An analysis of the role of artificial intelligence in modern cognitive warfare

Source: [Guangming Daily](https://epaper.gmw.cn/gmrb/html/2022-06/12/nw.D110000gmrb_20220612_1-07.htm" \t "_blank)

**Author: Chen Dongheng, researcher at the Xi Jinping Thought on Strengthening the Military Research Center**

Editor: Liu Shan

June 12, 2022

<https://news.cctv.com/2022/06/12/ARTIaL9pcItUCIPaONQcWcUI220612.shtml>

Original title: Analysis of the role of artificial intelligence in modern cognitive warfare

**【Military Academy】**

**Engels said: "The major and fundamental problem of all philosophy, especially modern philosophy, is the relationship between thinking and existence." As a key element in the modern scientific and technological existence system and a shining pearl in the crown of modern science and technology, artificial intelligence plays an increasingly important role in modern cognitive warfare. For modern cognitive warfare with "technology + strategy" as a means of warfare, artificial intelligence, with its unique advantages and objective rationality in perception, recognition, calculation, etc., has natural penetration and profound influence on the thinking and cognition of combat targets, including natural persons and intelligent machines. The "technology" of "technology + strategy" in modern cognitive warfare is very important, artificial intelligence. To grasp the initiative of thinking and cognition and win the initiative battle of cognitive warfare, it is necessary to grasp the internal mechanism, main methods, and prominent features of artificial intelligence in thinking and cognition, and better combine and integrate the two.**

**The inner mechanism of artificial intelligence in cognitive warfare**

　　  The essence of cognitive warfare using artificial intelligence is to analyze massive amounts of data through core algorithms, discover underlying laws, and take corresponding measures to influence the thinking and cognition of people and intelligent machines so that they develop in a predetermined direction, path, and expected goal. The impact and intervention of artificial intelligence on cognitive warfare is not random, but follows certain objective laws.

　　  Communication influence based on "trust". The key to the effective influence of artificial intelligence on thinking and cognition lies in its objective existence as a technology rather than a person in the real world. As the dominant factor in strategy and combat, people have the realistic need to conceal the truth and show falsehood and the flexibility to act according to the situation. Information and actions directly derived from people can easily arouse the opponent's vigilance. Not only will they not affect the opponent's thinking and cognition in a directional way, but they may even have a counter-effect. As a human creation, although artificial intelligence is still human in essence and behind it, its scientific characteristics, "technical" identity and stable state that seem to transcend class, country, party politics and ideology are more likely to arouse the trust, recognition and acceptance of opponents than humans, and often play a role that humans cannot in influencing opponents. "It is better to believe in machine language than human voice." With the rapid development and application of artificial intelligence and the increasingly complex relationship between people, people are losing more and more trust in themselves and each other, which makes machines that "dance in human shackles" more likely to arouse the trust and acceptance of opponents than humans themselves. It is precisely based on this that the data, information, and intelligence that seem to be generated by intelligent machines actually have a more direct and effective impact on thinking and cognition. Empowering machines with artificial intelligence so that they can better reflect human will and more implicitly and efficiently influence combat opponents is an important channel and method of modern cognitive warfare.

　　  Based on the oppressive influence of "frequency". "Gossip can melt gold, and repeated criticism can destroy bones" and "A lie repeated a thousand times becomes the truth". Thinking and cognition also follow the objective law of quantitative change to qualitative change. This law is that repeatedly sending the same information to a specific object at a high speed and frequency can cause the opponent's thinking and cognition to change from disbelief to belief, from not receiving to receiving, and from not agreeing to agreeing. One of the biggest advantages of intelligent machines over humans in applying this law is that they can tirelessly and continuously send and transmit the same information in various ways with high density and without dead ends, thereby more effectively affecting the thinking and cognition of specific objects. It's just that machines replace people, intelligent operations replace manual operations, and information transmission replaces oral transmission. The United States and Western countries have used the Twitter platform on the Internet to create a large number of online water armies and mass false information with high-tech means, and have used overwhelming lies to attack and slander the governments, leaders, national heroes, historical culture, etc. of hostile countries, causing confusion in thinking, cognition and value judgment, inducing dissatisfaction and social unrest, and subverting the regimes of many countries; telecommunications fraudsters have fabricated false information through telephone, Internet and text messages, and carried out remote and non-contact bombardment on victims, creating many fraud cases. Developing more advanced artificial intelligence, manufacturing and using more efficient intelligent weapons, and implementing more powerful thinking and cognitive oppression have become new features of cognitive warfare.

