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LEGAL DOCTRINE OF ARTIFICIAL INTELLIGENCE: CURRENT STATE OF DEVELOPMENT

Abstract. ***Purpose.*** The purpose of the article is to study «human intelligence» in the philosophical aspect and to evaluate it. ***Results.*** The article considers the issue of artificial intelligence and the correctness of the concept of «artificial intelligence» and its comparison with human intelligence. The issue of the effectiveness of artificial intelligence application in a present-day context is revealed. A literature review in this field enables to make conclusions about the philosophical and methodological origin of the concept of «artificial intelligence». The author studies the positions of considering the properties inherent only in human intelligence and comparing biological and semiotic (sign) methods when applying artificial intelligence. However, in recent years, scientists have been conducting research and identifying biological semiotics (biosemiotics) as a separate type of research that can be comprehensively applied when using artificial intelligence. This formulation enables to consider artificial intelligence from a different perspective. In addition, the article addresses the topical issue of the effectiveness of artificial intelligence in a «duel» with human intelligence: the benefits and risks of using artificial intelligence. The advantages of human intelligence are its being more flexible and multifaceted compared to artificial intelligence, though artificial intelligence performs tasks more accurately, efficiently and promptly. ***Conclusions***. Considering the current state of artificial intelligence, the state of research and development prospects, the active application of artificial intelligence in various fields of artificial intelligence, its benefits and risks for humanity are the main issues of today in the field of IT technologies. Artificial intelligence can be applied in various sectors, including medical diagnostics, remote control, design and construction, social communication, web search, commerce, legal proceedings, digital record keeping, etc. In our daily lives, we may encounter artificial intelligence on a daily basis without even thinking about its origins, basis, operations, and liability for errors. However, such questions should be raised by scientists and AI developers.

Key words: artificial intelligence, human intelligence, biosemiotics, risks of artificial intelligence application, nature of artificial intelligence.

1. Introduction

For several decades now, scientists have been facing the difficult task of defining the concept of artificial intelligence and comparing it to human intelligence, as well as of the origins of artificial intelligence and the relevance of artificial intelligence in a present-day context.

The issue of clarifying the concept of artificial intelligence in the philosophical aspect was considered in the studies by: A.V. Kasianenko, O.S. Koval, V.V. Fedotov, I.V. Hryhorenko, K. Jung, N.K. Tymofiieva, O.B. Stoliarenko, O.I. Stebelska, O.Ya. Moroz, and others. However, despite the studies conducted, currently no clear definition of the concept of «artificial intelligence» and no unambiguous answer to the risks of its use exist, which gives rise to further research in this area.

The purpose of the article is to study «human intelligence» in the philosophical aspect and to evaluate it.

2. Principles of legal understanding of artificial intelligence

We have reviewed many definitions of artificial intelligence in different aspects, all of which reflect a certain part of the current state of affairs, but today such a definition is not sufficient, as the latest technologies are moving far ahead.

Artificial intelligence is a software product that receives a specific request, collects and processes data, and then provides a ready-made solution. Such a solution is often perceived as the result of a programme operation that exhibits intelligent behaviour and works in a manner similar to human thinking (Klian, 2022). From a technical perspective, this definition reflects

artificial intelligence as a ready-made software product for use by a machine in making prompt and accurate decisions.

Another aspect of artificial intelligence is more reflective of the metamorphic nature of artificial intelligence and is related to the philosophical origins of this meaning. This is another example of the definition of artificial intelligence and the lack of reference to the literal term «intelligence» discussed earlier. *Artificial intelligence* is a metaphorical name for one of the priority scientific trends that has emerged in the general complex of cybernetic research on the problems of modelling thinking processes, intensification of intellectual activity through computerisation of certain types of it (Shynkaruk, 2002, p. 727). Metaphor (from the Greek μεταφορά – transfer) is a linguistic and mental phenomenon that consists in transferring the properties of one object (phenomenon, action) and its linguistic sign to another object (phenomenon, action) on the principle of analogy or contrast (Kravets, 2023).

