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Revolutionizing Warfare: The Role of Artificial Intelligence in the Future of Defense

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ABSTRACT:
This research paper basically analyzes the neophyte role of Artificial Intelligence in the defense domain and the ways through which this has been revolutionizing modern warfare with new operational and functional methods and tactics on the battlefield coupled with empowering decision-making processes outside the field. AI has been ingrained deeply into the veins of modern warfare at such a level that not only does it provide the facilities of an autonomous machine that works independently of human fallacious features but also enhances the potential of decision-making capabilities in order to analyze larger sets of data in a few minutes. Moreover, developments in AI and its integration in the military domain have led to the novice concept of ''Hyperwar,'' where automation of machines would eventually minimize human control over decisions. The effects of platforms under AI control would be multiplied by many folds, ultimately making it impossible for an enemy to execute a command or respond, known as the multiplier force effect. Not only will its application enhance the capacity and capability of weapons systems, but it also will alter the nature of warfare. This paper substantially investigates the unprecedented contingencies and how AI-based applications are putting three basic and integral aspects of the future of defense in danger, particularly Autonomous Weapons systems and modern warfare, Intelligence, reconnaissance, and national and international Security. However, few skeptics argue that the application of AI in the military domain requires a fundamental recalculation of what constitutes deterrence and military strength.

KEY WORDS:
Artificial Intelligence, Modern Warfare, Hyperwar, Military Domain

Introduction

In the ongoing war where Russia attacked Ukraine, both parties have mainly deployed AI-powered systems that were capable of collecting larger sets of data and analyzing that vast amount of data collected from the battlefield to anticipate the attacks and counterattacks - particularly working on the principles of ISR (Intelligence, Surveillance, and Reconnaissance) missions (Khaipnazarova & Milavsha, 2022). This unconventional deployment ultimately unfolded the varying dynamics of warfare brought by Artificial Intelligence. In general terms, AI can be defined as innovative technology based on algorithms that perform functions that require human intelligence. With the evolution of technology and the advent of new developments in the technological domain, the nature of war and warfare also witnessed a transformation in numerous ways. Unsurprisingly, the use of armor had already replaced

the need for animals for transportation, and now, the development of contemporary aircraft carriers and supersonic fighter jets, robots, and artificial intelligence are the harbinger of advancements in military technology as well. Additionally, the incorporation of AI into conventional weapons and the use of machine learning are all expected to change the process of decision-making, which might result in a new use of force in military strategy. The development of overlapping fields like neuroscience, biotechnology, and quantum computing is hastening the evolutionary process of intelligent robots. Furthermore, modern scientific and technological advancements in new domains of research present considerable potential. Nonetheless, such advancements also pose a threat to the government's national security and strategies and international security patterns (Husain, 2021).

The principal driving forces behind the evolution include the exponential growth in computing-based performance, larger databases, advancement in machine learning techniques and networking, and rapid involvement of commercial interests and investments in the artificial intelligence domain. These factors cumulatively exacerbate the integration of AI in the military domain. Autonomous systems were already present in the military domain; however, recent modern advancements in machine learning-based algorithms and artificial intelligence reflect the prominent decisive moment in military technology- specifically the use of cognitive solutions in order to raise the awareness of battle space. Conventional intelligence systems can be supported by the upgraded AI-based autonomous system (Namiot et al., 2021). In this way, the autonomous weapon system, independent from human interference, will accelerate the speed and diligence that could improve the overall performance in the military domain- by providing substantial marital benefits that raise the level of intelligence gathering and optimization. In recent years, AI-based applications have advanced in a wide range of sectors, which reflects its unwavering progress both in military and civil domains. For the pursuit of better, faster, and stronger weapons and technologies, the military is, indeed, driven by the need for change. AI provides it exactly as it demands modernization in the weapon system and decision-making. In the field of military, AI has the strong potential to impact all levels of warfare, specifically land, space, sea, and information. In the contemporary era, AI is being used in the military domain in the following prominent areas: Autonomous Weapons and Weapons Targeting, Cybersecurity, logistics, and Surveillance. In addition to this, in the military domain, AI is expected to bring consequential changes with dire implications. The complex and intractable role of AI in modern warfare offers several opportunities and benefits in order to enhance military capabilities at both operational and decision-making levels. Though AI as a concept has been extensively discussed, the exact definition of Artificial Intelligence is still up for debate. There is current debate and scholar's speculation about AI technology and its enabler and force multiplier effects in military applications, coupled with the major impacts of specific innovations and military applications on future conflicts and military skirmishes. Moreover, there is also wide discussion on the conceptualization of the strategic impacts of AI, mainly robotics and swarming technology, and the enabler impacts of an autonomous weapon system, which works independently from human intervention (Haney, 2022). Industrial automation, diagnosis in the medical field, Web searching, medical diagnosis, algorithmic trading, ride-sharing and invention in transportation, and autonomous vehicles are just a few of the everyday commercial applications that have been made possible by using AI technologies. However, real implementation of AI is yet to be testified for the longer term in both the military and civilian domains. On a theoretical basis, the study of artificial intelligence has been around since the 1940s, but in the last ten years, improvements in machine learning and computer processing speed have coincided, which has sped up the discipline's explosion in popularity. Moreover, AI is anticipated to improve cognitive digital technologies by amalgamating larger datasets and cloud computing, linking smart artificial intelligence and machine-learning systems based on automation processes to a large universe of renewable energy. For example, AI has been incorporated deeply into the Internet over Things (IoT), which basically refers to networked objects over fifth-generation (5G) telecommunications networks. The most well-known use of AI is machine learning- a subset of AI- which is the engine behind numerous applications and services that enhance automation across a variety of physical tasks and analytical actions by allowing computers to learn without explicit guidance and coding. This procedure of training a model, which uses data to automatically improve performance, is known as model improvement. Machine-learning systems are able to analyze large

