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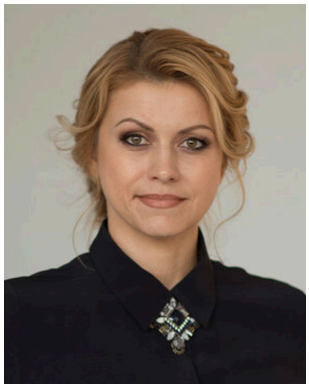
LEGAL RESEARCH OF THE REGIME OF OBJECTS CREATED BY ARTIFICIAL INTELLIGENCE



E.M. KOSYANENKO,
Candidate of Sciences (PhD) in Law, Associate Professor of the Business Law Department Ural State Law University (Yekaterinburg, Russia),
e-mail: ekosyanenko@yandex.ru

The topic of this article is social relations arising in the process of commercialization of objects created with the participation of artificial intelligence. The author examines the correlation between the subjective component of creative activity and the objective uniqueness of the work of artificial intelligence, the possibility of recognizing robots as authors and copyright holders of new works of literature, art or science. *The purpose* of the article is to analyze the legal regime of new objects obtained as a result of human interaction with trained and self-taught programs and answer the following controversial questions of modern intellectual law: can the product of artificial intelligence be qualified as an object of intellectual property rights; who is the author and copyright holder of new objects if they (objects) are created in the process of some independent «creative» activity of robots; what intellectual rights arise for new objects created by independent self-learning artificial intelligence. The work was based on the *methods* of comparative legal analysis of the current norms of Russian and international intellectual law, the formal legal method of research and expert assessment of the modern doctrine of intellectual law. The scientific *novelty* can be traced in the main *conclusions* of the author, which can be used, in particular, when discussing the draft WIPO policy in the field of intellectual property, which is actively discussed by the world community. According to the author, it is extremely important to regulate activities in the field of creation and management of stable neural networks, entropy technologies, evolutionary and cloud computing at the international and national levels as soon as possible. Due to the transnationality, creativity and innovativeness of this type of activity, legal regulation should have a framework advisory nature, defining uniform standards and common terminology. To this end, it is recommended at the legislative level to determine the main criteria under which the results created by artificial intelligence could be qualified as intellectual property objects, as well as to establish who and under what circumstances should be recognized as authors and copyright holders in relation to such AI objects. When developing criteria, it is proposed to highlight the role of a person in the process of creating a new object. It is particularly necessary to take into account the purpose of creating the algorithm itself and the purpose of its independent «creativity».

Keywords: artificial intelligence; copyright; intellectual property; robot; author; copyright owner; deep learning; computer unsupervised learning; creativity; intellectual property object.

Introduction

The commercialization of intellectual property rights supports not only the improving of financial ratings of business entities, but also attracts significant investments for the development and opening of new innovative areas of activity in various sectors of the economy. However, the uncertainty of the legal status of persons who develop artificial intelligence (hereinafter – AI), and especially objects created by AI itself, challenge the legal protection of the interests of investors and other parties.

In the article we will not reflect about any responsibility for the negative actions of AI, although this is a very important aspect. We will focus on the positive actions of artificial intelligence. In particular, objects of intellectual law can become results of intellectual activity, for example: works of literature, science or art, a new computer program, objects of patent rights – inventions, utility models, industrial designs; and, as a result of self-learning, a new part of the program code of the artificial intelligence itself can be created.

If a computer program or a robot are tool for creating such assets and its activities are coordinated by a person, it is necessary to apply the general rules for regulating intellectual property rights. However, in the case when such assets are created by AI autonomously, there is a question of legal regulation.

The practice is already known: for example, in 2019 in Singapore AI wrote several articles for Esquire magazine.[1] In the same 2019, applications for inventions created by artificial intelligence without any human participation were submitted to the Intellectual Property Office of the United Kingdom and the European Office.[2] The programs create paintings, music and other objects of copyright. It is enough to recall the experience of the project «The Next Rembrandt». With the help of an algorithm that recognizes faces, after studying almost 170 thousand fragments of the artist's works, machine intelligence created a portrait «in the style of Rembrandt» on a 3D printer.[3]

To study the problems of legal regulation of such AI results, it is necessary to answer the following questions:

1) Is the product of AI activity the object of intellectual property rights?
2) Who is the author and copyright owner?
3) What intellectual rights do arise for the new object?

