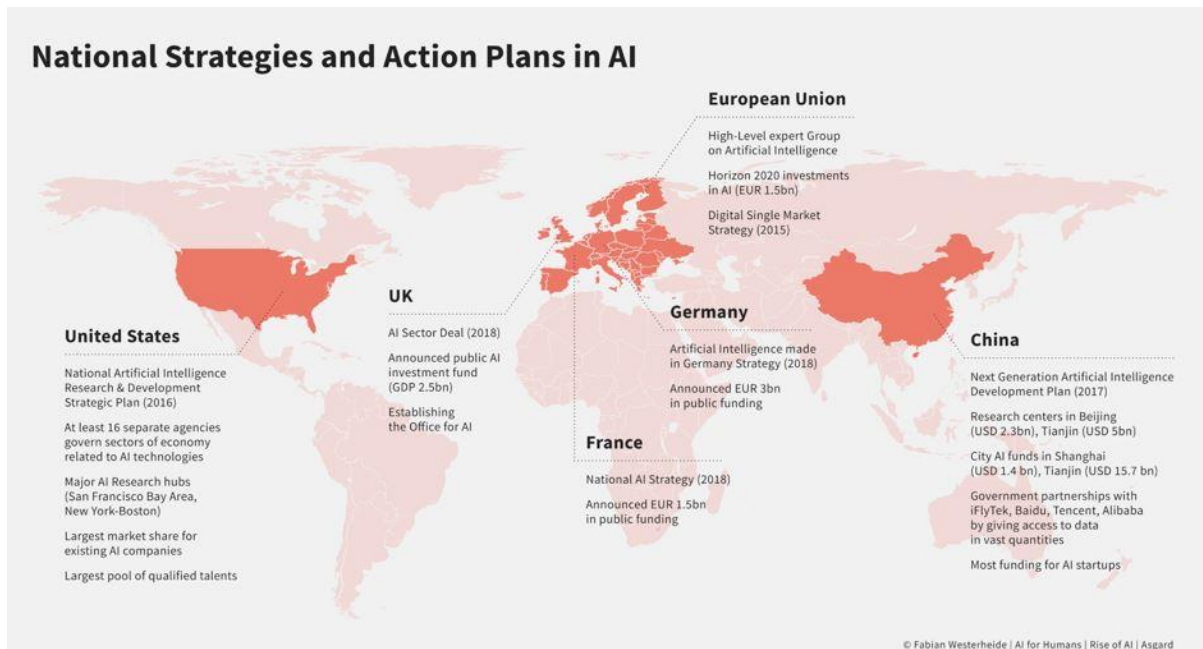
China has also stated that its focus would be on research and development toward winning intelligent warfare. Moving on the direction, China has already embraced the use of AI in their military applications. Their current focus is now in:

1. AI-enabled Radar.
2. Hypersonic Missiles
3. Robotic Ships
4. Smarter Cruise

China is no longer looking at achieving a similar pattern of success that the US does. Rather, the focus shifted to surpassing AI-generated arms by putting extra care into researching to develop the ‘weapons of the future.’¹⁰ China has already defined its goal to incorporate Artificial Intelligence.

⁹ “Artificial Intelligence Arms Race Between US And China – Free PDF Download,” *StudyIQ* (blog), July 18, 2021, <https://www.studyiq.com/articles/artificial-intelligence-arms-race-us-china-free-pdf/>.

¹⁰ Gatopoulos, “Project Force.”



Source: Forbes

According to the research-AI Index Report published by Stanford University,

1. China released a 3-step program in 2017 defining its goal to be an AI leader by 2030 worth \$150 billion.
2. China has already published around 27.5% of all AI Journal articles.
3. As per the Beijing statement in the 2019 Defense White Paper, the use of cutting-edge technology like Artificial Intelligence, Machine Learning, Cloud Computing, Big data, and Quantum Information all would have the pace in the military field.

China’s concern in AI research and Development has also caused some effects. The U.S. has decided to impose restrictions on the export of semiconductors to Beijing.¹¹

The Use of AI in Achieving the Tech Supremacy for Rival Powers

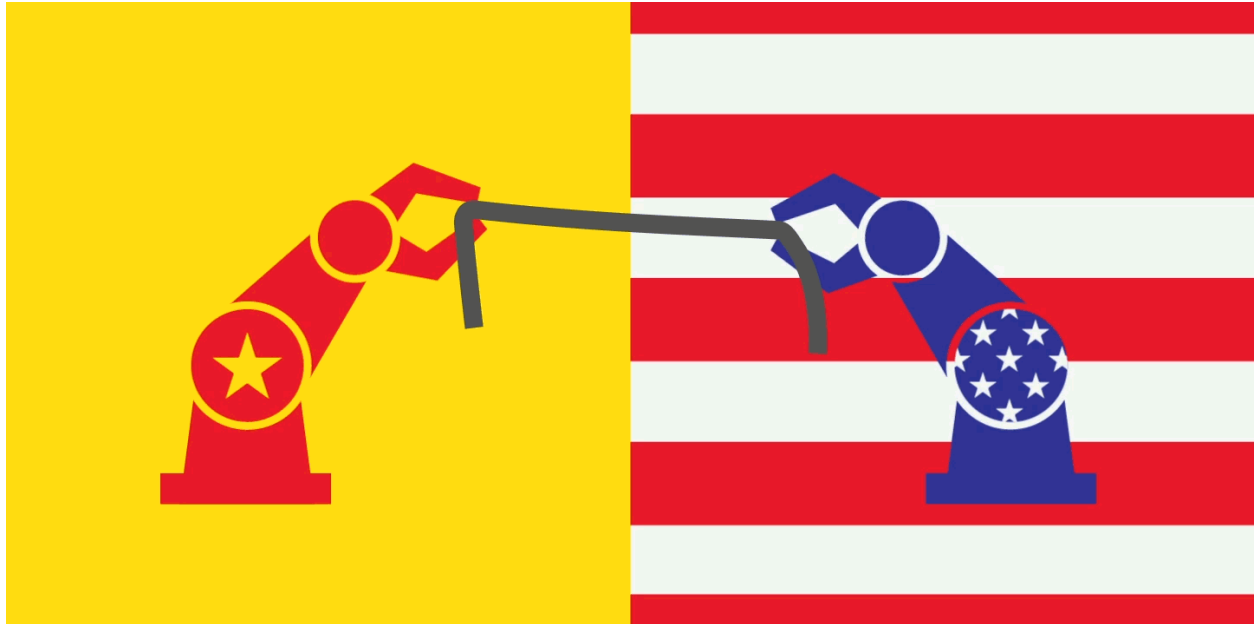
It is necessary to understand what Artificial Intelligence will be replacing if countries acquire them in large numbers. Artificial Intelligence (AI) in the battlefield works like this:

1. An unmanned supply convoy,
2. Mine clearance technology,

¹¹ Dominguez, “The next Arms Race.”

3. An aircraft that can air-to-air refuel.
4. Strong Equipment in the arena of surveillance as well as counterinsurgency.

AI can scan images from millions of CCTV cameras. Any country, be it the United States or China, can use Artificial Intelligence (AI) in following multiple potential targets using big data to predict the target behavior. Any kind of analytical or detection software requires AI to achieve significant success.



Source: The Intercept

The United States Airforce has already developed Loyal Wingman, a robotic concept that is well-designed to fly a jet without any help from a human pilot. That jet is enough to fight off the enemy. Meanwhile, if it is done by a human pilot, it is expected to lose him in fighting off the enemy. Loyal Wingman will be working as an AI bodyguard that defends the manned aircraft to save the human pilot.¹²

The Concept of Tech Supremacy

Technological supremacy is a notion in the context of International Relations where more than one power country enjoys military technological supremacy. Once the United States was in tech supremacy with the Soviet Union, now the competition transferred to the East, China.

¹² Gatopoulos, "Project Force."

Technological supremacy, there was a contested idea that is about taking supremacy at the air level. But with the advent of AI, tech supremacy now includes wireless technology, unmanned vehicles, automated machines, and other things. China is now a one-step power country in this military-technological supremacy battle. The aim of the program ‘Made in China 2025’ promotes the technological companies to be associated in the military field to create a Chinese-style notion of military-civil fusion.¹³

Meanwhile, The United States is a country with a greater level of defense budget that combines the budget of its other peer competitors-Russia, China, and South Korea combined. The United States ‘Third Offset Strategy’ is one of the pillars where autonomous weapons are created for military purposes.¹⁴

Is AI a Blessing to Achieve Tech Supremacy?

It is not possible to avoid the growing concern that AI systems provide alongside the positive impact. Artificial intelligence as a system does not feel hatred about its economy unless anyone puts the hatred mechanism into its software.

Concern 01: Not Taking Any Moral Decision

AI can be the most demanding software in any urban combat where the technology will not make any serious judgment from the view of moral understanding. Whether an AI-generated combatant or robot can apply the Laws of Armed Conflict on the battlefield is still a huge debate. Due to this concern, Human Rights Watch has once urged to prohibit the use of fully autonomous AI units in making lethal decisions, for instance where to ban mines, chemical weapons, or biological weapons.

Concern 02: The Risk of AI Machines Being Hacked

Humans can be brainwashed but a machine can be hacked in a much worse way than a human cannot. On the battlefield, AI may support you in fighting off the enemy, but soon it can turn toward you to kill. Reminding all these concerns aside, the desire of the countries like The US or the peer

¹³ “Is ‘Made in China 2025’ a Threat to Global Trade? | Council on Foreign Relations,” accessed July 30, 2023, <https://www.cfr.org/backgrounder/made-china-2025-threat-global-trade>.

¹⁴ Justin Haner and Denise Garcia, “The Artificial Intelligence Arms Race: Trends and World Leaders in Autonomous Weapons Development,” *Global Policy* 10, no. 3 (2019): 331–37, <https://doi.org/10.1111/1758-5899.12713>.

competitors China in designing and building new weapons has triggered the unseen arms race involving AI.¹⁵

Conclusion

When countries are investing a lot in enhancing their capabilities of artificial intelligence, there is a concern always rising whether countries are aware of the potential threat of autonomous killer robots in the future battlefield. Focusing on achieving tech supremacy has become the prime concern area whereas there is little discussion on maintaining international regulations on the use of AI in warfare. So far, China is taking the lead in AI research and Development, in comparison to the United States.¹⁶

A new arms race has started having no restrictions, rules, or guidelines. Only there are some national strategic plans and a few guardrails. Days are coming when the balance of power in the military-technological aspect shift from the West to the East with no predicted consequences. There is no one to question as the existing norms as well as mechanisms of governance prevent militaries from moving into a phase of automated warfare enabling robotic weapons to target enemies without the help of human control.¹⁷

¹⁵ Gatopoulos, "Project Force."

¹⁶ "Artificial Intelligence Arms Race Between US And China – Free PDF Download."

¹⁷ Dominguez, "The next Arms Race."