amounts of training data sets in order to mimic what people naturally do: boost performance on a certain task by applying an algorithm. Besides this, Deep learning is now the most popular use of algorithms (Imam& Azam, 2021). Deep learning, a kind of machine learning, basically imitates human intellect by employing many layers of artificial neural networks to obtain the desired outcomes. A few of the several research fields are enabled by deep-learning architectures like recurrent and deep neural networks, convolutional neural networks, which include speech recognition, computer far-sightedness and machine translation, and finally, natural learning process. Additionally, the strategic consequences of numerous contemporary patterns in the evolutionary phase of artificial intelligence and autonomy in the military realm are also discussed in this section, along with how machine learning and a larger set of data highlight the potential use of AI in military implications.

This research study employs qualitative research methodology as research design which relies on the qualitative data acquired using both primary and secondary sources. Moreover, for secondary sources, different kinds of research papers, policy documents, and reports were concerned. For data analysis, this study applies thematic and content analysis techniques.

Artificial Intelligence's Role in Shaping the Future of Military Defense

In the ongoing debate on AI's impacts on the nature and dynamics of warfare, the primary focus of the research is primarily on its effective use in the military domain. There is a difference of opinion among scholars on the implications of AI in the military domain. They have been categorized as skeptics, deniers, and acceptors. Scholars who view the use of AI with skepticism, also called deniers, are, on the one hand, as these scholars underscore the possibility that humans could lose control of the machines, which might result in havoc-like conditions, particularly in the military domain. Furthermore, there are views that not only states but also non-state actors, such as terrorist groups in this instance, could be able to have open access to AI systems, which might result in the possible use of AI by the non-state actors, deepening the asymmetry of warfare. AI machines, on the other hand, are viewed as a beneficial and effectual development because this has the potential to replace human soldiers with unmanned vehicles in life-taking battles, thus reducing the number of human casualties- a savior of humankind. Additionally, these AI-based equipment and devices might be more useful for prolonged and hectic tasks that humans cannot handle in efficient ways. In spite of the arguments in favor of and against the use of AI in warfare, some experts have prognosticated the potential influence of AI on the future course of war tactics. Resultantly, these three perspectives or viewpoints in academic debate can be categorized in the following way: (1) minimum influence, (2) evolutionary impact, and (3) revolutionary impact (Araya & King, 2022). The majority of the concerns raised by those experts who believe there would be minimal influence are related to AI's technological capabilities and the military organizations' readiness to employ this technology. They claim that because of the potential issues that could arise, AI cannot be used in military applications. Regarding military organizations, some bureaucracies are not amenable to dramatic innovations, such as AI, and as a result, they would oppose the use of AI in the military. Even though Generative Artificial Intelligence is unlikely to develop in the near future, experts who believe in the evolutionary impact of AI acknowledge that AI will play a crucial role in warfare and stress the need for human presence in order to prevent AI from taking control of the conflict. The last group of specialists agrees that AI will have a dramatic impact on warfare. The proponents of this argument assert that the military's use of AI has the power to alter the nature and tenets of conflict. As a result, these proponents speak of the transition from the industrial age of warfare into the information era, in which acquiring, exploiting, and spreading information will be the most critical aspect of combat operations. At this point, AI's capacity to handle massive amounts of data quickly will be a significant military edge, enabling quicker and better judgments (Kreinbrink, 2019).