The metaphorical meaning of artificial intelligence implies that the comparison of brain and computer systems is based on two metatheoretical metaphors – computer and intelligence (also used as one double metaphor, i.e. with two opposite referents, under the general name «computer metaphor»), which emerged as a result of establishing significant analogies between these systems. According to the first of them, natural intelligence is likened to artificial intelligence (the brain is considered to be similar to a computer in terms of structural organisation and activity); according to the second, the computer functions according to the established principles of brain activity (the computer is supposedly endowed with brain-like structures and functions. They are of importance in understanding the structure of the brain, the mechanism of its activity and the design of intelligent systems capable of performing functions traditionally considered the prerogative of the human brain. However, they should be perceived as purely scientific metaphors. Ignoring them narrows the possibilities of cognition and construction, while absolutisation and literal interpretation can lead to false scientific results and philosophical, methodological and epistemological conclusions (Shynkaruk, 2002, p. 727).

However, today, the various aspects of artificial intelligence we have discussed are correct, but not final. For example, O. Stebelska argues that the issue of creating artificial intelligence is open. It cannot be stated unequivocally that this will never happen, but there are certain fundamental difficulties in solving this problem. The Penrose Theorem addresses this problem in a sharp and categorical manner: «No matter how powerful a device with the architecture of a complete automaton (a computer, in the modern sense) may be, human thinking has some capabilities that are not available to such a device.» It should be noted that the main problems of implementing artificial moral machines are not so much in the technical as in the philosophical and methodological plane (Stebelska, Fedoriv, 2019).

The establishment of significant analogies between the brain and a computer and their functioning led to the formation of a computer metatheoretical metaphor, enabling to emerge a cognitive approach in psychology, artificial intelligence, linguistics, etc. (in fact, it has initiated the formation of cognitive psychology, cognitive linguistics, etc., which form a new complex scientific field – cognitive science or cognitology). This metaphor plays an important role both in the study of the brain structure and mechanisms of its activity, and in the design of intelligent systems – systems capable of performing functions traditionally considered the prerogative of a human being and his or her brain (Moroz, 2014).

Scientists from around the world are still debating the nature of the human brain, and as a result, they have not yet defined clear requirements for artificial intelligence. However, this does not prevent the successful development of artificial intelligence technologies in two areas: *semiotic* (creation of systems that imitate such processes as speech, thinking, and expression of emotions) and *biological* (creation of neural networks based on biological principles). However, the nature of human consciousness is much more universal: a human being can be (or become) anyone, has many opportunities and prospects for development, can act effectively not only in the presence of clearly defined rules, but also in the absence of information in general, and is not limited to one field. When we deep into the problem, it turns out that the field of speech, behaviour, emotions and feelings is far from being fully realised in a technical environment. Machines lack flexibility and spontaneity of action (Stebelska, Fedoriv, 2019). The development of artificial intelligence according to the two criteria mentioned by the authors is quite possible, but we should agree with the position that human intelligence is more universal than artificial intelligence. Moreover, it should be noted that the intellectual capabilities of an individual person are different, they do not have the same abilities, everyone is different. From a technological perspective, artificial intelligence can be used both individually and in series. In the case of serial use, we can hardly speak of intelligence.

3. Trends in artificial intelligence application

Artificial intelligence in its broadest sense (a system/machine that independently performs creative tasks without human intervention) is still only on the horizon of development and human cognition. Although this horizon is approaching, artificial intelligence will not soon replace inventors and creators, neither in technological nor social terms. In the context of generating the results of intellectual and creative activity, artificial intelligence should not do this, its task is only to complement and help, because invention and innovation are often not only an urgent need, but also a human vocation. The current results of testing artificial intelligence in the IT sector suggest that it is gradually becoming an effective auxiliary tool not only for facilitating bureaucratic procedures and filling in template elements of applications for law enforcement documents. Given Ukraine's presence both in the field of research and policymaking and in the generation of artificial intelligence products, we have every chance to promote Ukraine in the global market and create new dimensions and perceptions of artificial intelligence that will be useful for the whole world (Zozuliuk, 2022). We can agree with the author's position that artificial intelligence is not a complete replacement of human intelligence, but only an auxiliary part of it, which is intended to serve to facilitate the existence of humanity (work, education, social sector, medicine, defence, etc.), which we face in everyday life.

