

MODERN COPYRIGHT LAW AND THE PROBLEMS OF ARTIFICIAL INTELLIGENCE DEVELOPMENT¹

Abstract. *This article examines the development of artificial intelligence in terms of its impact on the sphere of human activity, in particular, issues arising in connection with the copyright to works created as a result of close interaction between artificial intelligence and human. It also presents cases of occurrence of these problems and basic approaches to their solution from a legal point of view.*

Keywords: *artificial intelligence, digital economy, individual, copyright law, art.*

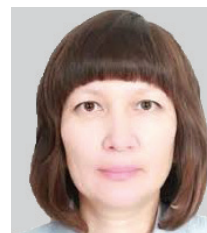
The specialized Dictionary of artificial intelligence defines the concept of artificial intelligence (AI; English artificial intelligence) as "a scientific direction in which the tasks of hardware or software modeling of those types of human activity that are traditionally considered intelligent are set and solved". At the same time, "the property of intelligent systems is the performance of functions (creative), which are traditionally considered the prerogative of man"².

According to Professor V. V. Blazheev, "Modern society is characterized by a global process of digitalization of social and economic relations. This is a kind of revolution — not social, but technological-and, of course, the future largely depends on the processes that will take place in the information society, and on the ability of modern law to adequately regulate this sphere."³

As is usually the case, the latest technologies of artificial intelligence and robotics have appeared relatively suddenly and are developing frighteningly fast. Public relations arising in this sphere are beginning to acquire various forms of legal regulation in various countries of the world and in integration associations with some delay. Therefore, legal science in our country must immediately engage in these processes. After all, ideally, it is the law that should predict and guide the development of humanity in the right civilizational direction.

Even purely economically, there is a process of changing the value orientations of the modern world. If until recently the economy was estimated by the profits of trade in goods, then greater effect given the provision of services, today the first place in economy and politics out of the use of the latest achievements of science and technology, creating intellectual property that defines the future of our planet.

In the conditions of modern comprehensive integration on the basis of science and digital technologies, concentrated in artificial intelligence, information platform formations are being formed that can take control of science, services, and goods, providing the chosen with possible domination over the world.



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² *Аверкин А. Н., Гаазе-Рапопорт М. Г., Поспелов Д. А.* Толковый словарь по искусственному интеллекту. М. : Радио и связь, 1992. С. 256.

³ *Блажеев В. В.* Введение // Цифровое право : учебник /под общ. ред. В. В. Блажеева, М. А. Егоровой. М. : Проспект, 2020. С. 8.

In the conditions of the sixth economic order, under the influence of artificial intelligence and robotics, there is a radical change in the entire established world order. The economy, politics, law, ideology, social relations, values, and even the human personality itself are changing. Therefore, it is the law that should become the mechanism that should regulate the complex relationship between a human and an intelligent robot.

The idea of artificial intelligence and a human-made robot was born in science fiction writers. One of them — Mary Shelley, who published the novel "Frankenstein" in London in 1818, raised the question of control over intelligent self-developing robots created by people. Almost simultaneously with this in the early nineteenth century a brilliant Russian scientist, a representative of an ancient noble family, Semyon Nikolayevich Korsakov invented and constructed a number of intelligent machines designed to process and systematize large amounts of data using punched cards and made an attempt to determine the algorithm, which is an anticipation of the elements on which it functions modern computer.⁴

And only more than a century later, at the beginning of the twentieth century, the Czech science fiction writer Karel Capek in the play R. U. R. first raised the question of the legal settlement of the relationship between man and robot. Most famous, however, were the works of American science fiction writer Isaac Asimov, who developed three completely scientific and humane laws designed to regulate the interaction of humans and intelligent robots.

The legal regulation of artificial intelligence and robotics technologies is most advanced in highly developed countries that widely use such technologies in practice and have their own national features that reflect the history of development of these countries, the specifics of their national mentality and legal culture. Nevertheless, the logic of legal regulation of this sphere of life and its specifics allow us to make some generalizations necessary for optimal use of their useful experience, adapted to the peculiarities of our country and our law.

Indeed, artificial intelligence is multifaceted, comprehensive and ubiquitous — it is widely used in the technical sciences, cybernetics, computer science, mathematics, biology, medicine, philosophy, ethics, linguistics, pedagogy, art history, musicology, psychology, religious studies, etc. But it is for all these sciences that the legal aspect of artificial intelligence, which is surprisingly the least developed, is particularly necessary.

It is interesting that the issues of legal regulation of artificial intelligence affect and penetrate deeply into almost most branches of modern law. This includes criminal, constitutional, civil, administrative, procedural, financial, environmental, international, integration, intellectual property law, etc.

Thus, we can see that this is a new complex branch of law in the process of formation. It develops itself and simultaneously develops all other branches of law, giving them a modern, adequate content that meets the needs of today.

