Proceedings of 4th International Conference CNDCGS'2024
ISSN 2669-2023 (print) / ISSN 2538-8959 (on-line) / DOI 10.3849/cndcgs.2024.58

The Role of Artificial Intelligence in Military

Vladimír VRÁB[1], **Jan ZEZULA**[1]

[1]*Department of Tactics, Faculty of Military Leadership, University of Defence, Kounicova 65, 66910 Brno, Czech Republic*

Correspondence: vladimir.vrab@unob.cz

Abstract

The artificial intelligence has become a phenomenon of nowadays. It has a significant impact on many fields, including military art and military science, what is also one the of research directions announced by NATO.

The article briefly describes the status and possibilities of using artificial intelligence in the Czech Republic and its possible applications in the Czech Armed Forces. The Artificial Intelligence creates conditions and environment for a number of areas where it can make commanders, staffs and soldiers more efficient in their activities in everyday peacetime life, its management, in the stage of their preparation for the performance of combat tasks, planning of combat, as well as in the stage of its management. The article describes the process of experimentation with conversational robots, available on the Internet, as potential means of decision support for commanders, the results achieved and gives suggestions on how to use them in military practice. In the next part, it describes possible areas in which artificial intelligence can be used in the Czech Army to make soldiers' preparation for combat tasks more efficient, to conduct credible war games, in routine processing of documents and information, in military logistics (warehouse management, diagnostics and servicing of military equipment, analysis and processing of data (image, sound, video recordings) and for deception.

The article presents an overview of theoretical works on the utilization of artificial intelligence in the Czech Army with emphasis on data and information analysis in documents, rationalization of work with documents and decision support. All in an unclassified mode at the stage of conducting experiments.

Currently, the use of so-called chat robots (Chat Robots, Chatbots) has become very widespread. Major IT companies such as Microsoft or Google have introduced various versions of chatbots for use by the general public. Their use for decision support appears to be very advantageous and available. The authors tested the COPILOT and GEMINI chatbots. The purpose and reason for the tests and experimentation of the mentioned tools was to verify how faithfully and precisely the required information compiled by artificial intelligence is true, accurate and complete. The two systems were also chosen because they draw information from the extensive databases both companies have and which are publicly available to answer user questions.

KEY WORDS: a*rtificial intelligence, decision making process, phases of artificial intelligence, military, military chatbot*

Citation: Vráb, V., Zezula, J. The Role of Artificial Intelligence in Military. In Proceedings of the Challenges to National Defence in Contemporary Geopolitical Situation, Brno, Czech Republic, 11-13 September 2024. ISSN 2538-8959. DOI 10.3849/cndcgs.2024.58.

1. Introduction

Artificial intelligence, its practical utilization, has enabled a significant increase in the field of quality and performance of informatics. The same is true of other technical elements and technologies such as virtual reality (in all its forms) and quantum computers.

The use of AI tools can be considered as subsystem of "command and control function" at all levels. AI is included into "smart" weapons, weapon systems and processes (combat robots [1], [2] transport, supply chains, targeting etc.), training simulators [3] is being explored in the MASA software (By Sword Co.), but its further role will lie in the need to eliminate inaccuracies in tactical decision-making, increasing the effectiveness of commanders' decision-making. The aim of this paper is to describe possible tools that will support commanders' decision making using artificial intelligence. The AI is constantly developing, thanks to machine learning (better sayed deep learning). It is possible to go deeper into the topic, using references [4], [5].

2. Method of Investigation

Military sources are, for obvious reasons, non-public and a disposal of information is limited. Therefore, a literature research and analysis of documents available in public sources such as the proceedings of I/ITSEC conferences in 2016-2023

Peer-review under responsibility of General Jonas Žemaitis Military Academy of Lithuania and University of Defence, Czech Republic

[6], published papers in military-themed proceedings (Czech Military Review - Czech Republic [7], [8] or specialized journals (CHIP) and papers in the national environment (Czech Republic) has been utilized. Analogically to the LikPik system [9] (Masaryk University Brno), using deduction and synthesis, an idea of variant using chatbots to support commanders' decision making was built. To test the outputs, the available chatbots (Bing AI, ChatGPT-3,4) were utilized.