Modern futurists are also constantly predicting an impressive future, but so far, scientists have not been able to create a machine that is equivalent to a human in terms of its capabilities. This is due to many reasons discussed above. But the main problems lie in the *philosophical and methodological* plane. First of all, it is unclear how to create a smart machine. In addition, research in the field of artificial intelligence has one common drawback: scientists try to model and prescribe something that they themselves cannot explicitly and clearly explain: consciousness, morality, imagination, creativity, emotions and feelings, freedom, etc. Human consciousness is such a complex, ambiguous, multifaceted phenomenon that it is currently not amenable to technologicalisation. Even the term «intelligence» itself has no clear definition. However, the aforementioned obstacles in creating intelligent machines have a positive side: the more we try to create artificial intelligence, the more we deepen our understanding of our own nature (Stebelska, Fedoriv, 2019).

For example, O.E. Radutnyi outlines the benefits of using artificial intelligence and argues that due to robotisation and automation of routine or risky processes, humans are gradually being removed from the process of information processing, making and implementation of decisions. In many cases, this is entirely justified, as it is increasingly impossible to compete with artificial intelligence algorithms that are designed to outperform humans in a specific activity, eliminate the human factor in the form of errors, mistakes, and imperfections in cognitive functions (poor memory, concentration, stress, etc.) and physical capabilities (strength, endurance, perception of all signals from the world around us, etc.) (Radutnyi, 2021). Of course, the so-called «human factor» cannot be dismissed in the work, as the author considers the «weaknesses» of a human being, in addition to the above, one can also allow for the state of health, stress resistance, intellectual and mental abilities, mood, external stimuli (comfortable conditions, temperature, weather) and many other factors that may affect the final result of a human being's work. As for the machine, such factors do not affect the final result and therefore it will always be predictable. However, it is also necessary to consider certain conditions for the machine to perform such work, for example, the availability of power, material support, certain resources for creating a programme and running it, and other factors that are not required by humans.

Research into the cognitive structures of knowledge, comparison of the ways in which knowledge is represented in the brain and computer, and the forms and possibilities of their use, have prompted a revision of views not only on the ways in which knowledge is stored in the memory of people and intelligent systems, but also on the logic used by people and applied in the creation of these systems, which has led to the need to make certain adjustments. The implementation of a powerful knowledge-based system is carried out with the help of an appropriate knowledge representation. The need to capture the difference between data and knowledge has led to the need to build certain formalisms in the form of models (languages) for representing knowledge in a computer, which reflect such features that characterise knowledge as internal interpretability, structuredness, coherence and activity. The problem of teaching a computer *to understand* natural language has become one of the main issues not only in machine translation but also in artificial intelligence (Moroz, 2014). This creates requires computational linguistics, which is closely related to artificial intelligence.

Furthermore, artificial intelligence application requires to focus on certain problems that may arise. For example, O. Stebelska argues that

the main problems faced by scientists trying to create smart machines include the following:

1) When creating intelligent machines, scientists cannot endow them with understanding, including understanding of themselves (or self-awareness);

2) The second obstacle to the creation of artificial intelligence is the problem of uncertainty: we live in a fluid world that is constantly changing;

3) An integral part of a human being is his or her physicality, through which he or she is able to perceive the world in which he or she lives;

4) The human value dimension is a difficult problem in the process of implementing artificial intelligence;

5) The problem of responsibility is clearly interconnected with the problem of freedom;

6) Another reason for the difficulties faced by researchers is the nature of qualia («an unusual term for something we are familiar with: the way things look to us»);

7) One of the main features of a human being is the creative nature of his or her activity, the ability to create something that did not exist in nature before and could not exist before;

8) People often act and draw conclusions based on common sense (Stebelska, Fedoriv, 2019).

The draft strategy for the development of artificial intelligence in Ukraine specifically consideres artificial intelligence specifically and notes that models of artificial consciousness should be based on the results of research into human consciousness in the biological, medical, and psychological fields. The result of these processes is the properties of consciousness: a wide range of conscious contents, informativeness, adaptability and transience of conscious manifestations, internal consistency, limited capacity and consistency, self-awareness, accurate reporting, subjectivity, focal-edge structure, facilitated learning, stability of contents, allocentricity, controlled knowledge and decision-making. Therefore, the modelling of artificial consciousness should include two areas: modelling the attention scheme as a mechanism for selecting and disseminating information (C1 according to the classification); modelling the coordination mechanism that ensures subjective perception of reality and control (C2 according to the classification) (Shevchenko, 2022).