Materials and Methods

Answering the questions posed is necessary to make an analysis that is usually carried out with respect to the known principles and legal norms. For example, the question «Is the product of AI activity an object of copyright» is analyzed from the position of copyright, when the object is created by the creative work of a person. However, the application of traditional norms in the new reality does not always lead to practically significant results. In particular, such occurrence as works of «scattered authorship» (like Wikipedia

[1] URL: https://www.it-world.ru/it-news/market/145608.html.

[2] Малахова Н. Л., Присяжнюк Ю. П., Сперанская Ю.С. Результаты интеллектуальной деятельности, созданные искусственным интеллектом [Results of intellectual activity created by artificial intelligence] // Российский правовой журнал. 2020. № 2 (3). С. 58.

[3] URL: www.wipo.int/wipo_magazine/en/2017/05/article_0003.html.

articles, which are developed by tens of millions of people) to a certain extent destabilize the concept of copyright, built around the concept of an identifiable author.[4]

In the described situation, it makes sense for scientists and legislators to turn to the formal legal method of research and form the principles and basic criteria that will determine the content of the legal norms devoted to the regulation of AI objects. Also, the historical way of cognition will help to understand the influence of history on the formation of intellectual property law norms that have never been static since the 15th century.

Main Part

1. The protectability of AI objects

Answering the first question – whether the product of AI activity is an object of intellectual property rights, scientists in Russia and around the world were divided into 2 camps: the first deny the protectability of such objects, the second camp allow the protectability, providing that the authorship is transferred to a person. Both the first and second groups of scientists rely on national and international norms of copyright laws.

For example, in Russia there are norms of the Civil Code (Articles 1228, 1257 of the Civil Code of the Russian Federation), according to which only a person can be an author. There are similar provisions exist in the laws of Australia, the United States and in the laws of European countries. According to paragraphs (1) and (2) of Article 3 of the Berne Convention for the Protection of Literary and Artistic Works of 1886, requirements for authors to be nationals of one of the countries of the Union or to have residence of one are established as criteria for granting protection of works.[5]

Scientists suggest that the process of creating assets by AI does not have a creative nature. For example, the Dutch artist of the XVII century Rembrandt tried to express himself, his own view of the world, his feelings and thoughts when he was creating his works. And the AI only imitated the manner of writing the original work, when he portrayed in the project «The Next Rembrandt». At the same time, it is impossible to predict which product the AI will create, having the initial data. Can we accept the element of surprise as «creativity»? There is no normative definition of the concept (notion) «creativity».

According to the opinion of the US Supreme Court, expressed in the case of Feist Publication Inc. V. Rural Telephone Service Co., a work must «...possess at least some minimal degree of creativity»[6] in order to be recognized as an object of copyright.

In the Russian law there is a rule on derivative works that are subject of legal protection. The Supreme Court of the Russian Federation explained that a derivative work is a work that is created on the basis of a reworking of an existing one. Perhaps the portrait made by AI in the style of Rembrandt can be derived?

In addition, in Russia, the Supreme Court of the Russian Federation in 2019 explained that the creative nature of work does not depend on whether the work was created by the author himself or with the use of technical means. At the same time, photo and video material produced by a video camera operating in automatic mode is not object of copyright.

[4] Мохат П.М. Искусственный интеллект как автор произведения: могут ли роботы творить [Artifitial Intelligence as a Product Author: can Robots be Created?] // Власть закона. 2019. №1 (37). С. 84.

[5] URL: https://wipolex.wipo.int/en/text/283693.

[6] Denicola R. Ex Machina: Copyright Protection for Computer-Generated Works // Rutgers Univesity Law Review. Vol. 69 (251) P. 272.

The refusal to protect the result of the «intellectual» activity of machine intelligence entails serious legal and factual consequences. Such objects become public domain and can be used by any person. The economic interests of the people who participated in their creation – investors, developers, programmers, users – remain unprotected. At the same time, not only private interests, but also the international technology market may suffer.

