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Battlefield 2.0

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"Whoever leads AI, will lead the world"

– Vladimir Putin*

The above statement illustrates how AI will soon govern actions across the continents. The US military is cognizant of Chinese and Russian investments in AI. They understand the edge that AI provides on the battlefield. While there is consensus that it is essential to cultivate a workforce that can rapidly adopt AI in defense, there is only a limited idea on how to achieve this goal.

Data Availability

Surveillance today is done using plethora of mediums like satellite imagery, frequency taps, reconnaissance helicopters and aircraft, UAVs, Airborne Warning and Control System (AWACS), ground-based electronic devices and human intelligence. The resultant data thus collected is enormous. For reference, a UAV with mounted ARGUS ground surveillance systems collects about 40 gigabytes of information per second!

With these growing amounts of data, AI is certain to revolutionize the field of defence. AI enabled security systems of defense can easily figure out a cyberattack pattern and develop tools to combat counterattacks. They can exponentially improve the ability of defense systems to determine the location of their goals and also help defense personnel in monitoring their threats, thereby, increasing their situational awareness and preparedness. These are just a few examples, and we haven't even scratched the surface. [12] This simply highlights the enormous potential AI possesses, that is set to revolutionize the sphere of Defence for the world's biggest democracy whose total budget sanctioned for its armed forces accounted for \$57 billion or INR 4.1 trillion for the financial year 2019.

Few Application in the Indian Military

Mission Analytics: Force laydown strategies are heavily dependent on the rotation of new or suitable replacement. When a unit completes its deployment, it often needs to be replaced by another with comparable and/or superior capabilities. These happening adjustments requires leaders or posting officers to have high confidence in the planned schedules and information about asset availability at their fingertips. Mission analytics can meet these needs by integrating with existing supply chain, maintenance, personnel-training database and analyzing the cross-functional dependencies between them to best optimize resource allocation and utilization decisions. Insights into these components of the readiness cycle enable defense leaders to identify issues early, ensure units are prepared for operations, and have a range of options should a contingency arise. Furthermore, incorporating these results visually with interactive interfaces allows the representative knowledge, data and insights to be conveniently accessible, easier to interpret, and informative to the decision makers. This will ultimately lead to a convenient and streamlined process that helps assess the preparedness better and improves resource allocation and prioritization. This is, but one, powerful of the component of data-driven deployments.

Intelligent systems and Robotics: The Centre of Artificial Intelligence and Robotics (CAIR), part of Defense Research and Development Organization (DRDO), has been developing several autonomous technology-based products. They are focused on net-centric communication systems for tactical command control. For surveillance and reconnaissance purposes, CAIR has developed intriguing probes like snake robots, hexa-bots, and sentries which are loaded with in-built comprehensive library working on AI-based algorithms and data mining approaches. They can potentially be used for image recognition, video analysis, activity prediction, NLP, and swarming with the capability to under-

*"Artificial intelligence is the future, not only for Russia, but for all humankind," said Putin, reports *RT*. "It comes with colossal opportunities, but also threats that are difficult to predict. Whoever becomes the leader in this sphere will become the ruler of the world."

take operations from rugged terrains of Himalayas to the dry harsh conditions of the Thar. These will assist in equipping Indian armed forces with self-reliant, adaptable & fault-tolerant systems; besides improving their ability to execute tasks autonomously.

Riots/Agitation Alert: Innefu Labs have developed a deployable end-to-end solution to forecast and alert on a potential agitation movement. They are also working on facial biometrics tool to investigate riots. When an agitation happens anywhere across the country, there are multiple factors like social media posts, hash tags or news articles, religious group's posts and other trend or key influencers in open source media that promote a negative propaganda. Based on these correlated metrics, they merge all the data with the intelligence data from police agencies. Machine language algorithm and data mining techniques throws up patterns that are not visible to the naked eye.

Will an AI policy pave way for new breakthroughs in Indian Defense sector?

The changing nature of a war and its environment have necessitated the understanding of cultural, technical, and technological landscape of the area of interest. These may include network vulnerabilities, societal taboos, sensitivities, and legal loopholes. Tackling these hence further requests more data. There is also an unsaid necessity to keep matching rivals' capabilities in this sphere hence demanding further advancements and upgradations to similar platforms.

But all these come with their fair share of

challenges. The Supreme Court's verdict on the right to privacy being a fundamental right for every citizen, it has become increasingly difficult for government agencies to gather personnel & surveillance insights to manage security within the country and actionable insights against potential agitators, as quoted by Prabir Chetia, Head of Business Research & Advisory at ARANCA. Data collected by government agencies on citizens have affinity to attract legal actions nationwide and global condemnations worldwide, since they are capable of violating fundamental rights of human code.

Massive computing power is readily available on demand, these days, via cloud-based computing platforms, at much reduced costs. This also facilitates the storage and analysis of gathered data and intelligence, potentially processing billions of data points in a matter of seconds. But sharing data over cloud involves privacy concerns over sensitive info.

Endgame

Analytics driven platforms have the potential to leverage actionable insights and wisdom from available data and have the potential to become a strategic instrument for the defense services in India across a wide range of services. Adoption of stringent policies to drive AI adoption and innovation, and stricter and more elaborate cloud storage and computing regulations, can surely help these technologies to transform India's national security. And all this must be done in a timely manner, because time is of utmost essence on the battlefield of today's advancements.

