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Examining the opportunities and potential of Artificial Intelligence in national security and defence

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Abstract

Artificial Intelligence (AI) is recognised as a disruptive technology that rapidly changes a wide range of businesses and industries. It also can transform functions (processes and systems) related to national security and defence. Although it is not primarily being developed in the defence sector, AI is poised to change the character of future conflict by improving the effectiveness, efficiency and speed of defence-related activities. However, while AI has enormous potential to replace or assist human factors in decision-making, it still cannot replace humans in strategic thinking.

The paper first reviews the meaning, current developments, and challenges related to AI technology. It then scrutinises the impact of AI on national security and defence in three areas: defence capabilities, decision making and strategic thinking. The article concludes with a prospect on AI in general and in the security and defence domain, expecting its most significant value in support of decision-making.

Keywords

artificial intelligence, national security, defence, Russia, China

Introduction

Artificial intelligence (AI) is one of the most debated and, apparently, one of the least understood technological breakthroughs of our time. It both fascinates and frightens at the same time. It fascinates by its potential, observable already in its everyday use and in the determination of the great powers to assert their superiority in this field. It also often worries people because further progress may lead to overcoming human capacities. The latter is particularly emphasised in popular culture.

Although often discussed concerning its future abilities, AI is "the present" in the business world and already permeates our lives in many spheres. It, among other things, translates texts, recognises objects and faces on digital media, identifies spam emails, drives cars, replaces customer services with *chatbots*, plays the role of personal assistant, creates artworks, and plays games.

AI has become a "hype" word whose impact is sometimes seen as overly optimistic or even esoteric. Therefore, it is necessary to analyse this technology's development trends and anticipate its full impact on our societies and lives.

All the possibilities and potential applications of AI have yet to be explored. Some expectations are very high. It remains to see if AI will be able to bring to us what several technologies in the late 1800s brought to the lives of our ancestors. The Second Industrial Revolution brought technologies such as electrification, railroads, telegraphs, and the automobile impacted human lives in many ways. These technologies contributed to raising living standards, made lives faster and more connected, richer with possibilities and created new social relations and life patterns. As part of the Fourth Industrial Revolution, AI is expected to improve the quality of life and increase income levels for people universally (Schwab, 2016).

Expectedly, AI will create, like many other disruptive technologies throughout history, opportunities but also challenges. It may provide economic opportunities (Tegge, 2018) and can be beneficial with many positive applications. Along with advanced robotics and other emerging

technologies, it may advance human endeavours and even replace humans in manufacturing, transportation, health care and education.

The further development of AI will arguably create new disruptions and bring about considerable economic, social, legal, ethical, and security challenges. They could span from economic security, because AI will expectedly replace humans in many areas (taking human jobs), to a potential reduction of the achieved human rights (individual and political freedom). This may create pervasive economic inequality or widespread and intrusive government surveillance of the population.

In international relations, AI has already become an aspect of strategic competition. The major powers, particularly China, consider that being at the forefront of AI technology is critical to the future of global economic and military power competition. While "killer robots" developments remain in the Sci-Fi zone, AI has already found applications in defence capabilities. Currently, its use is seen as a prospective tool, particularly in processes and systems focusing on reducing time to decide (i.e. decision-making) in an environment overwhelmed with data.

The analyses in this paper are limited to the potential implementation of AI in the national security and defence area. The paper first examines what AI is and why it matters, followed by a review of AI-related challenges. The central part of the article is the scrutiny of the AI's impact on national security and defence. Finally, the article provides conclusions and considerations about the expected future developments and use of AI technology.

AI between myth and reality

Currently, the commonly agreed definition of AI does not exist. AI is a concept, or better, a field, encompassing "*logic, probability, and continuous mathematics; perception, reasoning, learning, and action*" (Russell and Norvig, 2003, p. vii). In describing AI as an entity, it is more precise to call it an "intelligent agent". In that sense, AI is "*the study of agents that receive percepts from the environment and perform actions*" (Russell and Norvig, 2003, p. vii).

Gartner, Inc. defines AI simply as "*technology that emulates human performance, typically by learning from it*" (Andrews, 2018, p. 6). To be more descriptive, AI makes it actionable for machines to "learn" from "experience", adjusting to new inputs, and perform human-like tasks.

Multiple new technologies have become broadly categorised under the label Artificial Intelligence. Most AI applications today rely heavily on their subfields, Machine Learning (ML) and Deep Learning (DL), to name some of them. These technologies allow computers to be "trained" to accomplish specific tasks by processing large amounts of data and recognising patterns.

