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CONCEPTS OF LEGAL PERSONALITY OF ARTIFICIAL INTELLIGENCE

CONCEITOS DE PERSONALIDADE JURÍDICA DA INTELIGÊNCIA ARTIFICIAL

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Abstract: The article is devoted to the concepts of the legal personality of artificial intelligence. The intensive development of AI technologies, which can autonomously make decisions and perform creative and intellectual tasks, raises the question of the need to determine AI's legal status. The main purpose of the study is to propose a concept of conditionally special legal personality that can be applied to certain types of AI. A multi-criteria analysis of works devoted to the development of concepts of the AI legal personality and documents of the judicial authorities of Australia, the UK, the USA, and France were carried out within the framework of the study. The study showed that there is no uniform systematic approach to determining the AI legal personality at the national and international levels. The study highlights the main software-synthesized abilities of some types of intelligence. It is concluded that AI can have a special legal personality only in the presence of certain software-synthesized abilities. Depending on their availability and volume, AI in some cases can be defined solely as a tool in the hands of a person and as an electronic subject of law in other hands.

Keywords: Artificial intelligence. AI. Computer and software technologies. Robotics. Legal personality. Duty. Legal relationship. Subject. Object.

Resumo: O artigo é dedicado aos conceitos da personalidade jurídica da inteligência artificial. O desenvolvimento intensivo das tecnologias de IA, que podem tomar decisões de forma autônoma e executar tarefas criativas e intelectuais, levanta a questão da necessidade de determinar o status legal da IA. O objetivo principal do estudo é propor um conceito de personalidade jurídica condicionalmente especial que possa ser aplicado a certos tipos de IA. Uma análise multicritério de trabalhos dedicados ao desenvolvimento de conceitos de personalidade jurídica da IA e documentos das autoridades judiciais da Austrália, do Reino Unido, dos EUA e da França foi realizada no âmbito do estudo. O estudo mostrou que não há uma abordagem sistemática uniforme para determinar a personalidade jurídica da AI nos níveis nacional e internacional. O estudo destaca as principais capacidades de sintetização de software de alguns tipos de inteligência. Conclui-se que a IA pode ter uma personalidade jurídica especial somente na presença de certas habilidades de sintetização de software. Dependendo de sua disponibilidade e volume, a IA em alguns casos pode ser definida apenas como uma ferramenta nas mãos de uma pessoa e como um sujeito eletrônico de direito em outras mãos.

Palavras-chave: Inteligência artificial. IA. Tecnologias de informática e software. Robótica. Personalidade jurídica. Deveres. Relação jurídica. Assunto. Objeto.

1. Introduction

Modern computer-software technologies, neurotechnologies, biotechnologies, and robotics technologies are intensively developing (Litwinowa et al., 2022; Solum, 1992). There is an accelerated implementation of technological solutions developed based on artificial intelligence (AI) in all spheres of economic, social, and public relations. Voice assistants answer questions on the phone, bots place orders and correspond with customers, and AI and neural networks are used at the state level (Legg & Hutter, 2007). AI manages traffic flows, issues fines, creates works of art, and participates in military operations. Many developments cannot be created without the use of programs. AI has reached a level where it successfully competes with humans. For example, patent applications for inventions were submitted to the EU and US patent offices by scholars in 2019, where Dabus, an AI, was indicated as the author of the invention (Nevejans, 2016). The large-scale use of AI raises the question of its legal personality. Robots are constantly improving and evolving; at present, they are trainable and independent of humans, making independent decisions and accumulating experience. Thus, the actions of AI entail the emergence, change, or termination of legal relations; robots can make decisions without the prior approval of developers and this creates new legal problems (Ivanova, 2019, Kainov et al., 2022). The question arises, as to which legal category modern AI with its constantly expanding capabilities should be attributed to (Kirillova et al., 2022). Previously, robots were unambiguously related to the objects of law, now everything has become less obvious and the question of the AI legal personality is more relevant than ever. The concepts of the AI legal personality are currently at the stage of scientific and legal study and discussion. Relevant, exhaustively prescribed, and properly justified concepts have not yet been presented. Therefore, it is necessary to develop a working concept of the AI legal personality and determine which characteristics of AI allow it to be endowed with special rights and responsibilities in the future.