The chatbots were asked by identical questions, related to specific military topics, commonly used during Military decision-making process, Troop leading procedure, Intelligence cycle or Targeting. Finally, the answers and proposals were evaluated, esp. agreement/disagreement, completeness or incompleteness in the final text and overall logic of respond. Here, heuristic methods, based on expertise were used to investigate the validity of the chatbot responses.

3. Investigation Results

3.1. Using Chatbots as Decision Support Tools

Awareness of the use of artificial intelligence in everyday life has significantly expanded thanks to the creation of so-called conversational robots (known under the English term Chatbot – Chat robot). Obtaining information, documents for decision-making, but also complete documents and material from chatbots has become a non-negligible activity not only of school students, but also of workers in various areas of social life. The data that the artificial intelligence, based on the request of the discussant, obtains from public sources. The most famous chatbots (GEMINI, COPILOT or CLAUDE, which is currently only available in the USA) have practically established themselves and started to be successfully used (even at the cost of incredible investments by the parent companies) and improved. Commu- nication with artificial intelligence is currently possible in 40 languages (GEMINI system). The speed of query processing and response generation is determined by the architecture used (Transformers). The use of a chatbot as a decision support tool would be beneficial both from the point of view of the army's management needs in ordinary peaceful life, as well as in the phase of its deployment in an armed conflict. COPILOT and GEMINI were tested for the purpose of verifying the possibility of using a chatbot in a military environment (which were available and are rated as relatively high-quality systems from the point of view of reliability). The quality and reliability of the answers was tested by entering the same set of questions and comparing the summary information, always given at the end of the answers. Test questions and shared answers are archived by the authors. Due to the possible scope of this article, they are not part of its content. It can be stated, however, that the answers were fast, reasonably detailed, but with the fact that in both systems the sources from which the interview robot compiled the answers were stated at the end. In other words, the answers were credible depending on what source was used to construct the answer.

As an example of a summary of the answer to the question "Compare the Leopard 2A8 and T14 tanks from a tactical point of view, see Fig. 1 (Snapshot of Answer from COPILOT). This system also lists the sources from which it drew information and compiled the answer.

Fig. 1 Snapshot of Answer from COPILOT (Source: COPILOT and own snapshot by Windows tool).

The test questions were written in the Czech language; therefore, the answers are also written in the Czech language. For the completeness, the text of the summary of the answer in English is also given: „Both tanks are equipped with advanced fire control and active defence systems. However, the Leopard 2A8 has a slight advantage in power and speed, with a more powerful engine and higher top speed. In terms of armour, both tanks are protected by composite armour and ERA (Explosive Reactive Armor). The Leopard 2A8 has slightly thicker armour and an active protection system that is more advanced than that of the T-90 [7]“, while under [7] in Fig. 1 indicated the source from which the conclusion is quoted. Here it is shown that although the source is listed, the user should also check the information obtained in this way, since in the academic environment a source such as Wikipedia or youtube.com is not considered a source where the data is valid (at least according to Czech practice), because it does not have to undergo peer review. The near future of using artificial intelligence in decision support with the use of chatbots for the benefit of soldiers in general seems real. The issue of the military is a large number of data, information and documents having the character of sensitive information (this is information that is not provided to the general lay public) up to classified information. However, the mentioned chatbots work with information available in a publicly available environment and with the fact that the chatbots do not directly verify the reliability of the information for the time being. It is assumed that the authors who compiled the resources guarantee the correctness of the content both in terms of quality and quantity. The idea of creating an equivalent of one of the tested chatbots (Fig. 1) for decision support in a military environment is feasible, but under the condition that:

- can work in a closed, isolated and non-public environment (data cloud);
- the cloud will contain verified and valid data, documents and files;

- the issue of licenses for the use of commercial chatbots in the military environment will be resolved;
- or a national system (for example - TOVEK) will be used for a specific military environment, which will undergo appropriate certification;
- the chatbot will have to process data and files also stored in distributed data warehouses;
- access to public resources (on the Internet) will be handled through a gateway that will have firewall properties.

Soldiers generally work with data, information, documents and files that are generally not publically available. They are sensitive or classified. Therefore, it is necessary all sources of data, information and documents make available in closed and secured, authorized environment, i.e. in a private cloud. The implementation of some tool with the characteristics and behaviour of a chatbot should be handled as a licensed commercial tool that undergoes a reliable and secured review, or it should be developed ad-hoc according to the requirements of the military. The decisive criteria for the choice of the implemented option will be the financial issue of acquiring such a tool, as well as the result of the process of certification, conducted by authorities of the Czech Republic, which are responsible and guarantees information security in the army or the state.

