

THE NEW ARMS RACE BETWEEN CHINA AND THE US: A COMPARATIVE ANALYSIS OF AI-POWERED MILITARY AND ECONOMIC PURSUITS¹

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Abstract

The current international system fosters change which is catalysed by a factor that is vital to any state's growth in the 21st century - the mastery of technology. To be precise, artificial intelligence (AI) constitutes the powerful leverage that countries will need to know how to use in order to gain the hegemonic advantage. It follows that the development of AI will be paramount in revolutionising the face of future, intelligentised warfare.

This paper focuses on the elaboration of the AI narrative from a neorealist perspective, and its effects on the military and economic factors which will be most decisive in determining whether China will outpace the US in the years to follow. To this end, a comparative analysis will be employed, and document analysis will serve as the research method of choice. Not only will AI be essential to drive social change, but it will also be imperative in the development of military tools, such as target detection systems (TDS), and surveillance systems, both of which will serve as case studies to support the hypothesis that rapid AI developments stem from existing geopolitical tensions and competition, which drive the need for both countries to militarise.

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The growth potential of these technologies also prophesises a return on investment, for whichever state aims to employ them, in terms of both economic and military potential, international relevance, and, ultimately, security in the international system. As such, the important role of multinational domestic companies cannot be overstated in this case, and will be discussed.

Keywords

Arms Race; Artificial Intelligence; Dual-Use Technologies; Neorealism; Surveillance; Target Detection Systems.

1. INTRODUCTION

The advent of artificial intelligence (AI) technologies and the SARS-CoV-2 pandemic have inevitably disrupted the international system from economic, military and social standpoints, so much so that one may begin to question the very nature of the status quo. While the United States (US) has been a global economic leader since the mid-20th century (Nye 2015), some are starting to believe that the People's Republic of China (PRC) is currently competing to become the new dominant superpower (Ikenberry 2008), and are beginning to question the supremacy of '*the American Century*' (Nye 2015). Richard Maher argues that it's only a matter of time before China gains the technological edge, propelling it to AI supremacy (Maher 2018, 498). We thus advance the hypothesis that the future AI arms race between the US and China will stem from the increase of military capabilities and competition between the two states, thus centring around five key research questions:

- (i) Are China and the US competing to be the next superpower?
- (ii) To what extent will the status of superpower be due to the development of AI?
- (iii) Is China's growth based on its interest in hegemonic control?
- (iv) In the US's case, is the need to militarise derived from the security dilemma brought about by China's growth?

- (v) How will dual-use AI technologies impact the military and civilian sectors?

In this body of work, the neorealist theory is briefly introduced, as the situation between China and the US is currently explained by defensive realism – the ties between the two states being much too great to permit the compromise of conflict (Mearsheimer 2007, 83-86). However, should diplomatic action not be effective at tempering the existing tensions, we argue that collaboration may turn into increased competition, and a rather offensive approach (Mearsheimer 2007, 83-86). We also detail the specificities of AI, and delve into its main economic and military implications. Furthermore, both China and the US's AI strategies and power relations are defined, employing a comparative open-source document-driven analysis (Griffith 2014, 218), while target detection systems (TDS) and surveillance systems serve as case studies to further confirm or refute the hypothesis-driven findings.

As far as limitations go, the relative lack of access to the wealth of Chinese literature must be mentioned; the breadth of fake news was carefully navigated to convey a clear and correct overview of the situation. Consequently, the aforementioned generates the unconscious bias of eurocentrism, despite the sustained efforts at objectivity. In terms of documentation, the majority of this body of work relies on open-source information, seeing as confidential, classified, and restricted state documentation is not within immediate and possible reach.

Additionally, even if China is the main contender for the establishment of a new world order, it isn't the only one (Sieff 2009, 1-4). A professor at the National University of Singapore, for instance, argues that in the event that there would be an arms race, history might prove cyclical, as the accelerated escalation of militarisation in many Asian states may lead to surprising alliance creations, and a full-blown conflict in the long run (Sharp 2022). He allegorises this to the years prior to World War I (Sharp 2022). However, we are closer in time to the Cold War than to World War I, as this body of work suggests.

2. THEORETICAL FOUNDATIONS

2.1. Through the Lenses of Neorealism

Neorealism construes that the ‘self-help’ nature of the system is the main motive behind fear, insecurity and, consequently, action (Schweller 1996, 90-121) within an anarchic and decentralised international system (Lobell 2010). This encourages states to act in their own interests to promote security, rather than power, even if a collaborative approach may seem more fruitful (Schweller 1996, 90-91). Several definitions are warranted in this context. First of all, the US can be considered a superpower: “A state [which has reached] the level of advanced industrial and scientific capabilities associated with ‘state-of-the-art weapons’ and the ability to deploy massive and well-equipped conventional forces.” (Hao 2019).

Second of all, this relative instability instigates, in China and the US’s case, a security dilemma. As Jervis defines it, this phenomenon represents the way in which states feel their security decrease (i.e. US) as other states’ security is increased (i.e. China) (Jervis 1987, 169). This can lead to an escalation of securitisation (Burchill et al. 2022, 38), which may give way to an escalation of conflict. Jervis stipulates that states’ quests for security may even lead them to meddle with the domestic politics of weaker states, thus creating an ideological buffer zone to prevent those said states from interfering with their domestic affairs (Jervis 1987, 168).