The main purpose of the study is to propose a concept of conditionally special legal personality that can be applied to certain types of AI.

The research was based on the following scientific hypotheses:

- the hypothesis of the need to consider the functionality and abilities of AI when applying the concept of conditional special legal capacity to it;

- the hypothesis that concerning AI, it is impossible to recognize a full-fledged legal personality comparable to the legal personality of a not disenfranchised person in the near future.

The concept of a conditionally special AI legal personality was proposed based on the conducted research, which can be applied only to certain types of AI that have identified and classified software-synthesized abilities.

2. METHODS

The research was based on a multi-criteria analysis of works devoted to the development of concepts of the AI legal personality and documents of judicial authorities of Australia, the UK, the USA, and France.

The documents of the European Court of Justice and the European Court of Human Rights were reviewed, and the following documents and materials of research projects in the field of AI were analyzed:

- SRI Artificial Intelligence Center (AIC);

- IoT – European Platforms Initiative (IoT-EPI);

- Advancing Open Standards for the Information Society (OASIS) LegalDocumentML (LegalDocML) TC;

- Scalable policy-aware linked data architecture for privacy, transparency, and compliance (SPECIAL) project (scalable policy binding to the data architecture to ensure confidentiality, transparency, and compliance);

- MIREL Consortium (ontology-based access to normative knowledge).

More than 140 scientific papers were initially selected from the Scopus and WoS databases, in which the main concepts of the AI legal personality were considered and the legal characteristics of AI, its features and capabilities were analyzed. The base of the selected studies was formed using the following criteria:

1. The research is related to the concepts of the AI legal personality;
2. Most of the works must be written in the period 2017-2023, while it was possible to also analyze works written before the specified period;
3. Most of the research must be indexed in Scopus and WoS, which does not exclude the use of fundamental research in the form of monographs;
4. The authors must have at least five studies devoted to legal problems in the use of AI.

The coverage of scientific material is generally wider than it is presented in the study. After the sampling, 41 works by experts from different countries (Russia, the USA, Western European countries, China, India, and others) were left for the basis of the study.

In the course of the study, when analyzing scientific papers, the following groups of researchers supporting various concepts of the AI legal personality were identified:

- researchers supporting the approach that AI is an object of law – 23%;

- researchers who determine the AI legal personality by analogy with the legal personality of a legal entity – 38%

- researchers who define the AI legal personality by analogy with the legal personality of a person – 7%

- researchers proposing a new concept of the legal capacity of AI as an electronic person – 32%.

Among experts proposing the concept of the AI legal personality as an electronic person, we identified groups of researchers who endowed artificial intelligence with various software-synthesized abilities. The percentages of groups of researchers who allocate the main software-synthesized ability that allows defining AI as an electronic subject of the law were distributed as follows:

- sense-generating thinking – 13%;

- sense-perceiving thinking – 5%;

- cognitive activity – 12%;

- biosimilar abilities – 20%;

- speech-thinking functions – 25%;

- anthropomorphic-intelligent creative activity – 7%;

- the ability to interact with physical reality – 18%.

These percentages refer to the sample of works that were analyzed in detail in this article.

3. RESULTS AND DISCUSSION

AI is actively being introduced into activities that previously could only be performed by a person. This trend sets the task for civilists to consider the possibility of applying the concept of the legal personality to certain types of AI. Legal personality includes the following attributes: a person can be a subject of law; being a subject of law entails the ability to exercise

rights and perform duties; the exercise of rights requires awareness and choice (Winston, 1984). General legal capacity in civil law is defined as the ability to have rights, bear responsibilities, and be responsible for one's actions.

The opinions of researchers on the issue of the AI legal personality are divided. Some experts attribute AI to objects of law (Zhang et al., 2017), while others, on the contrary, believe that modern AI is a subject of law. The main arguments of supporters of the concept of AI as an object of law are as follows: the norms of the law were created for persons and are based on human needs; the law has always considered such human characteristics as the ability to feel and be aware of what is happening (Bond & Gasser, 1992). A person has a soul, consciousness, reason, desires, feelings, and emotions; robots, even if they demonstrate the manifestation of human qualities, are based only on their imitation (Nilsson, 1982, 2009). Thus, any AI is an object within the framework of this concept, and the subjects within the framework of the emerging legal relations should include developers, sponsors, and owners of robots.