O.S. Koval discusses several stages that artificial intelligence goes through in its development. For example, the question of the genesis of artificial intelligence and the development from the Turing test to the current capabilities of mankind and the active use of artificial intelligence in various spheres of life, scientists also distinguish the so-called intermediate stage of artificial intelligence. The main point is that the intermediate stage of artificial intelligence similar to human intelligence is likely to start with modern chatbots and will be a synthesis of existing technologies. It will: be able to communicate freely with people, answer their questions, form their own, etc.; have a number of external settings that will make up its personality, namely everything related to voice and image; have an imitation of its own «character», a complex character profile and the ability to customise features that will be superimposed on a neutral communication system; have a flexible (probably in graphical form) system of tasks, connections, fears, sequences of actions, any logical markers required for realistic simulation; be able to freely and quickly change all these parameters for a particular artificial intelligence, thereby changing its personality (Koval, 2020).

4. Conclusions

Therefore, the very concept of artificial intelligence has a philosophical meaning of existence that pervades it completely and does not require its literal understanding and interpretation in the way we perceive human intelligence. Having considered the issues in various aspects of the philosophical origins of the concept "artificial intelligence," we can argue that the path to the decade is quite complex and controversial. Of course, there are fears that drawing an analogy with human intelligence in the literal sense may lead to a false definition. It should be considered that it is still impossible to accurately define and measure human intelligence. Recent years of medical development have enabled scientists to make significant advances in this area and in the specificities of human brain activity and human consciousness. Such research will also lead to a significant breakthrough in the creation of artificial intelligence.

While we say that artificial intelligence has been studied in recent decades, it has been impossible to comprehend the understanding and capabilities of human intelligence since ancient times, millennia ago. Drawing a parallel, we can note that the process of understanding artificial intelligence and its consolidation will be similarly difficult and controversial.

Therefore, we can try to define artificial intelligence, namely, the ability of a technological software system to achieve any complex goal through processes comparable to human cognitive processes, recognising various tasks and modelling the situation to achieve the programmed goal.

This definition describes the result of artificial intelligence's activity not only by perform-

ing a human-programmed task and achieving the goal, but also by solving a more complex task that may go beyond the mission, which will allow changing the algorithm for solving and achieving the goal with the least resistance. We have described the algorithm of human action in non-standard situations, using intuition, deduction and other methods that help us solve our tasks.

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ПРАВОВА ДОКТРИНА ШТУЧНОГО ІНТЕЛЕКТУ: СУЧАСНИЙ СТАН РОЗВИТКУ

Анотація. ***Мета.*** Метою статті є проведення дослідження щодо «інтелект людини» у філософському аспекті та оцінки. ***Результати.*** У статті розглянуто питання штучного інтелекту та правильність формулювання поняття «штучний інтелект» і співставлення з інтелектом людини. Розкрито питання ефективності застосування штучного інтелекту в умовах сьогодення. Зроблено аналіз публікацій за цим напрямом, що дало можливість зробити власні висновки стосовно філософсько-методологічного походження поняття штучного інтелекту. Розглянуто позиції урахування під час застосування штучного інтелекту властивостей, які притаманні лише людському інтелекту, та співставлення біологічного та семіотичного (знакового) методів. Хоча за останні роки науковці проводять дослідження і виділяють як окремий вид біологічну семіотику (біосеміотику), який можна комплексно застосовувати під час використання штучного інтелекту. Така постановка дає змогу розглянути штучний інтелект в іншому аспекті. Також розглянуто актуальне питання щодо ефективності дії штучного інтелекту в «дуелі» з інтелектом людини: переваги та ризики застосування штучного інтелекту. Щодо переваг людського інтелекту як більш гнучкого та багатогранного порівняно зі штучним інтелектом штучний інтелект більш точно, якісно і швидко виконує поставлені завдання. ***Висновки.*** Активне використання штучного інтелекту в різних галузях штучного інтелекту, його переваги та ризики для людства є основними питаннями сьогодення у галузі ІТ-технологій. Штучний інтелект має багато сфер застосування, до основних можна віднести: медичну діагностику, дистанційне керування, проєктування та будівництво, соціальне спілкування, вебпошук, торгівлю, судочинство, цифрове діловодство та ін. У повсякденному житті ми можемо щоденно стикатися зі штучним інтелектом, навіть не замислюючись над його витоками, основою, діяльністю та від-

повідальністю за похибки. Однак такі питання повинні поставати перед ученими та розробниками штучного інтелекту.

Ключові слова: штучний інтелект, інтелект людини, біосеміотика, ризики використання штучного інтелекту, природа штучного інтелекту.