Despite all these debates and clashes of opinions, it is clear that AI has the potential to alter the nature of combat in multifarious ways. First of all, the temporal scale of battle could be stretched to its absolute extent. AI's capacity to analyze a lot of data quickly could be a huge advantage in combat, allowing for quicker and wiser

decisions. Analysts strongly disagree on whether or not this change will be advantageous for the military and civilians. Second, as new operational concepts (such as swarm drones) emerge, the military's structure and organizations will alter. Third, AI may make it possible to handle the enormous amount of data that is available for Analysis. AI systems will be able to produce outcomes or solutions that humans might not be able to think of, particularly when encountering conflict, by analyzing this data. This would give us an edge over the opposition. Finally, a new discussion on the quality-quantity issue will take place once the software has been developed, taking into account the viability of achieving a particular AI system. Despite all of these debates, governments are continuing to work towards applying AI to various fields, including the military. Several states have released their national AI strategies in order to define the role and integration of AI in military domains.

In light of this, the primary justification for states' willingness to invest in AI will be covered in the following portion of the paper.

Weaponizing AI: Lethal Autonomous Systems

The rise of new weaponry and warfare paradigms was accelerated by the use of AI in the military domain. From science fiction films to reality, autonomous weapon systems have appeared on actual battlefields. These systems are stronger than humans because they can process intricate sensory data from the battlefield and act immediately without being affected by any emotions. Natural language processing (NLP) has advanced to the point where such automated systems can easily be controlled and operated without human instructions. These systems are able to advise the military commander and foresee the most effective tactical scheme to be used in battle. Additionally, autonomous weapons allow for the expansion of the battlefield and the ability for combat to reach previously no-go areas (Chen et al., 2019).

Not only do these systems give inalienable access to the tactical and strategic advantages, but they also give leverage to the forces to obtain tactical superiority in information, surveillance, and reconnaissance, particularly when artificial intelligence-based machines -such as unmanned aerial and underwater vehicles, are employed on the battlefield. Unmanned aerial, underwater, and air surface vehicles, UAVs, or drones can also be farmed to hit a specific and targeted person or group of people, resulting in minimizing collateral damage in military operations by combining cutting-edge cameras, sensors, computer vision, and satellite photos. The capacity to view both friendly and opposing forces, thanks to a multi-domain command and control system, can help the Air Force become more deadly. This technology allows for the combining of data from different sources ranging from the air, the internet, the land, and the sea (Coker, 2019). From the ocean's surface to the edge of space, as well as in cyberspace and the electromagnetic spectrum, AI has the ability to revolutionize military strategy on all fronts. A brand-new battle paradigm dominated by AI is now being developed. The most effective AI-integrated operational procedures, appropriate AI-enabled weaponry in the field, the caliber and volume of the enemy's military data, and the use of algorithms in warfare have all emerged as crucial elements in this fight. Moreover, BMI (Brain brain-machine interface) technology can also support warfighters with activities requiring judgments on important occasions, making decisions, and problem-solving mechanisms, which subsequently can significantly pace human-machine teaming. AI will be incorporated into every aspect of warfighting, altering how war is operated. This conflict will not be limited to just one nation (Jiang et al., 2015).

Intelligence in Military Realm: Revolutionizing the Existing Intelligence System

The increased processing and analytical power of AI systems will be extremely beneficial to the intelligence apparatus. The intelligence information grid could be overrun with copious amounts of difficult-to-analyze data coming from sensors, cameras, smartphones, and media. Also, it is challenging to make connections in real time due to the higher velocity of data entering any system. Additionally, it is challenging to gather reliable and accurate data while sifting through the abundance of false information. Analysts can extract precise information from the