In this article, we would like to consider the interaction of artificial intelligence and copyright.

The development of technology that began in the twentieth century has profoundly influenced the subsequent twenty-first century, or as it can be called — the age of

⁴ *Корсаков С. Н.* Начертание нового способа исследования при помощи машин, сравнивающих идеи / пер. с франц. ; под ред. А. С. Михайлова. М. : МИФИ, 2009. С.4—5.

digital technological progress. This is especially noticeable in the field of robotics and artificial intelligence, which are being introduced into everyday life each day. Currently, these technologies have spread to almost all human activities, including culture and art.

One of the illustrative facts is the resonant art sale in 2018 at the London auction house Christie's — one of the leaders of the world art market, where the painting "Portrait of Edmond Belami" was sold, which is part of the portraits of the fictional Belami family, the Parisian art group Obvious.⁵ The uniqueness of this painting is that it was created using a machine algorithm, the principle of which is to analyze a certain number of artistic works of one style and generate its own interpretation.

Two years earlier, Bas Korsten, the creative Director of JWT Amsterdam, had the idea to create a portrait of a man "The next Rembrandt" in the style of the famous Dutch artist Rembrandt Harmens van Rijn, using a specially created Microsoft program. The purpose of this project was to study the work of the great artist using modern technologies, where artistic value did not play a primary role. However, at the 2016 Cannes Lions international advertising festival, this work received two Grand prizes in the categories Cyber Lions and Creative Data Lions.⁶

Another example is the work of the artist of the Drawing Operations project su-Wen Chang, which was created using a robotic hand in addition to a machine algorithm. This process consisted in the fact that the robotic arm synchronously repeated the movements of the artist's hand. This is the first stage of the ongoing research Drawing Operation Unit Generation-1, which studies the interaction of human and robot in the field of fine art.

According to the artist Su-Weng Chang, the presented composition is the result of co-authorship of human and artificial intelligence.⁷ The basis for this conclusion can be the artistic theory of the American art critic Clement Greenberg, the essence of which is that when evaluating artistic works, he considers important only what is available to direct perception: the substrate of an artistic work, that is, the material from which it consists, and the process by which it was created.⁸ Opponents of K. Greenberg's theory claim that a work of art is an expression of a certain spirituality.

Moreover, the participation of artificial intelligence has also been shown in the literary sphere. In 2016, a Japanese computer program created the novel "the Day the Computer wrote the novel", which was released in the second round of the National literary award of Japan. The only drawback of this work that prevented its passage to the final was the inability of artificial intelligence to convey all the emotional experiences of the characters, i.e. the psychological aspect of the personality. As an example, the Japanese edition of the Japan News quotes the end of the book: "I writhed with joy, which I experienced for the first time, and continued to write with excitement. This is

⁵ На аукционе продали картину, созданную искусственным интеллектом // URL: https://pikabu.ru/story/na_auktsione_proдали_kartinu_sozdannuyu_iskusstvennyim_intellektom_6448986.

⁶ *Толмачева А.* Следующий Рембрандт: Как создавался проект, получивший высшие награды на Каннских львах // URL: <https://vc.ru/marketing/16560-next-rembrandt> (дата обращения: 1 декабря 2019 г.).

⁷ Официальный сайт Sougwen Chung website. URL: <https://sougwen.com/project/drawing-operations> (дата обращения: 1 декабря 2019 г.).

⁸ *Колленберг-Плотников Б.* Клемент Гринберг и Арнольд Гелен о современности искусства // Логос. Т. 25. 2015. № 4. С. 64.



the day the computer wrote a novel! On this day, when the computer set priorities and started writing for its own pleasure, it stopped working for people».⁹

The above examples give reason to believe that the introduction and further development of technologies in the field of art and culture can change not only the attitude of people to the created works, but also radically change the existing canons and ideas about art in general, which can affect the future of art as such.

However, this innovation raises a number of legal issues. On the one hand, can a "reasonable machine" or so-called "artificial intelligence" be recognized as the author with all the ensuing consequences, or is the author a human programmer who wrote an algorithm and indirectly participates in the making of any creation? Accordingly, there are questions of ownership of the work of art, the author's responsibility, material problems of its use, fee, inheritance, and the right to a name etc.

To better understand the status of artificial intelligence, it is necessary to consider significant historical aspects of this issue. In the mid-twentieth century, when creating the first computers, scientists did not attach much importance to the development of machines from the point of view of artificial intelligence, since the primary task was to perform complex mathematical tasks to facilitate human activity. Later it was discovered that these machines have a huge potential that can not only increase the efficiency of human labor, but also become the owner of a system similar to the human mind.