The use of the cloud as a data source for a chatbot in the military assumes that the data in the cloud is verified, and the responsible arbitrator or department will certify the factual accuracy of the data, in which the data and information will not be inaccurate, unverified and unchecked. So-called Data and Information Validation will be performed.

In the case of choosing the option that the chatbot tool will be obtained as a commercial product from an international environment, it will be necessary, as stated above, to review it in terms of compliance with national and international rules established for information security, and of course with the consent of the owner - provider license.

The same procedure should be applied also in the event that a commercial but locally developed tool is implemented for the needs of the military.

The chatbot should also be conceived as a tool being able to read data and information from sources that are not included in the cloud, but are available in other army (or department of the army) repositories, as well as in coalition repositories and clouds.

The requirement that the chatbot search and assemble the outputs of requests from public sources cannot be omitted, as commercial chatbots are currently used (e.g. the tested COPILOT or GEMINI). In such a case, however, access to public resources will only be possible through a two-way gateway. And the gateway should be so-called asymmetric, which means it should check that the request for information and data is a small data set and the response would be a large data set. It would be appropriate for requests for information and data to be checked for selected keywords that should not occur in a private environment.

In Fig. 2 (Military Chatbot model) shows a model of the use of artificial intelligence potentially usable in the army, which can realize the above requirements placed on a chatbot, will allow access to resources available in the public space and public resources, as well as to private resources. At the same time, users can use data, files, etc. available in the so-called cloud. The cloud, as a centralized solution for storing data and files, can also simplify the solution to the security issues of valid and verified data and files against their unsolicited modification into the form of fake news, their deletion, etc.

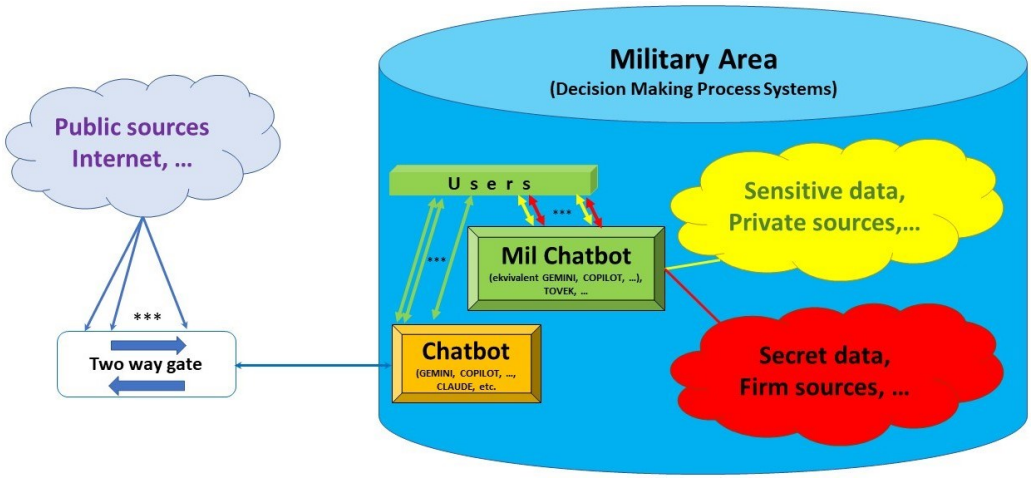

Fig. 2 Military Chatbot model (*Source: own*)

Chatbots which are able to detect fraud attempts can also be used in this environment (e.g. SCAMIO, see scamio.bitdefender.com). Especially when working with publicly available data, it is really useful for users to check whether the mail they received or the attachments in it are not fake, or whether the URL address is dangerous or not.

The practice also describes a state where artificial intelligence does not discuss with the user [11]. This situation should not occur in Military Chatbot.

3.2. Another Possible Use of Artificial Intelligence in the Military

Training of soldiers is perceived as a process consisting of education, individual training, collective training and exercises [12]. Artificial intelligence can be applied to all areas of training. In the field of training, it is mainly a virtual reality environment and a constructive simulation (a means of training staffs to conduct a battle or an operation).