enormous volume and velocity of data with the help of higher AI capabilities. Consequently, automating this time-consuming task enables a human analyst to make timely decisions in an efficient and effective manner. AI-powered intelligence will be helpful in the areas of most importance, particularly the assessment of social threats, territorial border security, combat in the air, and finally, now, in the cybersecurity domain. Continuous monitoring of the terrorist target is necessary for counterterrorism. Technologies for image recognition can be applied to locate hostile targets. AI may be taught to predict these targets' patterns and behaviors using big data. AI's deep learning skills enable it to recognize any unusual behavior from such targets. Similar to this, unmanned autonomous vehicles with a wide field of view, sensors, and cameras positioned at various angles can be employed to keep an eye on criminal behavior along porous borders. The diverse capability of monitoring the borders virtually by using facial recognition technology and by allowing the operating unit to be informed about hostilities on the border will also significantly increase the security of open borders (Andresky & Taliaferro, 2019). Additionally, it is possible to maintain ongoing surveillance in the border's sensitive areas. AI-improved intelligence is applied in all forms of combat as an indication and warning system. As a result, warfighting units may foresee dangers as they emerge on the battlefield and develop an efficient counterstrategy to thwart them. In terms of cybersecurity, AI can decode data patterns to assist in identifying potential cyber-attacks against any organization. In order to prevent hackers from breaking into any system, it can also be utilized to power antivirus software. The AI can assess the impacted locations swiftly in the event of natural disasters or hostile disturbances, making it easier to identify those that urgently require rescue efforts and vital supplies. It, therefore, coordinates and expedites any military's emergency response. In order to assess the risks of social disruptions, intelligence uses AI systems to analyze the trends, patterns, and types of information flowing in a community. This will give the government's machinery enough time to put in place law and order and avoid potential disruptions. It is feasible to conclude that AI will revolutionize military intelligence based on the aforementioned developments and prospects (Cummings, 2017).

Network Platforms in Military Domain: Military Operations via Digital Platforms

Connected devices are increasingly necessary as air strikes, drone operations, real-time video analysis of the battlefield, and the administration of exceedingly complex supply chains become more advanced. According to the Ministry of Defense (2021) of the UK, the Defense Data Framework offers a framework for tackling the difficulties of integrating military organizations with the demands of a data-driven economy. Digital platforms are used to coordinate modern military operations, which are now crucial for everything from operational-level strategy-making to communications and information supply (Payne, 2024). In modern plans, data is the primary input for all operational areas. In a modern military network, every soldier, platform, and resource in a digital fighting field is now a node. Digital technology has been the foundation for cutting-edge weapons, tactics, and strategy since the 1990s when US military operations became more network-centric. Cyber is bringing the war into the network-led era with things like situational awareness on the battlefield, self-driving drones, precision-guided missiles, and computer-driven psychological operations. Platforms and networks are replacing centralized institutions in the digital age, which were necessary throughout the industrial era. In its most basic form, Artificial intelligence (AI) is a bottom-up technology that employs an ongoing feed of tremendous quantities of data to enable machine learning to function as a learning engine. Network platforms and data management systems, the cornerstone of digital ecosystems, are becoming increasingly important in order to manage an expanding range of resources and personnel.

Drone Swarms and Robotics: Force Behind Changing Nature of Combat

Future developments in artificial intelligence technology will substantially impact the robotics swarm technology and autonomous capabilities in different ways that could be used to alter the nature of battle and the military's power dynamics. Coupled with gunpowder machines and nuclear arsenals, autonomous weapons and robotics based on AI are now generally referred to as the third revolution in warfare or the fourth industrial revolution. With numerous states having achieved substantial gains in the use of robotics and drones, the use of AI in military strategy is

increasing quickly (Guitton, 2021). Actually, the development of drone technology is already well underway on a global scale. Attack drones are being developed or acquired by armed forces all around the world quickly. Russia's Lightning and Spain's Rapaz, as well as numerous drone projects in Britain, the US, and Israel, reflect the initial phases of a new age in military technology (Hurst, 2017). In contrast to military weapons from the industrial period, drones can be obtained for a fair price and just need a basic degree of technological knowledge. Drone swarm technology uses swarms of small or micro drones or unmanned aerial vehicles (UAVs) to make decisions autonomously based on shared information. Modern military drones are already equipped with the capability to find, recognize, and attack targets without involving or involving a person. Many more are being commanded by a variety of weapons (such as rifles, firearms, and robots); in the same way, hundreds of unarmed drones that use swarm techniques can also gather information from the battlefield. Targeting and killing unique individuals will become much simpler and less expensive with fully autonomous weaponry. Lethal autonomous weapons (LAWS) are now widely accessible to state actors as well as non-state actors owing to advances in facial recognition technology and decision-making algorithms. Theoretically, tens of thousands of relatively cheap drones carrying explosive payloads might overwhelm air defense systems and attack military facilities, populated cities, and other typical targets. The development of robotics and drones has opened up the military to the following new horizons.

