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'INTELLIGENT WARFARE' – DEVELOPMENTS IN CHINA

PLA Concepts for 'Intelligent Operations' Begin to Take Shape. CCP General Secretary Xi Jinping has shown himself to be a great enthusiast for the subject of artificial intelligence (AI). This intensive AI focus on the part of the PRC leadership has generated concerns among national security circles in the United States and other countries that emerging AI technologies will be incorporated into the Chinese military. There is ample evidence that PRC political and military leaders do indeed see AI as a critical component of their country's future military capabilities.

Most of China's current AI military research is focused on hardware—such as *robotic tanks and vehicles, autonomous drones, and remotely-piloted submarines*. These pursuits are heavy on mechanical engineering and traditional research and development. They also fit within a broader pattern that has been noted by PLA scholars for the past two decades: the development of advanced weapons and military technologies as part of the “Assassin's Mace” concept, in which the PLA will seek to conduct crippling asymmetric blows against potential opponents. Previous examples of “assassin's mace” weapons might have included the deployment of an anti-ship missile versus an aircraft carrier; however, assassin's mace weapons might now include the use of big data, the Internet of Things, or cloud computing integrated with next-generation weaponry.

The PLA Seeks to Develop “Intelligent Operations”. Another key component of the PLA's efforts to integrate new technologies is the emerging concept of “intelligent operations” (*zhinenghua zuozhan*). Although the concept appears to still be evolving, an article from the official *Xinhua* state news service has defined intelligent operations: “Intelligent operations have AI at their core, and use cutting-edge technologies throughout operational command, equipment, tactics, and other areas... they must be understood by the core concepts of ‘system intelligence is central,’ ‘full use of App Cloud,’ ‘multi-domain integration,’ ‘brain-machine fusion,’ ‘intelligent autonomy,’ and ‘unmanned struggle for mastery’” in the battlefield environment.

This new form of warfare will “break through traditional time and space limits of cognition,” “reconstruct the relationships between humans and weaponry,” and “bring about entirely new models of command and control”.

Two Chinese researchers, Shen Shoulin and Zhang Guoning, have identified another aspect of intelligent operations in the form of “cognitive confrontation” (*renzhi duikang*), in which the key objective will be to achieve decisive supremacy over enemies in terms of information and awareness. As a result, future operations will attack enemy perceptions and understanding of the battle space by “taking the cognitive initiative and damaging or interfering with the cognition of the enemy based on the speed and quality of the cognitive confrontation”. It is predicted that future intelligent warfare will rely heavily on unmanned systems, which will “greatly reduce the ‘observation-judgment-decision-action-cycle’” faced by units in combat.

The “Algorithm Game” and Other Aspirational Notions for Intelligent Operations.

According to Li Minghai, analyst from PLA daily, various algorithms can predict what happens on the battlefield, and may therefore offer a cognitive advantage to PLA soldiers. Li’s supreme “algorithm” reduces the fog of war and helps fighters achieve better situational awareness: “The party that grasps the advantages of the algorithm in future war can quickly and accurately predict the situation on the battlefield, innovate the optimal method of warfare, and achieve the war purpose of ‘winning before the war’”. Li’s algorithm concept is based on big data and speed of computational power, especially with the use of quantum computing: he believes that quantum computing can “quickly propose flexible and diverse operational plans and countermeasures against the changes in the enemy’s situation, constantly disrupting the enemy’s attempts and deployments”.

Li also proposes other aspirational ideas that could become a part of intelligent operations in the future. For example, he describes a “cloud brain” that would link combat units to an intelligent network, while battlefield decision-making and weapons control systems would be integrated on an undefined “net.” Meanwhile, intelligent warfare would combine this “net” with a “smart cloud” that would provide situational awareness (or what Western militaries might call intelligence, surveillance, and reconnaissance).

Conclusion. Cognitive initiative will prove to be an important and revolutionary concept. Capabilities such as cloud brain intelligent decision-making may be many decades away from real implementation, but they remain intriguing aspirational goals. The PLA should be given credit for thinking big to solve problems that participants in warfare have grappled with for generations: cognitive advantage, speed, early warning, and first-mover advantage. They are creating an underlying strategic doctrine for AI and other cutting-edge technologies in future warfare; if they can implement this successfully, the PLA will possess an obvious advantage in future conflicts.

<https://www.realcleardefense.com/articles/2019/02/16/a-smarter-battlefield-pla-concepts-for-intelligent-operations-begin-to-take-shape-114188.html>

<https://foreignpolicy.com/2019/03/05/whoever-predicts-the-future-correctly-will-win-the-ai-arms-race-russia-china-united-states-artificial-intelligence-defense/>