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# ARTIFICIAL INTELLIGENCE AND COPYRIGHT

## Abstract

In this new era of the fourth industrial revolution that we are living in here, we are increasingly aware of the immense possibilities and potential of technological development that lie ahead and of the increasingly important role that artificial intelligence is assuming in the scientific field but also and especially in the daily life of all of us.

Today, artificial intelligence affects almost all aspects of life: science, culture, art and law. Surely it has improved, from different points of view, each of these areas, but, at the same time, since this evolution is fast and unstoppable, it has highlighted the gaps that the legal system presents in these sectors. Jurisprudence is making a huge effort to keep pace with technological evolution but despite this, questions that need answers, possibly as soon as possible, often arise.

Thus, in the field of artificial intelligence, an interesting combination under the legal aspect is that between works of art or intellectual property and legislation, with particular regard to copyright. In fact, creativity, both scientific and artistic, has always been considered as exclusively belonging to the human being, to man, as it was believed that only he was capable of original and autonomous intellectual creation. Almost in all of the existing legal systems, this is precisely the principle underlying the legislation concerning copyright: all creative intellectual works that belong to science, literature, music, figurative arts, architecture, theater and cinema, regardless of the way or form of expression, are protected and safeguarded. The prerequisite for recognizing copyright, also admitted by jurisprudence, is the causal link between creativity and personality, considering that the work reflects the personality of its author.

The issue presents difficulties, however, when it is a machine or a robot to carry out a certain work of genius in one of the aforementioned fields.

How can the legislator, whether Italian, Albanian, European or international, regulate this new legal reality linked to a work created by artificial intelligence? To whom do the authorship and the rights of economic use of the work belong in this case? Can we talk in this case of a moral right? What is the most suitable type of protection that can be given to such works and through what methods, given that all the legal rules on the subject presuppose human creative activity?

Basically, in the case of the creation of a particular work by an artificial intelligence, can robots have intellectual property rights? Can they have liability towards third parties?

In this article we will try to shed some light and give some answers to these questions imposed by the reality we are living in, based on the current legal framework in the field of copyright, the considerations of the doctrine and also the analysis of certain concrete cases such as that of the "Portrait of Edmond Bellamy", a portrait made entirely by an AI and sold for $ 432,500, and that of the selfie made by a macaque monkey with the camera of photographer David Slater.

**Keywords:** *Legal systems, artificial intelligence, copyright, intellectual property; economic rights; responsibility; protection.*

## Artificial intelligence and copyright

In this new era of the fourth industrial revolution that we are living in, we are increasingly aware of the immense possibilities and potential of technological development, as well as of the increasingly important role that artificial intelligence is taking on the scientific field but also and above all in the everyday life of all us. Today, artificial intelligence affects almost all aspects of life: science, culture, art and law. Surely it has improved, from different points of view, each of these areas, but, at the same time, since this evolution is fast and unstoppable, it has highlighted the gaps that the legal system presents in these sectors. Jurisprudence is making an enormous effort to keep pace with technological evolution but despite this, both the legal systems of the single states and that of the European Union, but also the international one, struggle to adequately regulate certain jurisprudential sectors, as well as finding adequate, effective and rapid solutions to problems arising from the use of these new technologies.

In fact, a difficulty of this nature also arises in the case of the encounter between Artificial Intelligence and the rights of the personality, raising many questions, especially on copyright, with specific regard to works of art or

intellectual property. A situation that seems to arouse particular interest is that in which we try to answer the questions that arise in the case in which a particular work is created by or with the contribution of AI systems.

But what is meant by AI? AI is defined as a discipline that studies how the most complex mental processes can be reproduced through the use of a computer[1], therefore essentially the ability of a machine equipped with software and hardware systems to „imitate" the processes of the human mind and carry out certain typical human activities, such as creating music or painting.