Both positive and negative sides can be distinguished in this concept. The positive ones are that with this approach, it is possible to identify the person responsible in cases of harm caused by AI; the autonomy of AI is excluded. Therefore, operators, sponsors, and owners of robots are responsible for all actions of AI. The negative aspects include ignoring the abilities of modern AI, which already independently makes decisions, performs studies, and creates intellectual products (Bowyer, 2017).

More detailed consideration is required of the position of researchers who propose to endow AI with legal personality (Čerka et al., 2017; Li & Du, 2017, Uzhov, 2017; Yadav et al., 2020). Proponents of this concept have not reached a consensus. Some experts suggest determining AI's legal status as a legal entity (Nekit et al., 2020; Turkin et al., 2020). Other experts believe that AI should be defined by analogy with an individual, but in a limited form (Lipchanskaya & Otstavnova, 2020; Nekit et al., 2020). There is also a point of view that AI is a completely new subject of law defined as an electronic person (Blackwell, 2023).

The concept of AI as a legal entity is based on such a legal fiction as the quasi-personality of a legal entity (Chopra & White, 2004; Winkler, 2018). This concept has been fairly criticized since there is a problem of avoiding responsibility in cases of harm caused by AI (Likh, 2021). The order of rights and obligations of legal entities is limited, and if the AI legal personality is similar to the legal personality of legal entities, this may lead to a limitation of the capabilities of AI (Russell & Norvig, 2010). Legislative conflicts may also arise when applying

norms by analogy to AI as a legal entity; the attribution of AI to legal entities can destroy business practices and subsequently affect the legal systems of all countries (Sidorova, 2020).

Some experts suggest defining the AI legal personality as the legal capacity of slaves in the ancient world; the legal status of slaves was severely limited, and they were disenfranchised (Kakoudaki, 2011). The possibility of applying slave laws to AI is a manifestation of an anthropocentric approach, which implies that robots are endowed with legal capacities identical to humans (Oleksiewicz & Civelek, 2019). Such an ambiguous approach has caused criticism since when AI is endowed with an independent legal personality, human rights are extrapolated to the actions of a robot (Basova & Shestak, 2021). The very idea of endowing AI with a legal personality similar to a human legal personality can destroy the legal system and the existing foundations of states (Santoni de Sio & Mecacci, 2021). An example can be given when Sofia, a robot created by Hanson Robotics, received Saudi Arabian citizenship in 2017. This event provoked many conflicts (Shen, 2022). The range of women's rights is limited following the legislation of Saudi Arabia: a woman must constantly wear a hijab and travel abroad only with the permission of her husband or relatives, and the robot created did not comply with any applicable legal norms or traditions. The fact of granting citizenship to a robot was justly criticized since it was done in a short time without any problems while millions of migrants who live and work in the country cannot obtain Saudi citizenship and their rights are severely limited (Szollosy, 2017). As a result, the attempt to grant the robot the legal status of a subject of legal relations caused a split in society and disagreement with the granting of broader rights to AI than to the population living in this country.

AI is a computer software system that researchers classify into four main groups (Table 1) (Hassler, 2017; Schrijver, 2018). Experts identify several subspecies of AI in the "AI with self-awareness" group that is of interest within the framework of the ongoing research since the concept of legal personality can be applied to these types of AI (Nevejans, 2016).

Table 1. The main types of AI

N	Types of AI
1	• reactive machines – AI systems that have no memory and solve only certain tasks
2	• AI with limited memory
3	• AI involved in teamwork
4	• AI with self-awareness
4.1	• virtual software algorithm
4.2	• cyber-physical robot
4.3	• bio-cybernetic computer-hardware-software system

Thus, AI with self-awareness cannot be classified as a tool in the hands of a person. This raises the issue of the need to create unified legal norms in the field of regulating legal relations involving certain types of AI (Negnevitsky, 2005).

The concept of the AI legal personality is a hybrid one, integrating elements of already existing concepts of legal personality of individuals, but most of all – legal entities, while possessing independence and uniqueness (Solaiman, 2017).

Therefore, an electronic subject is understood as AI that meets special criteria within the framework of this concept. AI, as an electronic subject of law, is an autonomous self-organizing computer-software system with appropriate software, possessing software-synthesized abilities and capabilities.

