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RUSSIA’S AI ENABLED MILITARY ECOSYSTEM AND ITS ALGORITHMIC WARFARE

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The ongoing Russia–Ukraine conflict showcases how various technologies can be vehemently used on the battlefield through both land and air. With Russia’s advanced air combat capabilities, it has reportedly used only Tu-22M3 bombers, Ka-52 attack helicopters, SU25, Su27 flanker and Su30 fighters to destroy Ukraine’s military bases and other critical infrastructures. Russia’s new Artificial Intelligence (AI) capabilities include AI-enabled robotic weapons, autonomous tanks, Unmanned Aerial Vehicles (UAVs), and long-range strikes involving high-precision missiles.[1] Russia is heavily committed to the use of AI for military systems for intelligence gathering, C4ISR, logistics and development of autonomous weapons.

Despite having advanced AI-based military capabilities, Russia has not used any lethal autonomous weapon systems in the recent conflict. Moreover, Russia’s development and use of weaponised AI is not only attributed to the quest of power or the global AI race but also to the strategic implications and risks involved with autonomy. The technological modernisation with AI has been declared as one of the key areas for the future of defence strategy. One significant aspect of AI is that it is not a weapon but a range of functions and technologies that can be devised through integrating it with systems to gain a strategic advantage over adversaries.

Today, countries with geopolitical conflicts are using AI and Machine Learning (ML) in cyberattacks, misinformation and disinformation campaigns to their advantage. This has been visible in the current Russia–Ukraine conflict, where Russia has been suspected of having used asymmetric warfare by using AI-based cyber-attacks, electronic warfare and information weapons on Ukraine’s infrastructure like electrical grids and communication systems before the incursion. Russia has in the past also used this discreet use of technology for destabilising its opponents’ infrastructures. The discourse on the use of weaponised AI in such conflicts entails domestic challenges in addition to geopolitical implications. Therefore, Russia is being careful and heading with a strategised course of action in using this technology on battlefield.

Russia is spearheading its AI strategy with heavy investments in military, state-sponsored actors and the private sector. It has been stated that with Russia’s increasing adoption of futuristic technologies and modern battlefield capabilities, the US might be outmatched in the areas of armour, artillery, air defence, space and cyberspace.[2]

Russia’s AI strategy gained momentum in 2014 when the Russian Ministry of Defence (MoD) adopted the concept for the use of Robotic Systems for military use by 2030, with 30 per cent of combat power being robotised to partial or complete autonomy. In 2016, the strategy of scientific and technological development of the Russian Federation was approved with the priority on the creation of systems for Big Data, AI and ML. In 2017, Russia launched its AI-enabled virtual assistant Alice by Yandex and a cooperation agreement was signed between Yandex and Gazprom Neft to implement machine learning projects in the oil industry.[3] The same year Vladimir Putin declared that “whichever country becomes the leader in artificial intelligence (AI) will become the ruler of the world”.[4] Despite this, Russia is still behind when compared to US and China in terms of AI capabilities, according to a report by the US government-funded Center for Naval Analyses.[5] Russia was not a leader in communication networks but used this technology for weaponising itself for advanced cyber capabilities and became a leader. Considering Russia's capabilities in advanced weapon systems, it is likely that it will soon be a leader in AI-enabled warfare. In 2018, the Russian MoD hosted a joint conference with the Ministry of Education and Science and the Russian Academy of Sciences, which led to the 10-point statement that specifically focuses on innovative and AI-driven solutions.[6] In 2019, another initiative was led by the Russian government for National Strategy for the Development of AI with AI Federal Project inclined towards the private sector. The AI Roadmap drafted by SberBank estimated an investment of US$ 5.13 billion, which was later revised to US$ 3.83 billion.[7]

In 2021, the Russian President again stated that 2021 will be the year of Science and Technology in Russia with a breakthrough in technology, economy and social progress.[8] In the modernisation of Russian armed forces, AI has been highlighted as a priority for integrating autonomous and robotic weapon systems. For this, the National Defence Management Centre has been established to set up coordination between various military units.[9]

With the recent announcement by Xi Jinping on China–Russia "no limits partnership" and deciding to back each other on Ukraine and Taiwan conflicts, it is evident that these two nations will have more collaborations in future.[10] Russia also suggested China for partnership in garnering and building Russia's AI readiness in the wake of Ukraine crisis. Russia's AI programme functions differently when compared to other countries as it is run by the state-owned firms and not by the government. Russia's defence conglomerate Rostec is working dedicatedly on building AI capabilities. The Russian government is shorthanded due to its lack in a strong defence industrial base.[11] Currently, there are more than 150 AI-enabled military systems at various stages of development in the areas of autonomous air, underwater, surface and ground platforms.[12]

AI plays a vital role in information warfare, which is evident in the ongoing conflict in Ukraine, as it helps in analysing the vast amount of open-source intelligence from videos to Telegram posts on troops and attacks, to fact check the events and claims made by both sides and can be further used for future war crime prosecutions. One issue with the use of such technology is deep fakes that use AI techniques to create realistic videos to launch disinformation campaigns. However, ML can detect such fake videos, and various social media platforms are already used to deploy such systems.