However, the literature is split as to the advent of a new AI arms race between China and the US (Scharre 2021, 122). For instance, the former chief acquisition officer for the US Air Force pointed to China for allegedly instigating a digital arms race in 2020 (Roper 2020), while Paul Scharre argues that an AI arms race constitutes a conceptual mistake. In his definition from 1979, Michael D. Wallace’s stipulated that an arms race would be the case if the military weapon expansion budget exceeded normative boundaries, and only under the condition that rivalling countries would invest similar sums (Wallace 1979, 3-16). In quantitative terms, this increase should fall between 10% and 25% in a year (Scharre 2021, 123-124).

Third of all, the said bipolarity between China and the US is inherently relative, and predictive of what the future is purported to hold for the international state of affairs, rather than reflective of the unipolar, US-dominated present (Maher 2018, 498). We challenge the view of traditional bipolarity because its explanations are extrapolated almost entirely from the Cold War, when the US-USSR relations were based on inherent '*global competition and ideological hostility*' (Maher 2018, 498). China, on the other hand, is both competitive and collaborative in its approach with the US, and vice versa (Maher 2018, 498). Thus, this bipolar new world order will likely be an asymmetrical one (Cabestan 2020, 732), as it will likely be characterised by AI ascension.

Furthermore, we must elaborate on the sub-theories of structural realism. Mearsheimer's offensive neorealism stipulates that states try to rationally maximise power and security in an anarchic international system, sometimes even recurring to coercion and use of force to do so (Pashakhanlou 2014, 295-315). By contrast, Waltz's defensive neorealism maintains that states are after security, rather than power (Pashakhanlou 2014, 295-315), suggesting that the maintenance of stability would be contingent on cooperation, and that too much power within a state may lead to balancing behaviours against it to deter its aggression (Mearsheimer 2007, 75).

As far as non-state actors go, this body of work will treat them as "an extension of state power and interest" (Laksmana 2013).

2.2. Artificial Intelligence and the Promise of a Better Tomorrow

AI constitutes '*computational solutions that use statistical principles, algorithms and data analysis to create nonhuman decision-making - and recommendation systems*' (Nguyen and Hekman 2022, 61). Two types of AI are generally described in the literature: narrow AI and general AI (Broussard 2019, 10). If a real-life example of narrow AI is Chat GPT, then general AI would be the conscious robot Ava in the 2014 thriller *Ex Machina*, constituting the idealised Hollywood version of AI. In reality, scientists operate with narrow AI for the time being, meaning that they leverage data to train machine learning (ML) models that learn to

solve a specific set of problems, and tackle limited tasks based on imitation – this doesn't involve singularity, sentience or even consciousness at present (Broussard 2019, 10-11).

Despite the plethora of unanswered questions, AI has the potential to be transformative for economies around the world (Lee 2018, 10). During the 2016 Senate Select Intelligence Committee's annual hearing, AI has been considered an "emerging and disruptive technology" (Hoadley 2020, 19).

AI research has waxed and waned since the mid-90s (Lee 2018, 19), and its fulminant growth in the past few years alone attests to its potential. Decades-deep into AI research have led to a deep learning model winning a computer vision (CV) contest in 2012 (Lee 2018, 20). CV is the field of AI which target detection systems (TDS) and, consequently, surveillance systems are derived from (IBM 2022). It allows machines to learn from visual digital inputs (IBM 2022), recognise 3D spaces, and is currently a market which is purported to be worth about US \$32.8 billion by 2030 (GlobalData 2022). AI's dual-use characteristics make it all the more versatile; the European Commission (EC) defines them as goods that have both military and civil applications (Official Journal of the European Union 2009, 3). In the civilian sector, for instance, we may recognise them in the form of facial recognition tools that help us tag our friends on social media. In the military, however, TDS constitute the basis for unmanned vehicles (Ratches 2011), autonomous drones (Tan et al. 2021, 1), satellite images (Woodle 2016), and "reconnaissance, intelligence, surveillance, target acquisition, fire control, wide-area search and track, countermine, and sensor fusion" (Woodle 2016) - all necessary in the new phase of the "automation warfare" (Dominguez 2023).

However, the generous funding of real-life AI applications has accidentally generated problems that are now difficult to operationalise and regulate (Broussard 2019, 67-85). Applied in the military field, this can translate into practices such as the creation of lethal autonomous weapons that we don't fully comprehend. In the international system, power dynamics, perceptions of threat, destabilising world events, and antecedents may lead states to cut corners when accelerating defence. A gallop toward AI-based military weapons may

effectively lead to “the deployment of unsafe AI systems”, as well as to the escalation of conflict (Scharre 2021, 122).

3. CURRENT US-CHINA RELATIONS: IMPLICATIONS FOR THE AI ARMS RACE

In the light of the aforementioned, it’s important to consider the economic and military imperative of each nation, referenced alongside the many factors that have accelerated the security dilemma – government ties with domestic corporations, media ownership, the strong link between the US and China’s economies, and, most importantly, geopolitical tensions in the Asia-Pacific.