Various experts identify certain software-synthesized abilities of AI, which make it possible to endow AI with conditionally special legal personality (Mosechkin, 2019). Table 2 presents the results of the analysis of opinions in the field of the allocation of software-synthesized abilities of AI.

Table 2. Software-synthesized abilities of AI, which may have a conditionally special legal personality

Software-synthesized AI abilities	Experts who identified the software-synthesized abilities of AI
Sense-generating thinking: recognition, understanding, interpretation, image generation, languages	K. Nekit et al. (2020), F.V. Uzhov (2017), M.M. Turkin et al. (2020), M.A. Lipchanskaya and E.A. Otstavnova (2020)
Sense-perceiving thinking: evaluation, generalization, and analysis of information Cognitive actions: self-regulation, self-restraint, self-adaptation to changing conditions	M.I. Likh (2021), A.V. Sidorova (2020), A. Basova and V. Shestak (2021), F. Santoni de Sio and G. Mecacci (2021), N. Nevejans (2016), A. Winkler (2018), D. Kakoudaki (2014), S. Turkle (2011), I. Oleksiewicz and M. E. Civelek (2019)
Biosimilar abilities: accumulation of experience and information: implementation of a heuristic search algorithm with preservation of important aspects of parental information for subsequent generations of information	K. Nekit et al. (2020), J. Shen (2022), S.J. Russell and P. Norvig (2010), S.P. Yadav et al. (2020), J.J. Bryson et al. (2017), S. Chopra and L. White (2004), S. De Schrijver (2018)
Speech-thinking functions: learning and self-learning: independent development and application of algorithms	A.T. Ivanova (2019), S. Legg and M. Hutter (2007), A. Agrawal, J. Gans and A. Goldfarb (2016), R. Gupta et al. (2021), K. Roy et al. (2019)
Anthropomorphic-intelligent creative formulation and problem solving, creation of	I.N. Mosechkin (2019), M. Negnevitsky (2005), K. Roy et al. (2019)

works, unique projects	
Provided possibility of interaction with physical reality, perception of signals, response to external signals, independent testing of physical reality	P. Čerka et al. (2017), A.F. Blackwell (2023), D. Li and Y. Du (2017), S. Hassler (2017), S.M. Solaiman (2017), M. Szollosy (2017), R.I. Dremliuga et al. (2019)

AI can have a special legal personality only in the presence of certain software-synthesized abilities (Agrawal et al., 2016), depending on their availability and volume. In some cases, AI can be defined solely as a tool in the hands of a person; it can also be an electronic subject of law. Based on this approach, the design of legal formulations in the legal support of the AI legal personality should be carried out (Gupta et al., 2021). Endowing AI with the legal status of an electronic legal entity should be aimed at solving the problems of identifying AI and the ability to remove responsibility from individuals in case of harm caused by AI (Neznamova et al., 2020; Roy et al., 2019). The application of the concept of conditionally special legal personality concerning certain types of AI solves the problem of authorship if creative works are completely created by AI (Dremliuga et al., 2019). The precedents when AI considers the simplest economic disputes and makes court decisions that must be executed also raise the question of the need to consolidate the AI's legal status. In this case, the proposed concept of conditionally special AI legal personality can regulate emerging legal relations.

4. CONCLUSION

AI can be a new special subject of law in the presence of certain software-synthesized abilities, which should include the following:

- Sense-generating thinking: recognition, understanding, interpretation, image generation, languages;
- Sense-perceiving thinking: evaluation, generalization, and analysis of information;
- Cognitive abilities: self-regulation, self-restraint, self-adaptation to changing conditions;
- Biosimilar abilities: accumulation of experience and information: implementation of a heuristic search algorithm with preservation of important aspects of parental information for subsequent generations of information;
- Speech-thinking abilities: learning and self-learning: independent development and application of algorithms;

- Anthropomorphic-intelligent creative formulation and problem solving, creation of works, unique projects;
- Provided abilities of interaction with physical reality, perception of signals, response to external signals, and independent testing of physical reality.

Thus, AI, claiming the legal status of an electronic subject of law, is an autonomous complex of software or software-technical means provided with the biosimilar, cognitive, anthropomorphic-intellectual, and speech-thinking functions that promote self-learning, self-organization, self-testing, and creative activity, including based on accumulated experience.

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