The development of new defense mechanisms and strategies has been sparked by the appearance of AI weapons. Similar to how cyber activities (such as spying or espionage attacks) can cause computer-based networks or devices to behave in unexpected ways, adversaries may use the same tactic to destroy AI systems. A technique called adversarial machine learning looks for and takes advantage of flaws in machine learning models. Attacks may take place during the development or deployment phases and may involve deceiving models by giving them incorrect input (for instance, by poisoning data) or outright attacking the model. Due to their frequent subtlety and human imperceptibility, these techniques are especially risky in settings involving national security(Gaire, 2023). Nonetheless, it is also difficult to protect the data and counteract because attackers may have an impact on an enemy target model without having access to its specific command or training data and any specific understanding of the target model. The availability of AI systems on a wide range will put more on the risks- the appeal and potential for attack by enemies will increase.

Attackers and hackers may change data that is used for training or testing. To accomplish this, adversarial instances must first be purposefully perturbed or changed before being fed into an error-producing model. For example, researchers were able to fool a model into believing a washing machine or a loudspeaker was safe by just changing the resolution of the image of the appliance. When they are in opposition, both pictures look almost identical to the human eye. In the realm of national security, an opponent can try to pass off a weapon system as a community center employing a similar strategy. If this only happens sometimes, finding and resolving the problem should be possible. This could develop into a significant issue in the future. Furthermore, some opponents might not be accurate or lack the necessary skills to be so, and they might try to get a model to misclassify an entire class rather than a particular class. There is a substantial danger of inaccuracy during this type of attack since statecrafts are relying more and more on computer images in the national security environment and are unable to always check in real-time or in contested regions. Strong AI systems are not the only targets of attacks from the other side. Examples of AI systems that are vulnerable to adversarial examples include biometric recognition, where phony biometric traits can be used to impersonate real users; speech recognition, where a system can be fooled by the addition of low-magnitude noise, and computer security (which includes hiding malware code within network packets) (Syenmarck et al., 2018). Along with altering inputs, another attack method involves reverse-engineering a model to gain access to training data. Attackers can identify inconsistencies in a target model's predictions by contrasting them with previously collected data, such as personally identifying information, as machine-learning algorithms perform better with training data than with entirely new inputs. As machine learning-as-a-service becomes more widely available and, in many cases, utilized as a foundation to create more advanced capabilities,

the Department of Defence of States will need to be aware of and analyze the risk of data theft from national security systems. Even seemingly benign technology like voice assistants is subject to this. There are several instances of AI system errors. Conventional predictions of technological disruption occasionally commit the fallacy of assuming that system changes of this magnitude simply can result in the intended results. Artificial intelligence will drastically change how military defense and security are conducted. In reality, changes of this size frequently result in the disproportionate replacement of antiquated and redundant systems with wholly novel designs, limits, and capabilities. According to the Stanley Centre for Peace and Security, the UN Office of Disarmament Affairs, and the Stimson Centre (2021), many nations have already made significant progress in terms of surveillance systems, the use of drones and robotics, automating personnel systems, and equipment maintenance(Horowitz, 2018).