Artificial Intelligence in Training Soldiers

The use of AI in teaching in a civilian environment currently dominates language training in almost any language. The created algorithms and means for communication in a foreign language between a student and a teacher are in their own way already perfect enough that students in the skill of using a foreign language in written or verbal form can be smoothly transited from the skill of a beginner to the skill of a professional. Both translators (Google, DeepL, etc.) and resources based on communication robots (chatbots) are available in public sources. From a practical point of view, it can be also stated that communication robots can be accompanied by a graphic form of an avatar in the form of a known teacher, colleague or a synthetic form of an unknown person. However, this possible solution runs into the legislative framework, where a specific person should at least express his consent to the use of a graphic form of his person in a communication robot.

Soldiers who go through the established system of career growth can (and already use) current algorithms of artificial intelligence implemented in communication robots, graphic systems for processing progress works (seminar work, ...), diploma these and other qualification documents. Here, however, it is important that in such an environment soldiers are not only users of the work that artificial intelligence has created for them, but that they understand the created content and, above all, know how to use it in practice. For this, it is necessary that the system of education of soldiers has control mechanisms, processes and authorities set up, which will have to evaluate the extent to which the soldier knows, understands and can apply the studied issue. In the same way that a list of sources appears at the end of a processed answer in more advanced communication robots, a system that will perform a so-called plagiarism check can work in a similar way.

An important aspect of the use of artificial intelligence in the training and education of soldiers is the protection of training and education systems from disinformation, so-called fake news. If training and education systems using artificial intelligence are in a closed and controlled system with verified and valid data, this threat can be almost eliminated (only the internal administrator or user of the systems can be a threat). If, in particular, the educational system is based on the possibility of using hybrid resources (publicly available - the Internet, or resources that do not carry classified information, but provide so-called sensitive information), it is necessary to strictly separate the two systems organizationally, technically and operationally, and soldiers must learn to work in such a hybrid environment. Lessons and examination procedures aimed at recognizing such information are also likely to be part of the soldier's training.

The education of soldiers, especially soldiers with a university education, should also be reoriented depending on the changes in the military environment and military technology. The gradual transition to the use of autonomous systems, combat and other robots requires a partial change in the content and scope of knowledge of soldiers and technical means in general. Even the army will have to gradually move to the environment caused by industrial revolution No. 4 (the application of informatics, cybernetics and automation), which will also change the overall content of the military. Soldiers will need to interact safely with an autonomous system, a warehouse or repair robot, a robot that works with dangerous substances (explosives, radioactive, chemical or biological substances and materials) will have to perform so-called imitation learning of robots and autonomous systems. Soldiers will have to respond and implement so-called leadership issues in a military environment, and therefore they will have to understand and know what a robot with a certain degree of artificial intelligence will do and why it does it.

New construction equipment and technologies that are incorporated into so-called 3D printing cannot be left out. In a way, the military environment creates the conditions for the implementation of so-called dark factories (spaces where devices work without lighting), where the so-called production of components, their parts and elements as well as systems of military equipment and technology will be carried out at the customer's premises (soldiers they will produce themselves if necessary). Soldiers will therefore have to have the knowledge and skills to draw the required parts, assemble a prototype, etc., because v cannot rely on the fact that the given part will be delivered to him from a non-military environment at the required time. Even the activities connected with the implementation of 3D printing in the military environment should be the subject of changes in the content of the teaching.

Artificial Intelligence in Individual Training of Soldiers

In a virtual simulation, artificial intelligence would complement or completely replace the so-called SAF (Semi-Automatic Forces) system, which in virtual (crew) simulators replace other virtual simulators in the functions of enemy forces, superior forces or forces in cooperation with the unit being trained. This proven solution would be given a higher level of quality, because a suitable and properly constructed algorithm would create conditions through a deep learning system where a simulated adversary reacts to the behaviour of trained units, where artificial intelligence can recognize undesirable stereotypes in solving tactical situations of unit commanders or combat vehicle crews. What form training could take in such conditions can be demonstrated on the ALPHA project (USA) [3], where learned artificial intelligence was implemented in the flight simulator, against which the pilots conducted air combat. Of course, the declared state that all the fights were lost by the real pilots can be taken with a grain of salt, because the conditions of the air fight and the functionality of the aircraft simulator were not published.