　　  Hidden influence based on "stealth". "If you can attack the heart, the rebellion will disappear by itself. It has been known since ancient times that soldiers are not belligerents." The highest realm of defeating the opponent is to defeat the enemy without fighting, and the most brilliant way to influence the opponent is to attack the heart and win the will imperceptibly. "Breaking the cauldrons and sinking the boats" inspires the passion for battle, "Besieged on all sides" creates the sadness of old age, "The sound of wind and the cry of cranes" generates psychological panic, and "Borrowing arrows from straw boats" uses vague information. These popular classic battle examples can achieve twice the result with half the effort even if they are passed on orally or manually. A huge advantage of AI-enabled cognitive warfare is that its ubiquitous, pervasive and highly automated existence builds flexible cognitive scenarios that play a role in everything, and can "hear thunder in silence" and unconsciously and efficiently influence, infect and shape the opponent's thinking and cognition. Therefore, the United States ostentatiously released photos of Trump watching the live video broadcast of the special forces raiding the top leader of IS, Baghdadi, to send a signal to the world that the United States is still strong and the US military is still invincible; NATO countries felt the chill from the live broadcast of the "Caucasus-2020" strategic exercise released by Russian satellites, and the Russian army achieved the goal of effectively deterring opponents at a low cost; the Armenian army in the Nagorno-Karabakh war felt powerless from the bloody scenes of the Azerbaijani army's drone bombing and was forced to sign a ceasefire agreement. With the help of artificial intelligence, cognitive warfare has been able to "transmit secrets" and "explode silently", penetrating into all aspects of human life, especially military struggle.

**The main ways in which artificial intelligence plays a role in cognitive warfare**

　　  Artificial intelligence is the product of thinking and cognition, and in turn acts on thinking and cognition. Its influence and intervention on cognitive warfare must follow the operating laws of thinking and cognition. The essence of thinking and cognition lies in the perception, identification, analysis, judgment, decision-making and selection of objective things and combat operations based on the perceived intelligence information, existing knowledge and experience, and certain tools to remove the coarse and retain the fine, remove the false and retain the true, reveal the essence, grasp the laws. The influence of artificial intelligence on thinking and cognition is mainly to use biased information and inductive conclusions to mislead and influence thinking and cognition to develop in the established direction and expected results.

　　  Information induction. In an information-based and intelligent society, information is the basis of thinking and cognition, and is a strategic resource for thinking and decision-making. The amount of information largely determines the level of thinking and cognition, and the quality of information largely determines the quality of thinking and cognition. Artificial intelligence, with its unique advantages in information perception, acquisition, processing, handling, and provision, can provide opponents with biased information based on their own strategic needs, and induce opponents' thinking and cognition to develop in the direction, process, and results they want. In the combat context, the vast majority of information provided by artificial intelligence is information that has been processed and processed by humans and contains human factors. The purpose is to "do unto others what you want others to do to you", and to influence and intervene in the thinking and cognition of the combat target to make it develop in the direction of "benefiting oneself and harming the enemy". Therefore, in the eyes of many people, Saddam, the former Iraqi president who was sent to the gallows, is no longer the "hero" of the Iran-Iraq War, but a "terrorist" who manufactured and used weapons of mass destruction; in the eyes of many people, Milosevic, who was tried by the International Court of Justice in The Hague, is no longer the "phoenix" of European politics and a tough guy who dared to say "no" to NATO, but a criminal who committed more than 60 crimes including war crimes, crimes against humanity and genocide; in the eyes of the Libyan people, Gaddafi in the "Jasmine Revolution" is no longer the "anti-American fighter" he once was, but a "villain" who is corrupt, extravagant and evil. Facts show that data can be manipulated, information can be diluted, "truth" can be shaped, people's hearts can be influenced, and the confusion and induction of thinking and cognition by artificial intelligence are real and specific.

　　  Cognitive intervention. Artificial intelligence, as a human-created wisdom, is a comprehensive and enhanced technological application of human wisdom and knowledge. Its development level is fundamentally constrained by human cognition and technological innovation. Humans are still the masters of artificial intelligence. In this regard, it is difficult for artificial intelligence itself to respond flexibly, make forward-looking predictions and make qualitative judgments to new things in unfamiliar scenarios like humans. It can only provide probabilistic statistical data information support and algorithm operation services for human analysis and judgment. However, it is precisely this focus on data analysis, no conclusive judgment, seemingly irrelevant probability, and fuzzy induction that can often paralyze the opponent's vigilance and quietly influence and control their thinking and cognition. For example, the praise rate of online shopping products, the recognition rate of online shopping platforms, the support rate of online song lists, the enrollment rate of extracurricular tutoring and training, the employment rate of college graduates, the popularity ranking of celebrity artists, as well as the intactness rate of the army's main combat weapons and equipment, the success rate of combat operations, the winning rate of defeating opponents, etc. These statistical results that can be controlled by humans are likely to have a fundamental, systematic and decisive impact on the opponent's thinking, cognition, judgment and decision-making under the condition of information asymmetry. Using information that appears to be scientific, objective, and rational but is actually artificially manipulated to induce, influence, and control the thinking and cognition of the opponent so that they develop in the desired direction and goal is an important method of modern cognitive warfare.