This theory was first put forward by the English mathematician, logician and cryptographer — Alan Turing in his work "Computing machines and the mind" in 1950. One of the key issues of its work is: "Can machines think?" By doing this, he wanted to show that a machine can not just think like a human, but understand and answer questions, recognize facial expressions and gestures of the speaker. To further develop his theory, Alan Turing developed a test (the Turing test) or "imitation game", the essence of which is that a robot in a dialogue with a person must convince the latter to conduct a dialogue with the same as it — a person.¹⁰ But, today's realities give reason to believe that artificial intelligence goes beyond simple computing machines and from a tool for achieving certain results becomes the same creator as a person.

At present, almost all the views and ideas of Alan Turing have been translated into reality, where artificial intelligence has become widespread. In a technically progressive world, millions of programs are appearing and improving every day, but there is still no clear legal regulation and an internationally recognized definition of "artificial intelligence" itself.

An important step in this direction was recently taken by Russia. The National strategy for the development of artificial intelligence for the period up to 2030 approved by decree of the President of the Russian Federation No. 490 of October 10 2019 provides a clear definition of it: "Artificial intelligence is a complex of technological solutions that allows to simulate human cognitive functions (including self-learning and search for solutions without a predetermined algorithm) and get results when performing specific tasks that are comparable, at least, with the results of human intellectual activity. The complex of technological solutions includes information and communication infrastruc-

⁹ Искусственный интеллект из Японии написал роман, который выдвинули на литературную премию // URL: <https://mel.fm/novosti/3126795-ai> (дата обращения: 3 декабря 2019 г.).

¹⁰ Тьюринг А. Могут ли машины мыслить? М. : Физматлит, 1960. С. 67.

ture, software (including those that use machine learning methods), processes and services for data processing and search for solutions».¹¹

One of the first scientists to introduce the term was John McCarthy at a conference at Dartmouth University in 1956. In his speech, he stressed that artificial intelligence is not directly related to human intelligence. He also pointed out that "the problem is that we can't yet generally determine which computational procedures we want to call intelligent. We understand some of the mechanisms of intelligence and don't understand the rest. Therefore, intelligence... is understood only as the computational component of the ability to achieve goals in the world».¹²

According to the opinion that was proposed in the monograph by P. M. Morhat, artificial intelligence is a fully or partially autonomous self — organizing computer-hardware-software virtual or cyber-physical, including bio-cybernetic system (unit), not alive in the biological sense of this concept, with appropriate mathematical software, endowed/possessing software-synthesized (emulated) abilities and possibilities.¹³

From the point of view of scientists, professor, doctor of law I. V. Ponkin and associate professor A. I. Redkina: "... artificial intelligence is an artificial complex cybernetic computer-software-hardware system (electronic, including virtual, electronic — mechanical, bio-electronic-mechanical or hybrid) with a cognitive-functional architecture and its own or relevant available (attached) computing capacity of the necessary capacities and speed...".¹⁴ Based on the presented positions, we conclude that artificial intelligence — this is a special computer algorithm that, based on previously set or accumulated knowledge, is able to transform it into something new that had no analogues and simultaneously improve its activities, i.e., function similarly to the human mind. In this regard, the most pressing issue is related to intellectual property rights, especially copyright of individuals and artificial intelligence.

Creating works of art that use artificial intelligence can have a huge impact on the development and improvement of copyright. Before that, the question of the authorship of the "intelligent machine" was not relevant, because the program until recently was just a tool in the creative process. But due to the continuous development of artificial intelligence, computer programs are no longer a tool, but a subject that can make decisions in the creative process without human intervention.

There are several options for how to reflect all the ongoing innovations from a legal point of view. One position is not to recognize "intelligent machines" as an independent unit that can be granted copyright as a result of the creation of any work of art.

¹¹ Указ Президента РФ от 10 октября 2019 г. № 490 «О развитии искусственного интеллекта в Российской Федерации» (Вместе с Национальной стратегией развития искусственного интеллекта на период до 2030 года) // Представительная власть. 2019. № 5—6 (172—173). С. 9.

¹² Machinopedia. Искусственный интеллект // URL: http://machinopedia.org/index.php/%D0%98%D1%81%D0%BA%D1%83%D1%81%D1%81%D1%82%D0%B2%D0%B5%D0%BD%D0%BD%D1%8B%D0%B9_%D0%B8%D0%BD%D1%82%D0%B5%D0%BB%D0%BB%D0%B5%D0%BA%D1%82.

¹³ Морхат П. М. Искусственный интеллект // Правовой взгляд. М., 2017. С. 69.

¹⁴ Понкин И. В., Редькина А. И. Искусственный интеллект с точки зрения права // Вестник РУДН. Серия : Юридические науки. 2018. Т. 22. № 1. С. 4.