3.1. China

Perhaps the first interesting aspect to note is that China nearly ties in with the US for its place as the perceived world economic superpower (Silver, Devlin and Huang 2019).

In this context, we need to begin by referencing China’s Military Strategy from 2015, which clearly states that “China will unswervingly follow the path of peaceful development, pursue an independent foreign policy of peace and a national defense policy that is defensive in nature, oppose hegemonism and power politics in all forms, and will never seek hegemony or expansion” (The State Council of The People’s Republic of China 2015). Other assertions include the protection of sovereignty and territorial integrity, the edification of a cooperative international system, and an adequately modernised military in terms of cyber and space technologies (The State Council of The People’s Republic of China 2015)

China also subtly references the US in regards to their monitoring of the South China Sea (SCS), vowing to protect its interests and prevent its said ‘illegal’ occupation by competitors (The State Council of The People’s Republic of China

2015). Thus, China's Military Strategy from 2015 is inherently defensive and counter-hegemonic in its attempt to protect its rights and interests.

However much this may hold true, China's present-day government is very much focused on its military capabilities, and the military-civil fusion initiative is a great example of this. The Chinese Communist Party (CCP) has made a priority of integrating dual-use AI technologies in both sectors. This is seen by the US Department of State as a national security threat, while the CCP plans to revolutionise the People's Liberation Army (PLA), making it a 'world class military by 2049' (U.S. Department of State n.d.). This is also stated in China's 2019 National Defense Strategy in the New Era (U.S. Department of State n.d.). Its stipulations don't steer too far from those enumerated in the National Security Strategy in 2015. However, the PRC also focuses on the military-civil fusion initiative, as well as the integration of emergent technologies in a revolutionised military capable of deterring any potential security threat. China also states that: "we will not attack unless we are attacked, but we will surely counterattack if attacked" (U.S. Department of State n.d.), proposing military preparedness for armed conflict.

Indeed, despite the marked difference between China and the US's defence budget, China's defence military expenditure has multiplied by 10 in the period between 1991 and 2019, while the US's has only grown by 23% (Wei 2022).

Additionally, researchers Sebastian Santander and Antonios Vlassis from the University of Liège argue that China is challenging the current distribution of global power through increased presence in the international system, better trade relations and alliances, as well as increased influence within economic and political structures at the international level, trying to balance the US's power (Santander and Vlassis 2021, 1). However, it can be assessed that it is the US who is actually trying to form alliances in the Asia-Pacific, and contain China's rise – theory is never black and white.

To support the former claim about Chinese alliance creation, the furthering of commercial interests, and trade relations, we reinforce two main endeavours: (i) the Regional Comprehensive Economic Partnership (RCEP), a plan to create a "a regional free trade zone in Asia-Pacific" (Santander and Vlassis 2021, 2-5), for which the agreement has been finalised at the end of 2020, and (ii) the New Silk

Road, also known today as the Belt and Road Initiative (BRI) (Santander and Vlassis 2021, 2-5). The latter aims to improve the efficiency of trade, and exchange of goods and services in South East Asia, Africa, and Latin America (Santander and Vlassis 2021, 2-5). Despite having been invited to partake in the BRI (Silk Road Briefing 2022), the EU was and remains skeptical of negotiating investment possibilities with the non-democratic PRC, and shares the US's opinion in calling China's trade practices "discriminatory, unpredictable and burdensome" (Santander and Vlassis 2021, 2-5). Circling back to Jervis's arguments on the ideological buffer zone (Jervis 1978, 168), China has notably been accused of creating dependencies with Central-Eastern European countries, EU and non-EU alike. For instance, Montenegro's debt to China accounts for up to 80% of its GDP as a consequence of China financing local infrastructure (Santander and Vlassis 2021, 3). Additionally, most countries that China exports digital surveillance packages to are already a part of its Digital Silk Road (DSR) (Feldstein, Ferreyra, and Krivokapic 2022, 11), a Chinese spin-off on the BRI. The data gathered from these systems can also serve as intelligence for the military (Shankland 2022). Through the DSR, the PRC is capitalising on the global market's demand for technological tools such as facial recognition tools (FRT) and surveillance systems by advancing key technologies (i.e. AI, IoT, blockchain) (Greene and Triolo 2020). Although these initiatives aim to improve services in sectors like medicine, finance/commerce, and digital services (Greene and Triolo, 2020), China has been blamed for its techno-authoritarian approach (Greene and Triolo 2020).

In addition to the DSR, the State Council has published the New Generation Artificial Intelligence Development Plan (AI 2030 Plan) in 2017, an action plan delineating general directions and objectives pertaining to the PRC's aims of becoming a global AI leader by 2030 (Webster et al. 2017). To this end, we must reference computer vision (CV) as one of the most actively researched subsets of AI by the PRC, the rate having increased by 20% in under 4 years until 2019 (Barker 2021, 28-34). In the Chinese literature, one of the most relevant derivatives includes military target recognition (MTR), which is aimed at making military weapons more intelligent – essentially giving them the eyes and brains to strike military targets (Barker 2021, 28-34). One of the key findings of a

2020 CSET report deems this one of the most useful applications of AI in the military (Fedasiuk 2020, 1). All of this would imply less use of human force, and more “intelligent munitions, UAVs, and intelligence, surveillance and reconnaissance (ISR) softwares” (Fedasiuk 2020, 2).