Some of the world's biggest AI companies have become the battlefield for information warfare amidst this conflict, with the data and services becoming vital links to it. Some companies like Apple and Dell have ceased their sales in Russia and have removed apps like RT News and Sputnik News from the app store.[13] To mitigate the disinformation campaigns, companies like Meta, Twitter and Telegram are either limiting or suspending the promotional posts for the safety of the people in the conflict zone. Tesla and SpaceX have opened the Starlink for Ukraine at the request of the Vice Prime Minister, Mykhailo Fedorov. Elon Musk has also made superchargers free to use in Poland, Slovakia and Hungary to help people escape from the war zone.

Russia is also engaging in three-front information warfare against Ukraine which includes:[14]

The Joint All-Command & Control (JADC2) has become today's buzzword across militaries. Russia calls it an Automated Control System (ACS) that connects all the domains like air, sea, land, cyber and space together, collects and distribute the data from sensors shooters into one information space. Russia is exuberantly working on using AI and autonomous systems to make its forces more lethal. It is believed that Russia is using AI-enabled systems in the Ukraine conflict to gather surveillance footage from drones and analyse the battlefield data. There is also a possibility that Russia might receive advanced AI-enabled weapons from China in exchange for information on the efficient integration of drones in combat operations.[15] Russia has battle-tested expertise on the use of drones for combat operations in Syria, which China currently does not have. Russia has Kamikaze drones called Lantset, which has autonomous capabilities to attack tanks or troop concentrations by loitering the pre-selected target and crashing into it with the warhead. Russia has reportedly used these in Syria, and it is said to have been used in Ukraine as well.[16] Some other uncrewed systems that Russia has include the new version of S-70 Okhotnik which is a stealth combat drone that has the capability to hit the target from an altitude with the unguided bomb. Russia has also procured predator-type stealth aircraft called Inokhodets-RU ("Sirius") and Forpost ("Outpost") drones from Israel.[17] Ukraine, on the other hand, is using a Turkish-made TB2 drone, which works autonomously and can perform laser-guided artillery strikes.

The Russian armada of latest AI-enabled weapon system includes Altius RU drone, an unmanned craft equipped with AI capabilities that can operate independently and interact with SU-57. Altius is the counterpart of the US's RQ-4 Global Hawk, which is capable of carrying out reconnaissance operations as well as carry a ton of missiles and bombs in its payload.[18] Another AI-enabled weapon system is the Msta-SM 2S19M2, a robotised artillery system equipped with new automated guidance and fire control system from the howitzers.[19] The Russian military is also using an unmanned ground vehicle called Marker capable of functioning autonomously and creating swarms to operate on the battlefield. It uses neural network, a subfield of AI, to perform the swarming operation.[20] Considering Russia's military capabilities there is not much that Ukraine has to withstand Russia in the ongoing war.

With the proliferation of AI, the weapons of war are becoming more technologically equipped, which is changing the battlefield scenarios, as seen in Russia's current incursion in Ukraine. As Russia is being suspected of having used AI-based cyber-attacks on Ukraine, it is also believed that the US and other NATO members are also pursuing similar tactics against Russia. However, there is no denying that Russia's AI-enabled military capabilities and autonomy have made its forces more lethal. The anonymity with the use of AI-enabled asymmetric warfare like cyber warfare and information warfare allows countries to flex their asymmetric power without any retribution. Furthermore, this makes the impact more offensive by destabilising the country without any restrictions of geography, causing direct, material and economic impact on the opponent.

The exacerbating threat to global security with the advent of these technologies is a subject of debate. Therefore, it is essential to identify the future risks involved with these technologies, and to prevent crisis escalation, new agreements and discussions should be initiated to avoid future confrontations.

AI will play a significant role in developing advanced autonomous systems, and the countries with indigenous development of such systems will lead the future battlefield, as the inconspicuous use of technology will be the first step to disable any country's infrastructure in case of such conflicts. Hence, it is essential to reiterate that this technology's range and potential use in defence applications like cyber-attacks, information warfare, disseminating and detection of disinformation, deep fakes and autonomous weapon systems, is critical, challenging and ambiguous, which in future will be the default blueprint of the war strategy.

Views expressed are of the author and do not necessarily reflect the views of the Manohar Parrrikar IDSA or of the Government of India.

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