2. The ability to be an author is a privilege of a person

The second question was – who will be the author and copyright owner of the new object? It should be noted that the question of establishing authorship for works created with the help of technical devices has been discussed in the literature since at least the 60s of the last century!

For the answer, it is necessary to separate the assets created as a computer-assisted and the assets of a computer-generated. Among the latter, it is necessary to highlight the assets of a AI-generated with uncontrolled machine learning.

Machine learning means the ability of a neural network to learn by processing large amounts of data instead of pre-prescribed rules and algorithms. That is, machine learning actually allows computers to learn independently. It seems that the right to authorship in the sense of the creative process will depend on whether machine learning was controlled, uncontrolled or deep.

Supervised learning uses labeled data sets that consist of input data and expected results. In supervised learning, the developer specifies what the result should be. In this context, we recall the words of researcher Morkhat P.M. about one of the acceptable options for resolving the issue of authorship of the results of intellectual activity produced with the actual or legally significant participation of an artificial intelligence unit in the form of a hybrid authorship concept (an artificial intelligence unit as a kind of human co-author in creating the result of intellectual activity).[7]

In unsupervised learning, the algorithm finds and analyzes hidden patterns independently. In fact, artificial intelligence is being trained using unstructured data. Deep learning is based on the use of a variety of algorithms for recognizing patterns. As a result, deep learning allows the neural network itself to predict the result from a set of input data.[8]

Everyone knows the example of the latest version of the AlphaGo Zero program, which won all the games from the Go world champion. This program was not trained by programmers. Artificial intelligence has learned the rules of the game, fighting with itself. The CEO of DeepMind actively used this information in his advertising.[9]

No one can predict what the result will be «at the output» with uncontrolled deep learning, including the developer of the program algorithm or the user who set a specific task. The lack of certainty in uncontrolled learning creates an element of unpredictability, novelty, originality – they are the constituent elements of creativity.

Thus, with uncontrolled learning due to the absence of the human factor, the objective novelty of the work appears, but the subjective (a human) component is lost.

[7]Морхат П.М. Право на результаты интеллектуальной деятельности, произведенные юнитом искусственного интеллекта: гражданско-правовые проблемы [The right to the results of intellectual activity produced by the Artificial Intelligence unit: Civil law problems] // Право и государство. 2018. № 1-2 (78-79). С. 206.

[8]Малахова Н.Л., Присяжнюк Ю.П., Сперанская Ю.С. Результаты интеллектуальной деятельности, созданные искусственным интеллектом [Results of intellectual activity created by artificial intelligence] // Российский правовой журнал. 2020. № 2 (3). С. 61.

[9] URL: https://deepmind.com/research/case-studies/alphago-the-story-so-far#alphago_zero.

However, let us recall that even in Roman law, the subject of law was called "persona". The legal capacity («caput») of each «persona» arose from the moment of his birth and depended on three states: freedom («status libertatis»), Roman citizenship («status civitatis»), and family status («status familiae»). And full legal capacity in private-legal relations also included «ius conubi» – the right to create a family and «ius commercii» – the right to be a subject of property relations. Without being distracted by the discussion about the rights of slaves in those days, we note that the ability to have rights from ancient times directly depended on the birth of a person. Let's ask ourselves the question: can we apply the fundamental rules of legal capacity to artificial intelligence? We consider that will never be able to do this.

In the UK, the Copyright, Design and Patents Act of 1988 recognizes the protectability of the result of artificial intelligence by introducing the concept of «computer generated work» as a special object of copyright. However, even recognizing the protectability of artificial objects, the law reserves the rights to them only for an individual, indicating that such a person (the author) «...shall be taken to be the person by whom the arrangements necessary for the creation of the work are undertaken» (paragraph 3 of section 9 «Authorship of the work»).[10]

The legislation of other countries also refuses to recognize AI as the author. This rule does not tolerate exceptions. The author can be only a person. If there is no person, there is no author!

In this sense, we can support those scientists who propose to establish a special legal regime – the regime of objects that do not have an author.