Artificial Intelligence in Collective Military Training and Joint Exercises

A similar approach can also be chosen in the means of so-called constructive simulation (ModSAF, OneSAF Testbed Baseline, OneSAF, WASP, etc.), when in particular the enemy's synthetic units work according to SAF (Semi-Automatic Forces) modes, but supported by artificial intelligence (for now, the UI in these simulations systems is not implemented). A possible solution would also be the use of artificial intelligence with simulation systems designed especially for conducting so-called war games (see below Artificial intelligence and decision support). A trained artificial intelligence would create the conditions and resources of the enemy in a wargame, while maintaining the desired attributes of the wargame, but at the same time it would observe possible stereotypes of the players' solutions to their own forces and thus learn how the enemy would use them. Certain elements of artificial intelligence are implemented in the SWORD (MASA Group) simulation system, but the ability of the simulator to modify the behaviour of entities in deep learning mode is not available for now.

Commanders and staffs should be prepared for situations where artificial intelligence implemented in weapon systems (e.g. drones, but also combat vehicles and tanks) supports so-called swarm behaviour in the performance of combat tasks. It must be assumed that artificial intelligence is likely to create new tactics in conducting offensive combat or in defence. This conclusion follows from the practical assumption that weapon systems will use so-called networking (see: CHIP 05/2024, Magazine about digital technologies, Volume 34, (Czech mutation), p. 20. ISSN:1210-0684) to coordinate the joint activity of units in battle.

Artificial Intelligence as a Military Decision-Making Process Support Tool

Commanders' decision-making support (MDMP - Military Decision-Making Process) is an inherent part of the commander's and his staff's work to accomplish the combat task. After receiving it, there is a phase of analysis on how to perform the given task in known and assumed conditions. The subsequent development of variants of the given task (CoA - Course of Action) and their testing is the subject of war gaming (WG - War Gaming). The war game is usually carried out using several methods (on maps, on plastic tables and in a version using holography) but also with the use of computer simulation.

Computer simulation is becoming an acceptable means of decision support (MDMP), especially in the phase of evaluation of variants (COA - Course of Action), where artificial intelligence is also starting to be used. Its outputs are available to the user if they evaluate individual variants, available in a relatively short time. For example, according to [13], artificial intelligence used in wargaming systems, it is stated that the evaluation of the chosen COA variants by the staff took a full 16 hours, while the CADET system needed only two minutes for this activity. More detailed information about data sources and artificial intelligence algorithms was (of course) not published.

Here, it is necessary to emphasize the requirement that the artificial intelligence implemented in the computer simulation can learn from previous exercises, but mainly from wars, operations and military activities, which are a source of lessons and experience for the elimination of advantages and errors that were recognized and identified in the past. Therefore, data from exercises performed with computer support (CAX - Computer Assisted Exercise) can also be used for learning.

Administrative Support of Staff Processes Using Artificial Intelligence

Routine activities in the creation and processing of documents, with which staffs and headquarters work usually have a given form and structure, can be supported and some of them automatically solved by AI. Reports, orders, methodologies, written preparations and a number of other military documents could thus be generated at least into a working version using artificial intelligence algorithms. Of course, a person will always be the last arbitrator to sign the document after the final review to make the document valid. The UI will (and already is) able to recognize which document it is. It's not just invoices, contracts and other documents. Documents that have a defined structure and are formalized are actually routinely used in the military environment. AI through learning and using metadata can significantly reduce the time needed for commanders and staff members to process documentation. In the same way, the UI can search for relevant data in stored documents. But even here it is true that the UI must learn this activity. Even so, a given document may not have the required content, even if it is formally processed in a given form. Such errors may arise when processing documents that are similar in terms of content, or the given document is an original. It also applies here that a person will be the decisive arbiter in the final content and formal form of the document.

Artificial Intelligence in Military Logistics

Artificial intelligence can arrange material on warehouse shelves. The current mode of material storage requires quite a lot of mental effort from employees when it comes to storing material by class, especially when replenishing it. Artificial intelligence can analyse the placement of material on warehouse shelves. A certain example can be the Goods Checker cloud service, which enables the material to be detected and recognized from images (photographs) of the location of the material in the warehouse, using machine learning and analysis of voluminous data. The algorithm minimizes the influence of human errors and mistakes and can increase the accuracy of information about the location of material in warehouses with different materials, in warehouses with different location, capacity, security, etc. A possible solution is

presented by IBA Group with the Goods Checker solution (see: CHIP 09/2023, Magazine about digital technologies, Volume 33, (Czech mutation), p. 12. ISSN:1210-0684, and also at https://ibacz.eu/o-nas/profil-spolenosti/).