It is, in fact, Machine Learning that enables AI systems to learn without being explicitly programmed. AI systems "learn" by recognising patterns that had not been previously defined. Machine Learning also allows an AI agent to absorb and digest feedback rapidly. The result of it is that the systems to which AI is connected become better at what they do than those based on traditional human-based feedback systems. However, AI agents do not "understand", at least currently, and will not in the near future, the tasks they perform, and there is no way to know how they reach their conclusions.

The charm of AI may lie in that it is not something we can expect to "behave" according to a predetermined set of algorithms. We can take as an example *Sophia*, a social humanoid robot developed by the Hanson Robotics company that is frequently interviewed and even became a Saudi Arabian citizen. Another reason may be that AI differs from other technological advances because it does not require us to adapt by learning how to use them, as we do with computers. AI is, actually, about creating technologies that adapt to us rather than the other way around.

In this article, we tackle the term Artificial Intelligence interchangeably, as a concept (a technology or a field), and as a capacity (an AI agent, regardless of the interface).

Theoretical framework

In general, AI is "*the capability of a computer system to perform tasks that normally require human intelligence, such as visual perception, speech recognition and decision-making*." (Cummings, 2017, p. 2)

he Organisation for Economic Co-operation and Development (OECD) involves knowledge and behaviour in its definition. OECD defines AI "*as the ability of machines and systems to gain and apply knowledge and to carry out intelligent behaviour*" (OECD, 2016, p. 86). When it comes to knowledge, AI, at the current level of development, can gain and apply but cannot transfer its knowledge.

Teradata's "*State of Artificial Intelligence for Enterprises*" report (Bourne, 2017, p. 3) defines AI as "*the ability to automate enterprise decisioning using human-to-machine cognitive interactions where machines are able to augment and assist human capabilities by sensing and continuously learning, reasoning and inferring, and deciding and acting to drive a business outcome*." This definition provides a description of AI capability and its purpose in augmenting and assisting human capabilities related to business.

Finally, AI technology is of interest for use in defence. The U.S. Department of Defense describes AI as "*the ability of machines to perform tasks that normally require human intelligence – for example, recognizing patterns, learning from experience, drawing conclusions, making predictions, or taking action – whether digitally or as the smart software behind autonomous physical systems*" (USA DoD, 2018, p. 5). This definition also involves the use of autonomous systems. Autonomy is of particular interest in defence since it enables systems (platforms) to be automatic (e.g. to decide autonomously), within programmed boundaries, or even "self-governing". AI is essential for autonomous systems as it facilitates decision-making in dealing with large amounts of data.

When we think about AI, it is important to distinguish what AI is or can do now and what it may or will be able to achieve in the future. Currently, there is a distinction between Artificial Narrow Intelligence (ANI), which is a machine intelligence equal to or greater than human intelligence for specific tasks; Artificial General Intelligence (AGI) – machine intelligence able to meet the full spectrum of human performance across any task; and Artificial Superintelligence (ASI) – machine intelligence that exceeds human intelligence across any task (Spiegeleire, Maas & Sweijs, 2017).

All existing AI applications, without exception, currently belong to ANI. ANI is already among us in various appearances. It is often unnoticed, as in our search engines, a language translator, or personal assistants on our devices. There are currently four frontrunners in the AI assistant space: Amazon's "Alexa", Apple's "Siri[1]", Google's Assistant, and Microsoft's "Cortana". And, since the beginning of 2023, ChatGPT, developed by OpenAI company, has become widely popular in natural language processing.

The timing of the arrival of AGI remains controversial, although, according to current trends, experts predict that it will happen by the middle of this century. Many experts expect ASI to emerge relatively quickly after that, although few anticipate this to spark "artificial consciousness".

The AI's evolution

The factors that have contributed to key advances in AI that we see today are the improving quality of algorithms (thanks to the progress of research in computer science, new programming languages, etc.), the increasing computing power, and the ubiquity of data.

In general, the evolution of AI has been based on different technologies since its conception; from the 1950s to the 1970s on Neural Networks, from the 1980s to the 2010s on Machine Learning and, at the present day, on the Deep Learning. In fact, the early work, done primarily on academic institutions and research and development organisations, laid the foundation for the AI applications we see today.