It also makes sense to change the conservative approach to the concept of the author as a subject whose creative work created the work. (This definition applies, for example, in Russia). It is possible to propose to the legislator to include in the definition of the author «the person who became the reason for the creation of an object by artificial intelligence» or «the person who had a decisive impact on the creation of a new object by artificial intelligence».

However, given the indirect nature of the author's role in the activities of AI, it should be noted that in addition to the author there is a subject – the copyright owner (or copyright holder). The exclusive right (property right) is usually exercised not by the authors, but by derivative copyright owners: customers, film companies, publishing companies, owners of aggregators or Internet platforms, etc.

3. Variability in the definition of authors and copyright owners

Let's consider the question of possible copyright owners in more detail. For the commercialization of AI, the most important is the exclusive right.

There are 4 possible options:

1) The copyright owner is an AI developer;
2) The copyright owner is the owner of a material object (robot);
3) The copyright owner is AI operator or user that downloads data;
4) There is no copyright owner. The object goes into the public domain.

The first point of view has many supporters. It is the developer who makes the main contribution to the creation of AI directly and to the subsequent creation of the AI result. However, there are also disadvantages of this point of view. For example, in the case of deep learning, the developer does not even assume about the AI result after interacts

[10]URL: https://www.wipo.int/edocs/lexdocs/laws/en/gb/gb229en.pdf.

with Big Data. Moreover, the interests of the programmer may conflict with the interests of the customer or the end user of the machine.

The copyright owners can be customers or employers of programmers. The contract will be important in this case. If the creation of AI takes place in the mode of labor functions, then the copyright owner (holder) will be a company.

Perhaps, most of all, there are factual grounds for securing the exclusive right to the user of the program. He is the direct cause to full fill the work and certifies the completion of the creation of a new object.

Some authors suggest to use the norms of the law by analogy (for example, Article 136 of the Civil Code of the Russian Federation). In particular, the Russian law provides that the fruits, products, income received as a result of the use of a thing, regardless of who uses the thing, belong to the owner of the thing, unless otherwise provided by law, other legal acts, a contract or does not follow from the essence of the relationship. These norms are optimal, but they cannot be applied due to the principle of dualism of intellectual rights. In other words, the rules of property law cannot apply to intellectual property rights.

The doctrine also suggests to confirm the status of the manufacturer of such a result to a person who has made a significant financial, material, organization or other contribution to the creation of program by AI.

Co-ownership of the copyrights to the result of intellectual activity created by artificial intelligence is theoretically permissible, but it is difficult to implement in practice.

The co-authorship of several persons should have legal grounds in the form of joint creativity and interaction in the implementation of the creative idea. For joint ownership of copyrights, it is required that the contribution of each of the co-authors meets the general criteria of protection capacity.

It seems that the analysis should be carried out taking into account the peculiarities of the functioning of AI when creating a result. First of all, how such objects are created, what is the role of a person in their creation, who exactly makes a creative contribution to the appearance of a new object. Taking into account these circumstances can be the basis for adapting intellectual property legislation to new realities.

At the moment, the question of intellectual property rights on the results created by AI has not found a final solution. Moreover, as P. Morkhat correctly noted in his article, despite the multimodality of the essence of the legal personality of artificial intelligence, there is currently no urgent need to recognize artificial and intelligence units as subjects of copyright and patent rights.[11]

Results

1. When determining the protectability of objects created by AI, it is necessary to analyze the process of creating algorithms for computer programs. Artificial intelligence is inseparable from such a protectable object as a computer program. Therefore, the objects created by the program should be considered at least as dependent objects. The fate of such objects should follow the legal fate of the computer program.

2. The criterion approach to determining authorship allows for some options, but does not tolerate exceptions to the general civil law rules of legal capacity and legal person-

[11]Морхат П.М. Право на результаты интеллектуальной деятельности, произведенные юнитом искусственного интеллекта: гражданско-правовые проблемы [The right to the results of intellectual activity produced by the Artificial Intelligence unit: Civil law problems] // Право и государство. 2018. № 1-2 (78-79). С. 214.

ality. The ability to have the rights of authors is a privilege of a legally capable citizen (human being), therefore only people can act as authors.