As it stands, the CSET has found CV to be the most researched subject by the People’s Liberation Army (PLA) and other governmental research facilities, and MTR research papers are only increasing in number (Fedasiuk, Melot, and Murphym 2021, 44). Experts tie the PRC’s development of military recognition capabilities to the high probability that it plans to develop LAWS using this technology (Fedasiuk, Melot, and Murphym 2021, 44). The CSET also gathers data from media, academia, and procurement records when asserting that the PLA is aiming to develop LAWS components and systems that can detect and precisely strike human targets as well, despite the government having overtly expressed its discordance with this approach (Fedasiuk, Melot, and Murphym 2021, 44).

In this regard, the PRC has already started deploying technologies which have MTR at their root; drones thus constitute a big part of the AI-generated picture (Fedasiuk 2021). Even the president, Xi Jinping, has vouched for their transformative potential on war outcomes, additionally urging for a more rapid development of unmanned combat systems (Rasheed 2023), which have the added benefit of the reduced risk of military operators losing their lives in combat (Zhang 2020, 38-56). On foreign soil, China is already a successful exporter of combat drones (Rasheed 2023). Countries like Myanmar, Iraq, and Ethiopia have already deployed such UAVs for air strikes with a very high success rate – almost 100%, in some cases (Rasheed 2023). In addition to the countries named above, a total of 17 countries have been the beneficiaries of roughly 282 such drones, overshadowing the US by a long shot, according to the Stockholm International Peace Research Institute (SIPRI) (Rasheed 2023). As per the neorealist theory, the Chinese have successfully emulated the best-in-class drones of their US counterparts (Rasheed 2023). The top Chinese Caihong 4 drone is analogised to the US MQ-9 Reaper, for instance, priming firepower to the detriment of speed (Rasheed 2023), leading us to the theory that the two

states are copying one another in terms of military capabilities to increase their ability to face threats in the long run.

Despite the US being the top exporter of unarmed surveillance drones (Rasheed 2023), China is catching up fast. What seems to worry the West is the possibility for China to use this not just to grow its export rates, but also to assert its sovereignty over the highly-contested SCS and Taiwan territories by keeping tabs on both areas (Zhang 2020, 38-56).

One solution includes using AI to create simulations of the SCS islands to build a logistics network, which will further the economic activity in the region (Barua 2023). As aforementioned, although China claims these actions to be purely defensive of its sovereignty, the neighbouring countries are beginning to see the careful geopolitical balance in the Asia-Pacific disturbed by these actions.

3.2. The US

In his publication from 2020, Gary P. Beckett, policy advisor, coins China as a threat to US security as it '*aggressively invests in AI*' (Beckett 2020, 5). By any standard, strong language is used to denote a generalised fear of China in the American collective (Mahbubani 2022, 131-140), advancing the tendency for several US government officials to frame their biggest competitors as threats.

Thus, as a response to the national security threat that China poses, the US has begun to question how its military should be updated to stand the test of time, in the light of its hegemonic dominance being contested. It is based on those very same principles that the US has been working on upgrading its AI capabilities with strategies and initiatives aiming to revamp national defence (Tadjdeh 2021), and deter the PLA. The goal is the same as for China, but the applications and strategies are different. Essentially, the DoD aims to make its weapons smarter, as the accurate identification of targets is seen as a critical aspect for the military (Verly, Delanoy and Dudgeon 1989, 277).

The government has been generous with the DoD's 2020 research and development budget, even in the midst of budget cuts (Konaev et al. 2020). The purported budget for AI development as of 2021 was of US \$874 million (Keller

2021). The Pentagon's DoD Responsible Artificial Intelligence (RAI) Strategy and Implementation Pathway is one of its most important derivatives (Department of Defense AI Working Council 2022). This document outlines guidelines to allow for the DoD's reform, making it more modern and AI-centric (Department of Defense AI Working Council 2022). Some actions include the modification of the governmental structures to accommodate the safe deployment of AI, the encouragement of cross-collaboration between the industry and the academia, and the promotion of an ethical vision for the minimisation of risk when applying AI (Department of Defense AI Working Council 2022, 9).

A report by Govini was shared by CNN in 2017, and it outlined how the development of AI-backed virtual reality and CV technologies constituted one of the DoD's top strategic priorities in order to enhance striking capabilities (Cohen 2017). A cutting-edge application of these recent developments concerns the Aided Target Recognition (AiTR) system that the US military is conducting experiments with: the system having differentiated between NATO and Russian tanks with a 98% accuracy (Osborn 2022). Other derivatives, such as Advanced Targeting and Lethality Aided System (ATLAS), can additionally decide for themselves when and how much to fire when engaged in armed combat, in addition to separating threats from non-threats (Osborn 2022). The 2020 National AI Initiative Act also included clear regulatory guidelines and standards of ethical compliance, which, in turn, paved the way for the advancements we know today (National Artificial Intelligence Initiative Office: n.d.).