In addition to artificial intelligence, the solution to the implementation of virtual reality (full, extended, embedded) and quantum computers and their practical use is also coming to the forefront of the company's technological modernization. The combination of virtual reality and artificial intelligence in the military can be classified in the environment of diagnostics, maintenance and repair of technology.

Artificial intelligence can also increase the utility value of virtual reality, more precisely its clone - augmented reality. Augmented reality technologies can provide a look inside combat and other military equipment, ammunition and other material. Technologically, it is based on the possibility and functionality of holographic images, which are displayed on this device with the help of special iPad software (in the Czech Republic, the start-up Pocket Virtuality deals with this technology, details can be found at https://www.pocketvirtuality.com/ #home). Depending on the perspective which the user observes the diagnosed device or military equipment, the display device shows, for example, the structural elements of the given equipment, control elements, etc., depending on the direction in which the augmented reality camera and the technician's view are pointed. Even this UI application, like all those developed so far or already in use, places high demands on the computing power of the device (HW) in which the UI is operated.

Artificial Intelligence in Military Healthcare

Artificial intelligence is also being promoted in the healthcare sector, not only in routine administrative activities (processing of reports for health insurance companies), which limits the professional performance of doctors, but mainly in the diagnosis and recognition of non-standard objects in X-ray images or computer tomography. Implementation of such tools in the practice of military garrison and field hospitals and conditions of military trauma centres.

Health diagnostics, evaluation of X-rays and CT images, these are areas where artificial intelligence is already beginning to be used. X-ray images or CT image recordings, as basic diagnostic tools for obtaining views into places where a person "cannot see" and to detect "hidden" defects and anomalies in the human body, can be used to detect significantly faster with a high degree of certainty with the help of artificial intelligence. These technologies are structurally supported by computing resources with adequate computing power, as they must process high-resolution images.

Artificial Intelligence and Information Support Operations

A significant component of the conduct of operations in recent decades has been the use of STRATCOM and the conduct of PSYOPS and INFOOPS.

Strategic communication systems for commanding troops on the battlefield are and will be an inherent object of the enemy's interest in how to influence, disrupt or make impossible the fulfilment of the objectives of the operation. Transmitted intelligence information (image, text or video in both Off-Line and On-Line mode) can thus be deliberately modified with the aim of misleading the adversary. The current quality of artificial intelligence manages not only the modification of the source data file, but also the generation of new files about the non-existent state of the battlefield, which, however, can give the impression of reality. These are files with image data, voice data and video files. This can be used in conducting both PSYOPS and INFOOPS.

Deception is also a significant component of the military's activity in conducting combat activities. The process of misleading the enemy is carried out not only in the stage of conducting active combat activities, but also in the period of preparation for the performance of combat tasks. Here too, artificial intelligence can be used successfully, because it handles the work of creating or modifying documents, generating images, generating sounds and voices. AI can already generate or modify images, photographic images, video recordings or imitate the voice of a "famous person" and insert into this speech content that may not be true, may not be accurate, etc. The use of these technologies is certainly of interest to military experts in creating "Fake news". Public resources only do not provide resources or information about specific solutions, applications, implementations, and deployment conditions.

4. Conclusions

This article describes the possibility of using artificial intelligence in the segment of decision support for commanders. As a possible tool for this activity, the use of so-called chatbots appears (for now, the Chatbot /Chat robot combination is preferably used). In the abstract to the article, only one test question is presented, but total of 20 validation questions were asked, which the authors considered valid for reviewing the suitability of use for decision support.

The use of chatbots to support commanders' decision making and related administrative would be very beneficial in terms of time. It is important to follow information security policy. A possible way is to implement such chatbots in a proper way in the military environment or to develop completely new ones, being closed, protected, controlled, filled by verified and valid data, approved by relevant authority. In these terms, the information can be credible and reliable.

The implementation of artificial intelligence in the military, however, can no longer be a problem of only the military from a financial and moral point of view. It is necessary to develop the military's partnership with the academic, scientific and industrial sectors so that the requirements for the regular use of artificial intelligence in such a specific environment as the military are beneficial.