3. To identify the author and copyright holder of the AI object, it is necessary to answer the main questions: what was the purpose of creating the program and what was the ultimate purpose of its use? The answers to these questions will help formulate criteria that will allow assessing the contribution of a potential author and copyright owner to a future intellectual property object and determine the scope of their rights.

Discussions and Conclusions

As policy makers start to decipher the wide-ranging impacts of AI, the World Intellectual Property Organization (WIPO) has started to engage on the aspects of AI that are specific to IP. The World Intellectual Property Organization invited all interested parties, including government agencies, private researchers, to send their comments and suggestions to the draft documents concerning the definition of the policy in the field of intellectual property of AI.[12]

Regulation of the processes of creating and applying AI technologies is currently a global problem. The intensive development of engineering thought in the field of creating and managing stable neural networks, entropy technologies, evolutionary and cloud computing leave no chance for systematic legal regulation of already existing objects. In other words, legislators and the global scientific community do not keep up with the development of technologies.

By the way, representatives of the legislative systems of some states have already begun to solve the problems of regulating the development and implementation of modern robots at the national level (South Korea since 2005, the United States since 2011, China since 2014, Japan since 2015, Germany since 2017[13]). But the processes of globalization and the transnational development of technologies force the world urgently to develop common international legal norms and ethical rules that allow regulating technologies in dynamics, predetermining new challenges. It is obvious that there is a need to make significant changes to intellectual property law in order to bring it in line with the new needs of society, which is steadily approaching the era of artificial intelligence.

Е.М. Косьяненко, з.ғ.к., Урал мемлекеттік заң университетінің кәсіпкерлік құқық кафедрасының доценті (Екатеринбург қ., Ресей Федерациясы): Жасанды интеллект құрған объектілер режимін құқықтық талдау.

Осы зерттеудің *пәні* жасанды интеллектің қатысуымен құрылған объектілерді коммерцияландыру процесінде туындайтын қоғамдық қатынастар болып табылады. Автор шығармашылық қызметтің субъективті компонентінің және жасанды интеллект жұмысының объективті бірегейлігінің арақатынасы, роботтарды әдебиеттің, өнердің немесе ғылымның жаңа туындыларының авторлары мен құқық иеленушілері ретінде тану мүмкіндігі мәселелерін қарастырады.

Мақаланың *мақсаты* – адамның оқытылатын және өзін-өзі оқытатын бағдарламалармен өзара әрекеттесуі нәтижесінде алынған жаңа объектілердің

[12]URL:https://www.wipo.int/edocs/mdocs/mdocs/en/wipo_ip_ai_2_ge_20/wipo_ip_ai_2_ge_20_1_rev.pdf.

[13]Шестак А.В., Волеводз А.Г. Современные потребности правового обеспечения искусственного интеллекта: взгляд из России [Modern needs of legal support of artificial intelligence: a view from Russia] // Всероссийский криминологический журнал. 2019. № 13 (2). – С. 197-206.