The late 1950s was the time when the United States was in the middle of the Cold War. Congressional representatives, at the time being, were willing to invest heavily in AI as part of a larger security strategy. A particular emphasis was given to language translation, primarily Russian to English and English to Russian. The period from 1954 to 1966 was known as "the decade of optimism," However, the breakthroughs did not come as quickly as promised. Machine translation was slower, more expensive, and less accurate than human translation, so investments in machine translation were abruptly cancelled. These periods of stalled development that occurred

1 "Siri" is an intelligent assistant on Apple devices.

during the beginning of the 1970s and the end of the 1980s, are often referred to as "AI winters".

The new enthusiasm for AI came with the power of computer hardware, namely high-powered microprocessors. In addition, new techniques, specifically those related to Deep Learning, and Neural Networks that can learn tasks after being "trained" on existing examples, opened a new era of AI. Consequently, AI has moved from prototyping at research institutes and universities to industry and real-world application within a decade.

Despite advancements in the field, some argue, including Gary Marcus, a psychology professor at New York University and a longtime sceptic of AI, that "*six decades into the history of AI, our bots do little more than play music, sweep floors and bid on advertisements*" (Marcus, 2018, p. 5). Others, such as Luc Julia, the co-author of *Siri's* core patents, claim that AI does not even exist yet (Cagan, 2019). The fact is that AI development is still lacking a cohesive, overreaching theoretical basis and is explored in an *ad hoc* manner.

In terms of its future development, AI will probably go hand in hand with the development of the Internet of Things. Namely, AI (via Machine Learning) can quickly derive meaning from data. It may identify patterns and detect anomalies in smart sensors and devices' data. This potential to be closer to where the data is collected will probably steer the future of AI towards smaller systems.

An essential characteristic of development and use of AI is that the size of an investment is not the key to getting the benefits of the technology. In business, developing AI solutions very often require only data and machines to solve specific problems, and most importantly, a "business case". So, the key to success is clarity of vision in defining the case. This allows countries and organisations that invest seemingly less money in AI development to achieve significant benefits.

AI development also provokes "doomsday" scenarios in the imagination of many. However, despite the scenarios portrayed in SciFi books and movies, the materialisation of "superintelligence" that is able to self-sustain, self-improve, and potentially dominate over the human race remains, at least in the near future, an esoteric possibility.

AI-related challenges

Not all the outcomes of the introduction of AI in society are expected to be beneficial. Disruptions that will go hand in hand with the implementations of this technology will have implicit or explicit implications on security.

For instance, in the economy, AI systems are expected to affect the job market, potentially creating unemployment and increasing inequalities (see the jobs potentially affected by computerisation at: https://willrobotstakemyjob.com/rankings). Along with social and economic challenges, some other issues should be analysed to assess the potential impact of AI. Nowadays, we may identify several AI-related issues, such as its relevance (in terms of functionality and applicability) and its responsible use (regarding the autonomy of its decision-making and access to data).

Relevance of AI

Regarding its relevance, an essential aspect of the use of AI is the availability of data sources needed to "train" AI systems. Since AI needs data, the greater the volume of data is available, the more algorithms it can "learn", and the better deliveries from AI will be. Data creation is continually growing. For example, in 2013, 90% of all available data had been created in the two previous years (Jacobson, 2013)[2], which represents a very favourable condition for AI development. This requirement for data makes large companies in cloud services, social media, e-commerce or other sectors with access to a large collection of data naturally positioned to lead in a variety of AI fields. It includes voice recognition, facial recognition, and natural language processing.

The availability of data and the relevance of AI are, therefore, closely connected. The use of AI in dealing with data has its limitations in the current state of the art. AI is useful as long as data of interest lie within a narrow scope. In other words, AI requires a dataset characterised by a fairly well-defined signature, including a type of shape or a family of patterns. At present, the biggest impediment to using AI in support of decision-making

2 The statistics is still valid since we generate 10 times as much data every two years.

is AI's potential "subjectivity". More specifically, the bias in data supplied to AI systems can reproduce or amplify bias in their decisions. The functioning of AI greatly depends on the availability of data that is reliable and selected to be carefully in tune with the targeted objective (Poussart & Wyman, 2018).

Control over AI

The processes that AI uses to reach conclusions are not under the direct control of users. Namely, a "conclusion" made by AI is not necessarily the result of an initial, sequential algorithm or predicted steps because the AI agent "learns". Therefore, the further development of AI and its introduction into society must not be mishandled. Another concern is privacy in the cyber sphere. The question of control also includes the issue of the use of AI for disinformation practices, such as *deepfake* (Villasenor, 2019). Practices such as automated surveillance of private data and the challenges mentioned above might drive public distrust or even strong societal criticism of AI. Therefore, the development of data-driven AI systems will have to ensure the adaptation of legal frameworks for the collection, use, and storage of data (see, for example, European Parliament, 2018).