AI is being incorporated into the field of cybersecurity and cyberspace programs, and autonomous robotic systems that support war simulations, remote surgery, and data processing by military researchers from the United States, Russia, Israel, and China- a practical indication of AI. It is expected that AI will soon be used in military operations for different objectives, including improving logistic departments, supply-chain management, and maintaining the systems. The development of autonomous weapons, however, can target people in cyberspace, the air, the sea, and space (with or without the need for human intervention), suggesting that armed conflict is likely to continue in the future. According to Ryan-Pickeral (2019), about 100 militaries currently have some sort of drone capabilities, whether it is armed or unarmed. Drone technologies are widely proliferating as a result of the rise of commercial drone technologies in the fields of mining, agriculture, and energy. The recent conflict between Armenia and Azerbaijan serves as an example of how a swarm of inexpensive autonomous and semiautonomous drones might be used to overwhelm traditional military systems and make a variety of modern platforms useless(Angelove, 2022). Lightweight, reusable armed drones, like the Turkish Songar and China's Blowfish A3, may carry a variety of payloads, such as mortars, grenades, and small machine guns. Recent strikes on two oil production facilities—one in Saudi Arabia's Abqaiq and one in Russia's Khmeimim—show how frequently military drones are used in a variety of conflict settings. Lethal autonomous weapon systems (LAWS) are those that are capable of selecting and engaging targets without human authorization. In order to choose a target autonomously, LAWS are designed to linger in authorized operating zones for a long period of time. There may be multiple drones or robots operating at once to breach an enemy's defenses or eliminate a single target. In terms of the observation, orient, determine, and act (OODA) process, LAWS are often divided into three major kinds by developers. There are three categories within this list: humans-in-the-loop, humans-on-the-loop, and humans-out-of-the-loop. The terms semiautonomous, supervised autonomous, and fully autonomous have also been used to describe this technology category (Meier, 2016). As LAWS and other data-driven technologies become more widely available and affordable, it is conceivable that a range of state and non-state actors will have access to platforms and tools to employ AI and machine learning in inventive, disruptive, and damaging ways. To determine the optimal course of action in a particular circumstance, military personnel will need to comprehend how AI will both speed up and tighten the OODA loop. By incorporating AI technologies like voice, facial recognition, and visual perception, these autonomous devices might theoretically carry out a range of (air, ground, and maritime) functions without human oversight or interference. The capability to choose and engage targets autonomously without human input, however, is only present in a small subset of weapon systems. When their sensors identify an enemy's air defense radar, loitering attack munitions (LAM) targets, for instance, are destroyed. On the basis of pre-programmed targeting parameters, LAMs linger in search of targets (such as enemy radars, ships, or tanks). LAMs are designed to remain in the air (or loiter) for longer periods of time than cruise missiles, which are meant to engage targets quickly. They can use AI technology to shoot down incoming projectiles more quickly than a human operator could. Israel's Harop (or Harpy II), a fully autonomous antiradar loitering weapon that can dive-bomb radar signals with lethal effect on the battlefield while lingering in flight for up to six hours, is the only LAM that is currently in use. There are rumors that numerous other countries, including the Republic of Korea, China, Germany, India, Israel, and the United Kingdom, are also developing fully autonomous weapons. For instance, China tested the first-ever satellite-linked guided missile fired from a drone in 2016, and

Russia has used a number of remotely piloted tanks, including the Vehar and Uran-9, in the robotics area. It is projected that unmanned weapon systems will be deployed for a range of reconnaissance and striking functions (Johnson, 2019).

The capacity of these systems to serve as a deterrent will also likely be compromised by the employment of stealth variants to penetrate advanced, multi-layered air defense. Additionally, autonomous weapons will give countries more asymmetrical ways to project force inside contested anti-access/area-denial zones, especially in the maritime domain. Unmanned underwater vehicles (UUVs) that are larger could eventually grow to be low-cost missile systems in and of them. Mine clearance and mine laying, information dissemination and gathering from underwater anti-submarine sensor networks, active sonar patrolling, intelligence, surveillance, and reconnaissance, electronic warfare, restocking missiles to manned submarines, noncombat operations (such as counterterrorism and border defense), and guidance support for missiles for over-the-horizon targeting are a few particular operations that might incorporate AI-augmented unmanned weapon systems.

Conclusion

In order to substantiate the pivotal claims of the paper that AI is the new dimension of assessing military strength and an essential element of national security—the research paper has explicitly elucidated the AI advancements in the military domain, novel military applications, the operational outlook of the future defense, the influence of AI on power politics among the great powers, and the future challenges of AI incorporation in the military realm. Furthermore, it goes without saying that AI plays a critical role in how the military around the world operates in the future. Artificial intelligence is the ultimate reality that would eventually enable computers to function autonomously in any predicted wartime task without any human interaction or assistance. These autonomous weapons would select targets and carry out operations without the assistance of separate operators using only the interplay of their embedded sensors, computer programming, and dynamic algorithms in the human habitat and ecosystem. However, the likelihood of Weaponizing AI for military use is speculative and raises the risk of human life due to potential machine failure. On the other hand, a highly intense geopolitical conflict that crosses over a number of commercial sectors and technological platforms is clearly being driven by emerging technologies. With the expansion of AI research and military applications, states have started competing with one another. AI and other cutting-edge technology are being actively pursued for military use by a number of powerful countries, including the United States, Russia, China, and other state and non-state players. Quantum and biotechnologies, space applications, hypersonic and new missile technologies, cloud technologies, and human enhancement are some of the topics covered in the competition. Both government leaders and academia agree that AI has the potential to drastically disrupt the current system of power and the security environment.

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