құқықтық режимін талдау және заманауи зияткерлік құқықтың келесі даулы мәселелеріне жауап беру: жасанды интеллект қызметінің өнімін зияткерлік меншік құқығының объектісі ретінде саралауға бола ма; егер олар (объектілер) роботтардың қандай да бір дербес «шығармашылық» қызметі процесінде құрылса, жаңа объектілердің авторы және құқық иеленушісі кім болып табылады; тәуелсіз өзін-өзі оқытатын жасанды интеллект жасаған жаңа объектілерге қандай зияткерлік құқықтар пайда болады. Жұмыс ресейлік және халықаралық зияткерлік құқықтың қолданыстағы нормаларын салыстырмалы-құқықтық талдау *әдістеріне*, зерттеудің формальды-құқықтық әдісіне және зияткерлік құқықтың заманауи доктринасын сараптамалық бағалауға негізделген. Ғылыми *жаңалық* автордың *негізгі тұжырымдарынан* байқалады, оларды, атап айтқанда, дүниежүзілік қауымдастық белсенді талқылайтын зияткерлік меншік саласындағы ДЗМҰ саясатының жобасын талқылау кезінде қолдануға болады. Автордың пікірінше, тұрақты нейрондық желілерді, энтропия технологияларын, эволюциялық және бұлтты есептеулерді құру және басқару саласындағы қызметті халықаралық және ұлттық деңгейлерде реттеу қажет. Қызметтің осы түрінің трансұлттығына, креативтілігіне және инновациялығына байланысты құқықтық реттеу бірыңғай стандарттар мен жалпы терминологияны айқындай отырып, негіздемелік ұсынымдық сипатқа ие болуы мүмкін. Осы мақсатта заңнамалық деңгейде жасанды интеллект дайындаған нәтижелер зияткерлік меншік объектілері ретінде саралануы мүмкін негізгі критерийлерді белгілеу, сондай-ақ мұндай объектілерге қатысты авторлар мен құқық иеленушілер ретінде кімді және қандай жағдайда тану керектігін анықтау ұсынылады. Критерийлерді әзірлеу кезінде жаңа объектіні құру процесіндегі адамның рөлін бөліп көрсету ұсынылады. Алгоритмнің өзін құру мақсатын және оның тәуелсіз «шығармашылығының» мақсатын ерекше ескеру қажет.

Тірек сөздер: жасанды интеллект; авторлық құқық; зияткерлік меншік; робот; автор; құқық иеленуші; терең оқыту; дербес компьютерлік оқыту; шығармашылық; зияткерлік құқық объектісі.

Е.М. Косьяненко, к.ю.н., доцент кафедры предпринимательского права Уральского государственного юридического университета (г. Екатеринбург, Российская Федерация): Правовой анализ режима объектов, созданных искусственным интеллектом.

Предметом настоящего исследования являются общественные отношения, возникающие в процессе коммерциализации объектов, созданных с участием искусственного интеллекта. Автор рассматривает вопросы соотношения субъективной составляющей творческой деятельности и объективной уникальности работы искусственного интеллекта, возможности признания роботов авторами и правообладателями новых произведений литературы, искусства или науки. *Цель статьи* – проанализировать правовой режим новых объектов, получаемых в результате взаимодействия человека с обучаемыми и самообучаемыми программами и ответить на следующие спорные вопросы современного интеллектуального права: можно ли продукт деятельности искусственного интеллекта квалифицировать как объект права интеллектуальной собственности; кто является автором и правообладателем новых объектов, если они (объекты) создаются в процессе некой самостоятельной «творческой» деятельности роботов; какие интеллектуальные права возникают на новые объекты, созданные независимым самообучаемым искусственным интеллектом. Работа основывалась на *методах* сравнительного правового анали-

за действующих норм российского и международного интеллектуального права, формально-юридическом методе исследования и экспертной оценке современной доктрины интеллектуального права. Научная *новизна* прослеживается в *основных выводах* автора, которые могут быть использованы, в частности, при обсуждении проекта политики ВОИС в области интеллектуальной собственности, активно обсуждаемой мировой общественностью. По мнению автора, необходимо регламентировать деятельность в области создания и управления устойчивыми нейронными сетями, технологиями энтропии, эволюционными и облачными вычислениями на международном и внутринациональном уровнях. В силу транснациональности, креативности и инновационности такого вида деятельности правовое регулирование может иметь рамочный рекомендательный характер, определяя единообразные стандарты и общую терминологию. С этой целью на законодательном уровне рекомендуется определить основные критерии, при которых результаты, создаваемые искусственным интеллектом, могли бы быть квалифицированы в качестве объектов интеллектуальной собственности, а также установить, кого и при каких обстоятельствах следует признавать авторами и правообладателями в отношении таких объектов. При разработке критериев предлагается выделить роль человека в процессе создания нового объекта. Особо следует учитывать цель создания самого алгоритма и цель его самостоятельного «творчества».

Ключевые слова: искусственный интеллект; авторское право; интеллектуальная собственность; робот; автор; правообладатель; глубокое обучение; самостоятельное компьютерное обучение; творчество; объект интеллектуального права.

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