For example, the United States Copyright office recognizes that an original work can only be registered if it was created by a human being. This is also supported by precedents, such as *First Publication v Rural Telephone Service Company, Inc.* 499 US 340 (1991), which specified that copyright protection can only be "the fruits of mental work" that "were created through the creative work of the mind".¹⁵

According to French copyright law, the original subject of copyright is the author himself, i.e. an individual. Although the Intellectual property Code of 1992 does not clearly define the concept of "author of a work of art", it sets out general criteria that apply to all authors. According to them, this is an individual who must conceive and shape his idea, independently or with the help of a third party, and subsequently make his creation available to the public as a author.¹⁶

In Australia, in 2012, the court heard the case *Acohs Pty Ltd v Ucorp Pty Ltd*, in which the original data was automatically converted into a data table, i.e. with the participation of a "reasonable machine". As a result, the court ruled that works created using technology are not protected by copyright due to the fact that there was no human participation.¹⁷

Another point of view, which is not widespread, but is already practiced by some countries, is based on the attribution of authorship of such works to programmers, i.e. those people who created a certain algorithm and got a certain result. In countries such as India, Ireland, New Zealand, and the United Kingdom, programmers are recognized as authors. This position is clearly expressed in English law, for example, in section 9 (3) of the Copyright, industrial designs and patents Act 1988. (Copyright, Designs and Patents Act), which states that "in the case of creating a literary, dramatic, musical or artistic work using a computer, the author is the person who takes the measures necessary to create the work".¹⁸ Accordingly, it can be concluded that only a person can be an author and be recognized as such by law.

In international legal acts, in particular, the Berne Convention for the protection of literary and artistic works of 1886; the World copyright Convention of 1952, it is specified that the author is recognized exclusively as an individual. This follows from the definition of whether the author is a citizen of a country. According to article 3 of the Berne Convention of 1979, "the protection provided for in this Convention shall apply: (a) to authors who are nationals of one of the countries of the Union in respect of their works, whether published or not...".¹⁹ According to article 3, paragraph 4 of the world copyright Convention of 1971, "each contracting state shall establish legal means for the protection, without formalities, of unpublished works of citizens of other Contracting States".²⁰

¹⁵ WIPO magazine, WIPO publication. No. 121 (3). October, 2017. № 5. Artificial Intelligence. P. 14.

¹⁶ Лебедь В. В. Право и политика 1(181), юридический практикум, 2015 г. С. 127.

¹⁷ WIPO magazine, WIPO publication. No. 121 (3). P. 14.

¹⁸ Copyright, Designs and Patents Act. 1988 // URL: <https://www.wipo.int/edocs/lexdocs/laws/en/gb/gb229en.pdf> (дата обращения: 1 декабря 2019 г.).

¹⁹ Бернская конвенция по охране литературных и художественных произведений (с изменениями на 28 сентября 1979 г.) // URL: <http://docs.cntd.ru/document/1900493> (дата обращения: 1 декабря 2019 г.).

²⁰ Всемирная конвенция об авторском праве (пересмотренная в Париже 24 июля 1971 г.) // URL: <http://docs.cntd.ru/document/1900490> (дата обращения: 1 декабря 2019 г.).

Back in the second half of the XX century, Timothy Butler wrote that if the courts recognize authorship only for intellectual property, then you can completely refuse to grant artificial intelligence copyrights; assign copyright to an artificial intelligence system or distribute these rights between the system and the person; distribute copyright between the copyright holder of the basic software and the owner of the computer; create a fictional human author and transfer its copyright to the copyright holder of the underlying software or computer owner.²¹

Another point of view is presented by Deepak Somaya and Love R. Varshney who offer several possible options for developing legal regulation in the field of protection of intellectual property rights in the use and functioning of artificial intelligence: equating the artificial intelligence system to a tool that will not affect the implementation and protection of intellectual property rights; giving the artificial intelligence system the legal status of a social agent that does not have its own rights; thus, all works created with the participation of such a system pass into the public domain; the artificial intelligence system acts as a social agent, endowed with certain aspects of intellectual rights.²²

Based on the above, we can conclude that this issue needs careful consideration and study, since it affects not only the philosophical and moral and ethical aspects, but also the legal ones. It is necessary to further search and develop the most correct solution to this problem, since in the foreseeable future, a situation that does not have a clear regulation may damage the business in the field of art and also lead to the devaluation of some forms of human creativity. In addition, it is possible that soon artificial intelligence will reach a degree of independence, in which it will be able to create copyright objects without human intervention.

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²¹ Butler T. L. Can a computer be an author — Copyright aspects of artificial intelligence // Hastings communications and entertainment law journal. San Francisco, 1982. P. 707—747 // URL: https://repository.uchastings.edu/cgi/viewcontent.cgi?article=1097&context=hastings_comm_ent_law_journal.

²² Морхат П. М. Особенности развития права интеллектуальной собственности в контексте использования интеллектуальной собственности // Право будущего: интеллектуальная собственность, инновации, Интернет. М. : ИНИОН РАН, 2018. С. 68.



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