Finally, the level of autonomy given to AI systems to make potentially life-changing decisions remains a critical issue. Ideally, it should be ensured that AI agents are only able to provide recommendations rather than autonomously make decisions. However, it is not always feasible, especially when AI is used in some defence platforms where the speed of decision is crucial.

Efficiency vs human inclusiveness

Two of the vast advantages of AI are its scalability and availability. AI systems may operate 24 hours, 7 days per week, and they do not get tired, sick, or stressed. Therefore, while AI is not more intelligent than humans, it is considerably more productive. These characteristics make it easier to source at a lower cost.

Noah Harari perfectly described the possibility for people to become "irrelevant" (e.g. not needed) in the new economy heavily based on new technologies, including AI (Harari, 2018). This is an evolution of the problems of "traditional" capitalism, where many felt "exploited". Besides that, Harari warns that the desire to concentrate all information and power in one place, which was the main handicap of authoritarian regimes in the 20th century, may become their decisive advantage in the 21st century. AI makes it possible because it can process enormous amounts of information centrally, making centralised systems far more efficient than diffuse ones.

AI and its impact on national security and defence

The use of AI in national defence (i.e. in military affairs) has yet to be conceptualized, and its development is expected to evolve along with its implementation. AI may be compared, hypothetically, with some other inventions that have found its use in the military, bringing a significant advantage to those who use it. One example is the Global Positioning System (GPS). The precursors of the modern internet and handheld GPS were developed by U.S. researchers in the 1970s. Twenty years later, during the First Gulf War (Operation Desert Storm), the U.S. military astonished the world with its extensive use of information technology and precision munitions. The success in that Operation helped cement the status of the USA as the preeminent military power for decades.

While the use of AI in the defence domain has yet to be conceptualized, strong economic and military powers, others than the USA and China, do not wait. As a former French defence minister Florence Parly (Parly, 2019) put it, the potential benefits of AI for the French Ministry of Defence are strong and numerous. While the armed forces of the major powers are already sharpening their algorithms, France cannot take the risk of missing this technological shift. It is simply the imperative of staying relevant today and in the future.

AI in defence capabilities

AI has already been implemented in many new platforms, for example in the F-35 jet, in modern surface warfare ships, in the fire control of the missile

defence, and in cyber defence. It may be applicable to many emerging systems where the speed of decision is a trait. The use of AI tools to set strategic and operational level courses of action is yet to be developed.

One area where AI may have a significant role in the future is unmanned warfare (in autonomous systems). Over the last decades, the conceptualization of warfare has evolved and included capability development for a battlefield of high technology. Platforms, such as drones, hypersonic missiles, autonomous systems (i.e. weaponized robots), swarms of surface weasels (ships), and the use of AI contribute to imagining the change in the nature of warfare. One of the main characteristics of this "new" warfare is the increased autonomy of weapon systems to reduce, or avoid, the dependence on scarce, slow, and expensive human presence on the battlefield. In this scenario, humans are removed from navigation, control, and decision-making processes. The battlefield of the future, if it becomes highly technological, will contain fewer and fewer human individuals on the ground and at the centre of the battle (e.g. decision making).

At present, AI development mostly takes place in the commercial sector (private companies). The current significant disparity in commercial versus military research and development spending on the development of autonomous systems could have a cascading effect on the types and quality of autonomy incorporated into military systems. A critical issue related to using AI and autonomous systems in defence is whether the defence sector can develop and test safe and controllable autonomous systems, particularly those that fire weapons (Cummings, 2017).

AI in decision-making

Currently, the main use of AI for national security and defence is expected to make sense of the incredible amount of data collected by more and more sensors. One example of AI's use for national security purposes is the U.S. *Defense Advanced Research Projects Agency's* (DARPA, 2019) attempt to develop schema-based AI capability (see more in: Pezzulo & Butz, 2012) to enhance reasoning about complex world events and generate actionable insight. The outcome should be the ability of rapid comprehension of world events, found to be critical to informing national security efforts (i.e. decision making).

The changes in international relations, human society and even the natural world (physical environment) can significantly impact national security on their own or may form part of a causal chain that produces broader impact. Very often, these events are not simple occurrences but complex phenomena composed of a web of numerous secondary elements, including actors and timelines.

