CMSI Translations

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CMSI Translations #1: The "Cans" and "Cannots" of the Military Application of Artificial intelligence

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翻译

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The "Cans" and "Cannots" of the Military
Applications of Artificial Intelligence

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The "Cans" and "Cannots" of the Military Application of Artificial intelligence[1]

By Zhang Long[2]

The application of artificial intelligence (AI) in the military field is an important force for promoting improvements in military technology and progress in the revolution of military affairs and is a key driver changing operational patterns and disrupting the form of war. In the upsurge of military applications of AI, we must think carefully about future decisions, deeply understand the technological hub (*jishu shuniu*) role of AI, dialectically view the functional boundaries of military applications of AI, and accurately grasp what AI "can" and "cannot" do. We must oppose both contemptuous and omnipotent theories of AI military application, comprehensively and objectively clarify what AI "can" and "cannot" do in military applications, and strive to seize the opportunity, win the initiative, develop systematically, and make breakthroughs in the military application of AI.

AI Can Disrupt the Form of War, But It Cannot Change the Essence of War

The form of war is the manifestation and overall state of war in different historical stages demonstrated through the progression of manufacturing and production in human society applied to the military domain. Major breakthroughs in science and technology and the landmark developments of cutting-edge weapons and equipment will subsequently lead to new changes in military organization, operational methods, and operational theories, culminating in overall changes in warfare, thereby creating a new form of war. At present, intelligent warfare is revealing new characteristics that disrupt previous forms of war. For example, intelligent military organizational form will be reshaped and restructured; leadership command systems will feature flat network aggregation, matrix interaction, and global coupling characteristics; scale and structure will be more streamlined and efficient, aggregated across multiple domains, and integrated; human-machine hybrid and unmanned swarm formations will become the primary method, while the proportion of intelligent unmanned operational forces continues to increase;

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[1] 张龙 [Zhang Long], 人工智能军事应用的"能"与"不能" ["The 'Cans' and 'Cannots' of the Military Application of Artificial intelligence"], 人民海军 [*People's Navy*], 6 February 2023, p. 3.

Translator's note: This article was part of a series of articles published by *People's Navy* for the purpose of helping Chinese naval personnel to understand the characteristics of intelligent warfare and grasp the implications of Xi Jinping's 20th Party Congress report in which he called for the PLA to "accelerate the development of unmanned intelligent combat forces."

[2] The author's affiliation is unknown.

the status and role of virtual space in the operational system will gradually increase; the geographic, physical, information, and cognitive domains will achieve deep integration and harmonization, with multi-domain and cross-domain [operations] becoming the basic forms of warfare; weapon systems without a center, or a weak center, or with a center, with hybrid compatibility between them, will become the development trend, which will completely change the human-centered control and decision-making model.

It is now obvious that AI technology is increasingly used in the military field, which has heightened the level of intelligent warfare. This in turn may cause a lowering of the threshold of war, a blurring of the appearance of war, and a diversification of the agents of war. However, any advancement in technological means cannot change the nature of war; nor can it change the basic laws and guidelines of warfare. In the intelligent age, the essence of warfare is still the politics of bloodshed. The development of smart technology and its application in the military field is also a direct manifestation of the political and military strategies of various countries and political groups. There is still a clear distinction between the justice and injustice of war, and the fate of the war is still determined by the officers, soldiers, and masses of common people (*renmin qunzhong*) participating in the war. A war involving national independence, opposition to oppression and exploitation, and promotion of people's liberation and social progress requires the courage to "do it when you know that you cannot do it" and the determination to "win when you meet the enemy on a narrow road and only one person can pass." In terms of war guidance, no matter how AI technology develops, we must adhere to the fundamental principle that war serves politics and persist in the fundament principle of defeating unjust wars with just wars.

AI Can Assist Human Decision-Making, But It Cannot Completely Replace Humans

Whether AI can completely replace the role of humans in war is a question that AI must face head-on. The goal of the utilization of machine intelligence is not to surpass, replace or eliminate humans, but to assist, liberate, and enhance human capabilities, and to enable humans to transcend themselves through the integration of human-machine intelligence. From the perspective of the "machine," the intelligent characteristics of machine learning based on "statistics + big data" still depend on the stacking of data and the improvement of computing power. The magnitude and quality of data will determine the degree of intelligence the machine maintains. AI systems based solely on simulation models and war deduction data have weak links in processing and causal logic and are easily deceived by false data. The confidence level is therefore not ideal, and is far from the level necessary to command so-called "Doomsday Weapons." From the perspective of "technique," military command and war activities remain highly uncertain. Inventive utilization or creation of uncertainty is also one of the ways to overcome uncertainty. Sometimes it is necessary to use the "inferior solution" and abandon the "excellent solution." If the optimal solution planned according to the algorithm model is fully accepted, the space for leveraging the art of military command will be severely compressed, and ultimately it would likely be very difficult to have strategies as historically effective as the "Empty Fort Strategy" or the "Four Crossing of the Chishui River."

With the application of AI in the military field, the relationship between humans and AI desperately needs to be defined. War ethics, morality, and law will also face a new round of challenges. AI may be able to distinguish between "advantages" and "disadvantages," and between "wins" and "losses," but it is difficult to see it "relinquishing control" and "establishing gains" and judging "right" from "wrong" like humans. No matter what breakthroughs are made in smart technology, humans will still be the originators, designers, and bearers of war. Behind the manifestation of human will into smart weapons with rules and algorithms, smart weapons implementing human operational intentions in war to achieve pre-determined operational objectives, and the autonomous operations of smart weapons is still a contest between operational methods, command methods, and the quality of human will. Humanity must firmly grasp the initiative of war in its own hands.

AI Can Become the Dominant Technology in War, But it Cannot Supplant all War Technologies

The huge value of AI in the military field is encouraging countries around the world to make comprehensive preparations for and vigorously develop AI technology as if it were the dominant technology for future war. However, we should rationally recognize that while AI technology will be the dominant technology in future wars, it will not become the entirety of technology in war. The development of AI is only a means and a process, not the result and not the endpoint. Judging from historical experience, innovation is always bred from old things. In the fields of science and technology, contests revolving around disruption and counter-disruption, raids and counter-raids, offsets and counter-offsets are very fierce. As the new round of sci-tech, industrial, and military revolution accelerates, and with the rapid development of quantum information, genetic engineering, bio-engineering, new energy, new materials, and other technologies and their intersecting fields, breakthroughs in any of these areas may lead to chain development and promote profound changes in the form of war and operational methods. "Space warfare," "genetic warfare," and "biological warfare" could like AI become the mainstream operational forms. Improving the numerical simulation capabilities for nuclear explosions through machine learning applications and deep learning methods can technically lower the threshold for using nuclear weapons while simultaneously ensuring the reliability of nuclear deterrence. The offensive and practical nature of nuclear deterrence is therefore enhanced. Nuclear blackmail, and even the possibility of a limited nuclear war, remains.

There are many intersections between AI and a set of advanced conventional weapons, which can greatly enhance the capabilities of conventional weapons, thereby also amplifying the destructive impact of advanced conventional weapons. The developmental relationship that exists between AI and other disruptive technology groups must be viewed dialectically, with particular emphasis placed on the distribution of power, investment in resources, coordinating end-to-end development, and controlling cost in innovative ways. We must learn from the historical experience and the lessons of maintaining a "Cold War mentality." We must prevent "technological blackmail" by those with ulterior motives, comprehensively coordinate the

integrated development of mechanization, informatization, and intelligentization, and be wary of blindly falling into the "global AI arms race" resulting in strategic waste and strategic passivity.