The initiatives above are all in line with the Biden-Harris Administration's National Security Strategy, officially published in late 2022, which clearly states that:

"The People's Republic of China harbors the intention and, increasingly, the capacity to reshape the international order in favor of one that tilts the global playing field to its benefit, even as the United States remains committed to managing the competition between our countries responsibly" (The White House 2022, 3).

An entire explanatory subchapter in the US's National Security Strategy outlines its objectives in regards to the PRC, in which it promises to stand up to pressures exerted on Taiwan, to hold Beijing accountable for the genocide in the

Xinjiang area, and to uphold a responsible competition with the rising power (The White House 2022, 24). Another central tenet of the security strategy comprises the importance of reviving the semiconductor industry (The White House 2022, 15), and of deterring threats by the means of a modernised cybersecurity infrastructure, and a more ‘intelligentised’ military (The White House 2022, 32-33).

These initiatives all point to the US’s reactive, rather than proactive response to China’s military development. In spite of this, according to a 2020 CSET policy brief, most investments in AI are made towards advancing autonomy, but research programmes are not yet leveraging AI to their full capacity to develop autonomous unmanned systems (Konaev et al. 2020, 3). Thus, experts urge the DoD as a whole to have a more coordinated and concise approach to AI growth (Konaev et al. 2020, 3-4), as an oversight of both academia and industry is highly warranted (Konaev et al. 2020, 3-4). In this context, the Joint All-Domain Command and Control (JADC2) strategy has also been put forward to “connect the data sensors, shooters, and related communications devices of all U.S. military services – Army, Navy, Air Force, Marines, and Space Force – and eventually allied partners into one integrated “network-of-networks”” (BAE Systems Website n.d.). The aimed cohesion between all subsets of the military will be obtained by the glue which is conceptualised in the US as automated target recognition (ATR) (Beckett 2020, 10). Notable contractors of the DoD such as, but not limited to, Lockheed Martin (Lockheed Martin Website n.d.), Raytheon (Raytheon Intelligence & Space Website n.d.), and Boeing (Boeing Website 2010), are all working on the integration of AI in target detection technologies.

Additionally, senior policy advisor Gary P. Beckett urges for the DoD’s development, testing and deployment of ATR systems, particularly in the air force (Beckett 2020, 14-15), through the joint forces of the industry, the academia, and research facilities (Beckett 2020, 15). He also argues that the purported success of automated targeting systems developed through AI is unprecedented, and necessary for maintaining the military upper hand in the face of the rising Southeast Asian military dominance (Beckett 2020, 12). The US military, in the same way that the PLA does, acknowledges the importance of geospatial

imagery analysis for the aforementioned, which can further be translated in awareness of battlefield situations (Fedasiuk, Melot, and Murphym 2021, 17). On another note, the US Navy plans for 40% of its ships, and 60% of its aircraft to be unmanned by 2040 (Tucker 2023). However much these experiments are being piloted in various parts of the world, including the Middle East, the US is steering away from experiments in the SCS, employing a gradual, defensive approach for the time being (Tucker 2023). In the grand scheme of things, this rather makes the US a status quo power which seeks to preserve its dominance, while it's closely watching its Chinese counterpart for any sign of military provocation.

3.3. Accelerating Tensions

The number of actors that are currently involved in the power struggle between China and the US have multiplied considerably under the state's umbrella. For instance, the governments of each country have increasingly involved their largest domestic corporations in cyber espionage (Vaas 2013), research and development (Kania and Laskai 2021), trade relations (Santander and Vlassis 2021, 2-5), etc. Consequently, the US regularly accuses China and its domestic telecommunications giants – Huawei and ZTE – to be national security threats (Santander and Vlassis 2021, 2-5). Indeed, the PRC actively involved these companies in plans pertaining to, for instance, the DSR (Santander and Vlassis 2021, 2-5). The deployment of surveillance systems in mainland China and abroad is also common (Feldstein, Ferreyra, and Krivokapic 2022, 5, 6-8). Furthermore, Huawei notably addresses its plan to fill the gaps in AI research in the coming years: accelerating and automating data collection, labeling and modelling through serious investments (Xu n.d.). Given its ties with the Chinese government, this isn't to be considered a coincidence. The Trump Administration was particularly wary of China's plans to achieve military-civil fusion with the help of domestic companies (Kania and Laskai 2021). As a result, it began to discourage its domestic tech giants (Microsoft, Google) from

collaborating with them, and going as far as banning Huawei from US infrastructure and networks (Kania and Laskai 2021).

A dominance over social media is also a sign of China mirroring American practices in an attempt to gain some form of economic superiority. TikTok's 1 billion users' worth of collected data could give China the advantage of harbouring network and Internet activity information in a way that could help them track, spy on, and blackmail government officials of conflicting countries (Milmo 2022). Starting with 2020, a wave of regulatory actions ensued all over the world, with countries such as India, the US, and even Australia (Doffman 2020) attempting to ban the platform over data transfer concerns (Milmo 2022). Even more alarming to the US was the supposition that TikTok's algorithm could be sending more generic content to the rest of the world, while domestically 'viralising' educational content, and imposing a time limit to its users (Nash 2022). In a sense, China could be using its carefully tailored AI-based algorithm to indirectly manipulate populations outside of its jurisdiction, and to collect data to improve its AI capabilities.