Faced with the challenge of the growing volume of available but unstructured data, it becomes evident for national defence (intelligence) that there is a need for a tool to uncover and understand different events, possible relations between them, and their underlying elements. This is where AI comes into play, because the defence that will create AI agents that can provide better decisions, more quickly than an adversary, will have an advantage.

However, the challenge is that AI needs data, and data may be biased. To ensure the reliability of decisions, it is important to understand the negative impact of bad or faulty ("poisoned") data on decisions, and how to detect and isolate bad data. It a system problem that the commercial sector is not currently addressing, but the defence has to.

The implementation of AI in the military may be conceptualized through the OODA (Observe, Orient, Decide, Act) loop (see more in: Poussart & Wyman, 2018). AI is now mostly used in the Observe phase, due to a current level of development of technology. Confidence in the applications (e.g. image recognition, data mining techniques) is essential but can be difficult to achieve at the moment. The *Decide* aspect brings up legal concerns, particularly when autonomous systems are involved. The implementation of autonomous systems capable of making decisions is feasible, but it requires standards and agreements (legal aspects of control). The need to implement an automatic response (*Act* phase) can arise when the time available to react is shorter than the human reaction time frame. This aspect, along with *Decide*, is certainly the most sensitive and will require a very mature level of development of AI and autonomous systems. In general, AI is poised to change the nature of the future conflict, by potentially improving the effectiveness, efficiency and the speed of defence-related activities, across the OODA loop.

An assessment of the impact of AI on national defence is not possible without anticipating the depth of transformation that AI will bring to the very notion of national security and defence. Previous industrial revolutions have brought significant changes not only to means of production, but also to the ways people live. Having that in mind, we can certainly expect that AI, as part of the Fourth Industrial Revolution, will provoke changes in the structures, relations and values in societies that implement it.

Currently, AI and new technologies are often seen only as an augmentation to existing institutional frameworks, including defence. NATO's booklet "Visions of Warfare: 2036"[3] is one of the examples where the future weapons and military capabilities are superposed to existing political, social and military structures (Phillips & Cole, 2016). The use of AI in the defence sector, particularly in autonomous systems, may also lead to certain complacency on the part of decision-makers as it is expected to eliminate or minimize the risk of having (human) casualties among own forces.

AI in strategic thinking

AI capabilities still need to be improved in its use in strategic thinking. While humans may seemingly use AI for generating content and answering questions, the tool still cannot "think" in terms of geopolitical analysis and understanding the behaviours of actors. In short, AI still has no "strategic culture".

One research related to U.S. national strategies is indicative of that regard. Elena Wicker (2021) used machine learning to create the "bernardcodie" program, an artificial recurrent neural network. She trained it with data comprising the entire corpus of the U.S. National Security Strategy. That means all 17 U.S. national security strategies published since the document's creation were mandated in 1987[4]. The author used an AI tool to create the

3 The booklet contains SciFi stories and is intended to incite inventive thinking and discussion about future possibilities, and to contemplate how NATO will undertake operations in the coming decades.

4 The documents are available in Historical Office, Office of the Secretary of Defense at: https://history.defense.gov/Historical-Sources/National-Security-Strategy/

new U.S. National Security Strategy, based on the set of the previous 17. The results seemed relevant but showed that the choice of words had been central to the analysis, indicating that the tool skilfully identified patterns and consistencies in strategic language. Elena Wicker, therefore, claimed that the approach to developing strategy with AI still needed improvement and could not replace the intuition of the human mind. Nevertheless, AI turned out to be useful when considered in combination with human analysis because it may provide a fresh perspective (connections among agents in complex systems) and expand human understanding of strategy.

In a similar way, we tested AI abilities with some short questions related to global security and national defence. These are the two questions "discussed" with ChatSonic (at https://writesonic.com/chat), an on-line AI-based tool, on 13 January 2023:

Drazen Smiljanic: "*What is the best strategy to defeat Russia in Ukraine?"*

ChatSonic: "*The best strategy to defeat Russia in Ukraine is for Ukraine to deny encirclement to Russian forces. This can be achieved by launching spoiling attacks against Russian forces to prevent them from building up their forces, as well as conducting defensive and offensive operations to create opportunities for counterattacks. Ukraine must also continue to receive assistance and training from the US and its allies, and continue to invest in and develop cutting edge military technology in order to maintain a technological advantage over Russia*."

DS: "*What should be the best defence strategy for Croatia*?"