　　  Situational immersion. Using beautiful ideals to educate people, guiding people with visions of the future, and shocking people with terrifying scenes are important methods of modern management science and military struggle, and are also the secrets of cognitive warfare. Constructing and spoiling future scenes that may have a huge impact, deterrence, and shaping power on the enemy, in order to influence the opponent's thinking, cognition, and action decisions, often achieves the effect of silence being better than sound at this time. What will the future world look like and how will the century war be fought? The United States' "Star Wars" and "Avatar", my country's "Three Body" and "The Wandering Earth" give different answers. These imaginative and technological works of art, while bringing people the experience of unlimited development tension of science and technology and innovation, also show the world the scientific and technological strength of a country and nation and the possible war potential supported by it, which is itself a powerful combat power and deterrence. The shining debut of artificial intelligence has raised human imagination to the extreme and developed the narrative of the future to the peak, providing a possibility to plan the future, preset scenes, influence the outcome, and then show strength, shock opponents, and mislead old enemies.

**The role of artificial intelligence in cognitive warfare**

　　  Artificial intelligence acts on cognitive warfare, just like other technologies affect thinking and cognition, and has style characteristics that are clearly different from other actors. Artificial intelligence is a unity of opposites that is closest to the intelligence level of science and technology and its objects of action. This special unity of opposites relationship, which is very different from previous military confrontations, is reflected in the high intelligence of confrontation, the high integration of docking, and the high interaction of action, and has unique style characteristics.

　　  The functionality of algorithm victory. Unlike the control of information, which is the key to victory in information warfare, the control of intelligence is the key to victory in intelligent warfare, and the algorithm is the key among the keys. Algorithm game, arithmetic confrontation, and computing power competition run through all aspects of cognitive warfare. Whoever has stronger computing power, more precise arithmetic, and better computing power can more quickly suppress the opponent's perception, recognition, analysis, judgment, decision-making, action and other capabilities, trap the enemy in a passive position, and make it follow its own rhythm, thereby transforming its own advantages in data, information, intelligence and algorithms into intelligence advantages, combat power advantages and winning advantages. Whoever can take the lead in algorithm research and development and application can seize the commanding heights of cognitive competition; which army has faster algorithms, which army has stronger combat effectiveness. With richer data, faster computing power, and stronger adaptability, gaining military technology advantages and military competition advantages over opponents, and conducting algorithm raids, arithmetic blindness, and computing power strikes on combat targets are a prominent feature of artificial intelligence thinking cognition.

　　  Integration of software and hardware. As an advanced form of modern technology, artificial intelligence mostly exists in the form of software. It does not directly affect thinking and cognition. It must be attached to a certain material carrier to be fully materialized and become an intelligent material platform that carries combat effectiveness. Although the Armenian army also had a certain number of drones in the Nagorno-Karabakh War, it was still difficult to exert combat effectiveness like the Azerbaijani army's drones due to the lag in supporting software; the weapons and equipment used by the armies of the United States, Russia and other countries generally have export versions with reduced performance, and the difference between the two versions is mainly in the software. It can be seen that the integration of software and hardware is the important two wings of the combat effectiveness of modern weapons and equipment, especially intelligent weapons and equipment. These intelligent platforms with both software and hardware have greatly extended people's physical fitness, skills, and intelligence, greatly improved the protection, mobility, and destructive power of weapons and equipment, and greatly exerted the combat capability of artificial intelligence.

　　  Interactivity of human-machine combination. The interaction between artificial intelligence and its materialized form of intelligent machines is prominently manifested as active interaction; the interaction between thinking cognition and thinking cognition is mainly the communication and interaction between thinking cognition subjects and their internal components; the effect of artificial intelligence on thinking cognition is also a process of human-machine combination, communication and interaction, which includes both the influence formed by the combination of human and machine on one's own side, the combat effectiveness formed by the combination of human and machine on the opponent, and the interaction and combination between human and machine, and machine and human. Communication and interaction constitute the basic existence of thinking cognition of artificial intelligence. The party with superior technology, fast algorithm, good system and strong cognition can often seize the common opportunities created by mutual interaction, suppress and influence the other party through the interactive channel jointly built by two or more parties, form a unilateral asymmetric advantage, achieve the traction, induction and effect on the opponent's thinking cognition, and turn the opportunity into an opportunity to defeat the opponent, thereby influencing, controlling and defeating the opponent.