Tangentially, the Made in China 2025 plan to introduce high-end technologies such as AI and blockchain in the manufacturing supply chain (McBride and Chatzky 2019) may propel China to the level that the USSR was when it sent its men in space for the first time (Rapoza 2020). Despite the American manufacturing market being as dynamic and innovative as ever thanks to automation (Contractor 2021, 16-23), we cannot ignore China's surprising growth, which the World Bank terms as "*the fastest sustained expansion by a major economy in history*" (Morrison 2019, ii). Up until 2018, the increase in trade, and the introduction of free market principles led to a staggering increase in the GDP of 9.5% (Morrison 2019, ii). Experts even argue that, without adequate sanctions, large Chinese companies such as Baidu and Tencent may quickly come to outgrow their American competitors, Google and Twitter (Rapoza 2020).

However, China does not yet have the capabilities of manufacturing the world's most advanced semiconductors to enhance its AI technologies. These said microchips are currently the product of US giant NVIDIA, and are manufactured by Taiwan Semiconductor Manufacturing Company Limited (TSMC) (China State Council 2017, 17). The One China policy created by the US

further complicates this position because it further accentuates the tensions between China and Taiwan: while China wants to ascertain sovereignty over Taiwan, the US never formalised this agreement, instead settling on simply recognising Taiwan as a part of the PRC (Green and Glaser 2017). This allowed for the 1979 Taiwan Relations Act to be signed, which allowed the US to continue its trade relations with Taiwan independently from China (Mani 2022). Applied to the semiconductor issue, this firm grip over the microchip industry gives the US the diplomatic leverage it needs to sanction China when needed, and to influence its AI, military, and espionage capabilities (China State Council 2017, 21). As a matter of fact, the US's latest sanctions on the export of microchips to China were a direct attack to its AI enhancement trials (Knight 2022), and have pushed China even more to spend billions on giving domestic players such as Baidu, Alibaba, Huawei, and other tech start-ups the capabilities needed to develop semiconductors in mainland China (China State Council 2017, 18). The domestication of semiconductor manufacturing will inevitably aid the production of intelligent missiles and drones, supported by the research of AI and quantum computing uses in the military-civil fusion pursuit (Wei 2022). Despite their differences, both states have cultivated a certain economic dependency on the other, at the risk of existing tensions (Hass 2021). The US's tendency to decouple its economy from that of China's might prove particularly difficult, if not impossible, according to Chen Deming, Chinese ex-commerce minister (Lee 2020). In addition to the semiconductor sanctions, Biden has taken the firmest stance on kneecapping China's industries: sanctioning China for its genocide of the Uighur population, and even planning to remove notable Chinese companies from the US stock market (Siripurapu, n.d.). Since the onset of the 2020 SARS-CoV-2 pandemic, some companies have already started rethinking their supply chain strategies by moving production back to the US (Beene 2022), even if this might incur increased costs, and a lack of preparedness on the industry's part (Neumann and Saraiva 2022). As of 2022, countries like Malaysia, Taiwan, India, Vietnam, and Bangladesh were already beginning to gain more manufacturing ground as well (Larocco 2022). Arguably, the US's attempt at expanding its trade relations with allied countries can be seen as an

active effort at containing and undermining China's hegemonic growth in the Asia-Pacific.

We can already see how the PRC came a long way from its defensive, counter-hegemonic stance as per the 2015 Military Strategy, having, instead, adopted a rather offensive stance in recent history. If a critical point is reached, the US-China tensions may escalate in ways that the development of AI renders rather perilous.

3.4. Militarisation

To support the idea of a tipping point from Waltz' defensive neorealist theory to Mearsheimer's offensive neorealist theory in the US-China relations, we can take the example of the South China Sea (SCS). In the face of multiple accusations about espionage, and other micro aggressions, the PRC's main response has been that of mainly denying claims (Nebhay 2021), militarising (Asia Maritime Transparency Initiative, n.d.), and expanding its trade relations (European Bank for Reconstruction and Development, n.d.). As all of the tensions enumerated slowly bubble to the surface, experts fear that the cooperative mindset that interlinks both countries could give way to competition and hostility, thus recreating the Cold War dynamic (Zhuo 2022).

The militarisation of the SCS is one of the most relevant catalysers. For context, the SCS's sovereignty is disputed by many countries such as, but not limited to, Taiwan, Vietnam, Malaysia, and Indonesia, over claims of untapped natural gas in the area, and other natural resources (Center for Preventive Action n.d.). The US and China have both contested international laws pertaining to the territory, and both have been trying to ascertain dominance over it (Center for Preventive Action n.d.). The Obama Administration's Asia Pivot was created in hopes of deterring China's ever-growing influence and military power (The Policy Circle n.d.) by perpetuating the balance of power necessary for the US to continue its trade relations and security alliances with its regional allies in the Asia-Pacific (O'Rourke 2023, 2). Over the years, China has militarised three of the existing islands in the area, indirectly threatening all neighboring nations (The Guardian

Associated Press 2022). Even if China claims this action to be purely defensive of its sovereignty, the US cannot ignore that this military set-up was the most significant that China has put together since World War II (The Guardian Associated Press 2022). By arming the area, the PRC is shifting the fine balance of power in Southeast Asia to the detriment of the US.