ChatSonic: "*The best defense strategy for Croatia is to maintain a strong military presence in the region, while also investing in and developing cutting edge military technology in order to maintain a technological advantage over potential adversaries. Croatia should also continue to strengthen its ties with NATO and other regional allies in order to ensure a collective security approach. Croatia should also make clear that it will not send any troops in case of an escalation, to demonstrate its commitment to a peaceful resolution of regional tensions and conflicts*."

While the answers seem relevant, they are not a product of any methodology generally used in strategy development, geopolitical analysis or similar fields. The results showed that regarding current developments in text

generation and language translation, AI may still be understood as a series of algorithms with natural language processing, which is central to its abilities. Not more. However, AI may offer a unique opportunity to assess the "genre" of strategy documents as a whole, and identify patterns and consistencies in the language used.

Conclusions and considerations about the future use of AI

Hardly a day passes without new articles and discussions about AI, about what it promises to revolutionize in our daily lives, and about massive investments made by major economic powers. However, AI-related topics and its future development might seem controversial. Doomsdayers with their dystopian visions of the future potentially governed by AI and intelligent machines are on the other side of the spectrum from techno-idealists and utopians who believe that AI-related technologies only promote humans wellbeing. Between them are yawning sceptics who either claim that it took too long to make any significant improvement in the AI domain (cost-benefit aspect) or even argue that the real AI does not yet exist at all. The truth is, AI technology is already among us, and its potential is growing.

Currently, there is no slowdown of this mega trend AI development to be expected in the near future. This caution, however, is not without reason. AI development has already experienced two "AI winters", so this possibility should also be taken into account some time in the future.

The real concerns associated with AI are its future application. In an optimistic scenario, AI will provide an economic opportunity and, if balanced and handled properly, may be beneficial with numerous positive applications. AI is expected to have an impact nearly on all aspects of society: the labour market, transportation, healthcare, education, and national security. At best, it will be the technology that adapts to people and will be profoundly transformational for humans and humanity.

There is a growing trend of the use of AI in defence capabilities. It may also be expected that AI will be used as a tool of a weaker (in terms of military power) in the strategic competition. Consequently, a predominantly asymmetric

competition or a conflict may arise. In that case, AI may be applied as a means to reach and address individuals in targeted countries and communities more precisely, as well as their attitudes and emotions. This way, AI could be used to attempt to distract and even destabilise the opponents' societies and, more precisely, their public opinion. Some countries, particularly non-democratic, may also decide to use AI to observe and control the attitudes and behaviour of their citizens.

AI, as a potential game-changer in the security and defence domain, will probably find its most beneficial use in decision-making. Deep learning algorithms offer unprecedented opportunities for improved situational awareness and understanding of the informational environment, making AI services incredibly beneficial for the highest levels of decision-making. In the future, AI is expected to provide uniquely deep insights in identifying trends and drivers, as well as potential outcomes of various types of human endeavours. This will make it perfectly useful for the foresight analysis, and dealing with uncertainty and complexity.

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Dijagnosticiranje mogućnosti i potencijala umjetne inteligencije u području nacionalne sigurnosti i obrane

Sažetak

Umjetna inteligencija (UI) prepoznata je kao remetilačka tehnologija koja brzo mijenja širok raspon poslovanja i industrija. Isto tako, ta tehnologija ima potencijal transformirati funkcije (procese i sustave) vezane uz nacionalnu sigurnost i obranu. Iako se primarno ne razvija u sektoru obrane, umjetna inteligencija je spremna promijeniti karakter budućih sukoba povećavajući učinkovitost, djelotvornost i brzinu aktivnosti koje se provode u području nacionalne obrane. Međutim, iako umjetna inteligencija ima veliki potencijal zamjene ili pomoći ljudskim čimbenicima u donošenju odluka, još uvijek ne može zamijeniti ljude u strateškom razmišljanju.

Rad prvo daje pregled značenja, trenutačnog razvoja i izazova povezanih s UI tehnologijom, nakon čega se analizira utjecaj umjetne inteligencije na nacionalnu sigurnost i obranu u tri područja: obrambene sposobnosti, donošenje odluka i strateško promišljanje. U zaključku se daje perspektiva daljnjeg razvoja i uporabe UI, općenito i u domeni sigurnosti i obrane, očekujući njezinu najznačajniju vrijednost u podršci donošenju odluka.

Ključne riječi

umjetna inteligencija, nacionalna sigurnost, nacionalna obrana, Rusija, Kina