In conclusion, it must be stated that currently artificial intelligence does not have the ability that humans are endowed with, i.e. intuition, i.e. to predict what will happen on the basis of experience, knowledge and perception of the environment

(the world). But even here it is necessary to realize that intuition can disappoint. Even so, the human role is irreplaceable even with the "mass" deployment of artificial intelligence in all areas of society's life. The development of UI is very rapid indeed. Meta companies with OpenAI have already said that their language model LLaMA [14] will be able to not only carry out normal conversation, but also to actually think and plan. Reasoning and planning are considered activities that are a significant step towards achieving general artificial intelligence. It is assumed that such artificial intelligence will be able to perform tasks that are interconnected and will be able to predict the consequences of its actions.
Note. *This article has not been processed by any artificial intelligence (GEMINI, COPILOT, etc.).*

Limitations

The use of publicly available chatbots seems to be quite advantageous with respect to the speed of information retrieval. The problem, however, lies in the content and origin of the sources. The third wave of AI development (also known as enterprise AI), using large databases, utilizes data whose authenticity may not be verified and the validity of the information obtained may be doubtful.

Acknowledgements

The authors respectfully thank to leaders and participants of "Land Operations Leadership - LANDOPS" project, which focuses on the decision support for commanders, conducting land operations. Their support, inbreathing ideas and partial inputs enriched content of this paper.

References

1. **Russell, S. J.** (2021). Jako člověk: Umělá inteligence a problém jejího ovládání (J. Zlatuška, Trans.; První vydání v českém jazyce). Argo : Dokořán, 2021.
2. **Tegmark, M., Ivánková, M**. (2020). Život 3.0: Člověk v éře umělé inteligence (První vydání v českém jazyce). Argo : Dokořán. 97-101.
3. AI fighter pilot wins in combat simulation. (2016, June 28). BBC News. https://www.bbc.com/news/technology-36650848.
4. **Cordón, O., Herrera, F., Hoffmann, F., & Magdalena, L.** (2001). Genetic Fuzzy Systems: Evolutionary Tuning and Learning of Fuzzy Knowledge Bases (Vol. 19). WORLD SCIENTIFIC. https://doi.org/10.1142/4177
5. **Ernest, N., & Carroll, D.** (2016). Genetic Fuzzy based Artificial Intelligence for Unmanned Combat Aerial Vehicle Control in Simulated Air Combat Missions. Journal of Defense Management, 06(01). https://doi.org/10.4172/2167-0374.1000144 96-101.
6. The Interservice Industry, Training, Simulation, and Education Conference. (n.d.). Retrieved 9 February 2024, from https://www.xcdsystem.com/iitsec/proceedings/.
7. Vojenské rozhledy—Vojenské rozhledy. (n.d.). Retrieved 9 February 2024, from https://www.vojenskerozhledy.cz/en.
8. Tudorache, P. (2021). Applicability of Artificial Intelligence in Decision-Making for Land Forces. Vojenské Rozhledy, 30(2), 039–054. https://doi.org/10.3849/2336-2995.30.2021.02.039-054.
9. **Hošťálková, M.** (2023, October 31). LikPik: Český software pomáhá vyšetřovatelům odhalovat zločince. em.muni.cz. https://www.em.muni.cz/veda-a-vyzkum/16964-likpik-cesky-software-pomaha-policejnim-vysetrovatelum-odhalovat-zlocince.
10. Vojenské rozhledy—Vojenské rozhledy. (n.d.). Retrieved 9 February 2024, from https://www.vojenskerozhledy.cz/en.
11. Živě.cz. (2024, February 8). AI chatbot Bing ve skypu nereaguje na výzvy—Poradna Živě.cz. Živě.cz. https://www.zive.cz/poradna/ai-chatbot-bing-ve-skypu-nereaguje-na-vyzvy/sc-20-cq-725906?consultanswers=1
12. Bi-SC – 75-2. Educational and Training Directive. Supreme Allied Commander, Europe, Belgium. October/2013. p. 9.
13. **Černý M.** AI rukuje do války. (see: CHIP 02/2022, Magazine about digital technologies, Volume 30, (Czech mutation), p. 48-49. ISSN:1210-0684). English title: AI goes to war. https://ai.meta.com/, https://llama.meta.com/