However, the US has been blamed for its lack of consistency (Zhuo 2022). Despite current president Joe Biden expressly announcing the need to preserve a peaceful status quo with China, John Aquilino, commander of the US Indo-Pacific Command, claimed that US interventionism, and even use of force, would be necessary as a last resort to keep China from jeopardising the stability in the region (Zhuo 2022).

Walt argues that growing powers grow their interests proportionally – it thus follows that China’s objectives for power or influence are purported to grow (Chen 2013, 49). This could lead to a power struggle which Mearsheimer argues that China will not rise peacefully from – as a status quo power, but will rather have revisionist tendencies in its attempt to push the US out of the Asia-Pacific region, and further its national interests (Chen 2013, 50). A present-day example involves US Congressman Seth Moulton’s speech from the 2023 Global Conference in California, which was clipped by the Chinese to make it sound like the TSMC facilities would be blown up, should the PRC invade Taiwan (Hsiu-chuan and Pei-ju 2023), thus framing the US as offensive towards Taiwan in order to create the premise for a counterstrike. Another offensive strike from China’s part was of conducting naval and aerial blockade drills near Taiwan after the Taiwanese president’s visit to the US.

As a result, the US will likely try to maintain a hegemonic stronghold over the region by adopting a defensive stance. It will likely adhere to external balancing tendencies to form alliances with other countries in the Asia-Pacific (i.e. Japan) in an attempt to contain China’s aggression (Chen 2013, 50). In terms of a new arms race, if we compare China’s annual defence budgets for 2022 and 2023, no wide variations have occurred. The defence budgets were of US \$229.6 billion for 2022, and US \$224.8 billion for 2023. This 7.2% increase put side by side with Michael D. Wallace’s conception of 10 to 25% growth in defence spending fails to account for an arms race. However, as political scientist Minxin Pei attests, the

Communist Party intends to allocate a more significant budget to its military in the following years, thus potentially catching up rapidly to the US (Sharp 2022). However, if we consider AI spending in isolation from the defence budget, we can see that it remains an increasing budgeting priority (Scharre 2021). In 2022, the PLA's budget for augmenting its AI capabilities was comparable to that of the Pentagon, with an estimated US \$1.6 billion a year spent on AI-integrated military technologies in both combat and support functions (Harper 2022). The Pentagon, in turn, has requested US \$1.8 billion for AI Research and Development from Congress in 2024 (Altus 2023a). In the light of these budgets, Kevin Roberts, President of the Heritage Foundation, warns that AI could, once again, cause enough friction to start a war between the two giants (Altus 2023a) - Chinese general Mike Minahan warns that this could be the case before 2025, in a leaked memo (Altus 2023b).

4. THE RISK OF ESCALATION

4.1. Laws

In addition to the billions spent by the US military on AI in 2020, US \$1.7 billion to US \$3.5 billion were also spent for the development of autonomous systems (Harper 2022). Giving weapons the eyes and brains to strike accurately is seen by many scholars as a potentially jeopardising endeavour due to the sheer unpredictability and rapidity of present-day autonomous systems in their incipient stages (Konaev et al. 2020, 7). The Future of Life institute, for instance, released an 'Open Letter to the United Nations Convention on Certain Conventional Weapons', mentioning how LAWS could, once created, cause immeasurable collateral damage as the "*third revolution in warfare*", and urges for the need to '*prevent an arms race*' by containing the creation of such weapons (Mohan 2022, 1-16). The authors liken the LAWS revolution to a Pandora's box, in that an escalation of tensions may prompt the deployment of AI systems that weren't fully tested for safety (Scharre 2021). Additionally, the algorithmic bias of AI devices we mentioned previously can prove lethal in a conflict environment, specifically in the case of autonomous weapon development. For

instance, if the training data for ML models uses a majority of male subjects, as per the male-dominated field they operate in, then the trained AI algorithms underlying facial recognition run the risk of failing to assess a female's humanity in a real-life conflict environment (Mohan 2022, 1-16). With less human participation in conflict, Chinese scholars suggest that AI agents can even lead states to overestimate dangers where they are not necessarily warranted, leading to an erroneously generated escalation of conflict (Fedasiuk 2020, 2-3), and a loss of operational control (Cohen 2017).

4.2. AI Surveillance Society

In the social sphere, AI is recognised as the powerhouse behind facial recognition (Kaur et al. 2020, 131-139), social media monitoring (Balaji, Annavarapu, and Bablani 2021), deep fakes (Fletcher 2018, 455-471), and misinformation (Ozbay and Alatas 2020). Some practices have set an irrevocable precedent to use AI technologies for public surveillance at the societal level (Feldstein, Ferreyra, and Krivokapic 2022, 9). During the SARS-CoV-2 pandemic, the Chinese began implementing the AI-based Health Code App, a health tracker limiting individual access to a public place based on the assessed danger of high body temperature (Feldstein, Ferreyra, and Krivokapic 2022, 9). Research is also underway to use indoor and outdoor sensors to track civilians in public spaces such as airports, public transportation, and the like (Bhaskar 2012, 467-475). With the advent of AI, making these autonomous might only be a matter of time and initiative (Bhaskar 2012, 467-475).

As undeniable proof of the growing surveillance market, a contrasting 97 countries worldwide are currently increasing their surveillance capabilities as of 2022, and 52 of those are, in fact, liberal democracies (Feldstein, Ferreyra, and Krivokapic 2022, 7). The number was lower in 2019, with 75 countries (Feldstein 2019, 1).

China is currently the market leader for mass surveillance tools in proportion of 40%, generously funding domestic tech giants such as Dahua, Huawei, Hikvision, and ZTE to deploy AI surveillance systems to several BRI signatories

(Feldstein 2019, 1), going as far as pitching and sending loans to developing countries for the acquisition of such systems (i.e. Laos, Mongolia, and Uganda). However, China wasn't the only country who was mass-exporting surveillance systems in 2019. The US was also present on the market with companies such as IBM, Palantir and Cisco, followed by Israel, Japan, Germany and France (Feldstein 2019, 2).

According to Georgetown's CSET, publications from Chinese institutions make up about a third of existing academic publications (Acharya, Langenkamp, and Dunham 2022). Internal data, but also data from Western customers is very much leveraged in research to improve AI capabilities. Examples of such data constitute crowd monitoring data, personally identifiable data, and social media data (Feldstein, Ferreyra, and Krivokapic 2022, 5, 8). One of the ethical problems with this pursuit is that, when developing these surveillance systems, governments often transgress civilian consent when gathering biometric data (Sandels 2019, 29) – one rather dystopian example constitutes the said domestic genocide of the Uighur community of the Xinjiang region (Wood n.d.).

Unfortunately, the lack of norms and agreements surrounding AI development and deployment is universally widespread (Feldstein, Ferreyra, and Krivokapic 2022, 13). One of the controversies stemming from this relative lack of AI surveillance regulation points to the tragic death of Jamal Khashoggi, a well-known Saudi dissident, in 2018 (Priest, Mekhennet, and Bouvart 2021). The reason for his death was allegedly tied to a complex surveillance spyware created by Israeli cyber intelligence group, NSO Group, with the objective of silencing vocal dissidents in the public sphere (Shankland 2022). Virtually all similar surveillance tools that can target players from all jurisdictions anonymously are difficult to regulate, making these cyber weapons a cause for concern (Priest, Mekhennet, and Bouvart 2021).

As such, both TDS and surveillance systems are next-generation technologies that require universal, careful consideration upon development and deployment.

5. CONCLUSIONS

As AI advances, so too do both states' vested interests in the abounding opportunities surrounding it. We thus confirm the hypothesis that the future AI arms race between the US and China will stem from existing geopolitical tensions and competition, which drive the need for both countries to militarise. Therefore, to briefly reiterate the answers to our research questions:

- (i) **China and the US are currently competing to be the next superpower.** China's military strategy from 2015 invoked a defensive approach to its sovereignty, and a hopeful outlook on cooperative ties with other states in the international system. However, recent tensions in the Asia-Pacific region, including the SCS and Taiwan disputes, have driven tensions to escalate, and, as Walt postulated, China has become increasingly assertive in reaffirming its rights. Feeling threatened by this Chinese awakening, we have analysed how the US is slowly starting to mobilise its resources towards making maintaining its foothold in the Asia-Pacific.
- (ii) **The superpower status will largely be due to the development of AI,** which will likely revolutionise the face of future, intelligentised warfare. Even if the US's military spending still outpaces China's by US \$500 billion, the sums spent on AI integration in the military are roughly similar at around US \$1.6 billion (Fedasiuk 2021). Given the US sanctions in place to stunt China's need for Taiwan semiconductors (thus limiting its ability to reach its AI 2030 Plan goals), *'it remains to be seen how exactly AI might alter the balance of military power in the Indo-Pacific'* (Fedasiuk, Melot, and Murphym 2021, v).
- (iii) **China's growth is based on its interest in hegemonic control only insofar as its sovereignty is protected in the Asia-Pacific.** However, the BRI, and other forceful alliances created over the commercialisation of AI surveillance lead us to believe that China is already in a stage where it is willing to expand its sphere of influence, thus gaining ground on the US. It is expected that its ambitions will only grow if tensions

escalate, and that the international system will become increasingly bipolar as a result.

- (iv) **The US's need to militarise is based on the security dilemma brought about by China's growth.** American authorities invoke the idea of an arms race, as well as the idea that China could be a threat to national security. According to the neorealist theory, it's only a matter of time before the US begins to contain China's ambitions for hegemonic control over the Asia-Pacific region in order to maintain its global superpower status.
- (v) **Dual-use AI technologies are an integral part of the military-civil fusion initiative adopted by both the US and China.** They will be essential for the economic growth (ex. exporting surveillance capabilities), and commercial ambitions which will be key in funding military success (ex. weapons that are faster, more precise, and more powerful). The collaboration between states and domestic companies will be a key factor permitting growth in this sector. Additionally, including AI in military operations can make them more streamlined and effective in the event of a war.

Research and development will likely also bring about an astronomical rise in TDS technologies, such as UAVs (combat drones), LAWS, ISR capabilities, and surveillance systems, which will need to be carefully leveraged. Whereas war between both states is not inevitable, its prevention requires a diligent effort on both parts (Allison n.d.).

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