In fact, creativity, both scientific and artistic, has always been considered as exclusively belonging to the human being, to man as such, because it was believed that only he was capable of original and autonomous intellectual creations. In almost all legal systems today, this is precisely the principle that lies at the basis of the legislation concerning copyright. All intellectual works of a creative nature that belong to science, literature, music, figurative arts, architecture, theater and cinema, regardless of the mode or form of expression, are protected and safeguarded[2]. Italian legislation, but also Albanian and generally European legislation, provide that the original title of the purchase of copyright is constituted by the creation of the work as a particular expression of the intellectual work of man. In this perspective, the prerequisite for recognizing copyright, also admitted by jurisprudence, is the causal link between creativity and personality, considering that the work reflects the personality of its author. In fact, even the same article 20 of the law on copyright provides that regardless of the exclusive economic rights, even after the transfer of such rights, the author of the work retains the right to claim authorship of the work and the concept of paternity can only be connected to the human being[3]. The protection of copyright, also places at its basis the requirement of originality and creativity, as it considers that the work, from a subjective point of view, reflects the personality of its author, being he free and autonomous in his creative choices. It is precisely the creativity that is at the basis of the recognition of moral rights, or rights of the personality. In fact, when the law provides for the author's right to claim authorship of the work, it allows him to be able to oppose any deformation, mutilation or

[1] Treccani Encyclopedia
[2] Law 22 April 1941, n. 633 "Copyright law".
[3] Law 22 April 1941, n. 633 "Copyright law".

other modification, and any act to the detriment of the work itself, which is deemed to be of prejudice to the honor or reputation of the author himself[4]. From this kind of protection, it follows that the public domain area of these works is increasingly limited. All this make it clear that copyright, which is linked to human personality, is unquestionably part of the rights of the personality and, as such, this too was developed with only the human being in mind as such. This way of conceiving copyright is understandable as it was developed in a technological age in which the influence of artificial intelligence was not yet perceived and today it is difficult to adapt these concepts to the new technological reality.

The issue presents particular difficulties when it is a machine or a robot to carry out a certain work of genius in one of the aforementioned fields. In fact, one wonders if artificial intelligence can be creative or not and if so, how should one behave in this case with regard to copyright? Can we talk today about works totally created by AI that can be considered original?

Analyzing artificial intelligence, the general one, a large part of the doctrine argues that it is still far away or even will never reach or exceed the human one, even if it must be admitted that artificial intelligence systems, the result of continuous development work over time, are increasingly present, more sophisticated and recognized, replacing the work of the individual human in various creative activities that until now were carried out only by the human being such as translations, writing poems, composing music, painting pictures and quant ,other.

How should one behave then in the case of a work of art resulting from the work of a robot? In the case of the human artistic work, it is obvious that the moral right is recognized to the artist but in this other eventuality the answer is not simple as there is still no exhaustive legislation that can determine specifically and in detail who is entitled to moral rights and economic rights, as also important economic interests are also linked behind this debate on AI creativity.

The problem of artificial intelligence is now considered an important and central issue for jurists, who seek to identify problems and solve them by

[4] Law 22 April 1941, n. 633 "Copyright law".

overcoming the logical-legal implications of these new technologies and new robotics systems.

Current legal systems do not recognize the ownership of rights to robots as they consider themselves to have no legal personality, thus creating a regulatory gap, a regulatory vacuum that requires to be filled as soon as possible and in the best possible way to be able to cope to this new technological revolution, this new era of technology 4.0 which in itself has considerably complicated the relationship between law and technology. In fact, it is necessary to understand to what extent the rules are flexible and how far they can go with the interpretation, or if there is a need for new legislation on the subject. And in the case of damage caused by machines, what should be done? Are the current regulations capable of responding to these needs? A part of the doctrine argues that the creation of new norms is now indispensable, but most of the doctrine strongly argues that the current norms can continue to address legal problems related to AI and to be applied in practice, as long as they are reinterpreted and adapted to these new needs.

The great technological development of recent years, the certain autonomous and cognitive characteristics of these, has meant that they can now be considered as almost independent agents that interact with the external environment and third parties, capable of modifying this environment and even taking autonomous decisions[5]. From this point of view, driven by the need to regulate the sector, the doctrine also takes into consideration the hypothesis of creating a new category, that of the electronic personality, a category that has its own characteristics, establishing whether this should be based on the model of natural persons, with certain rights and duties, or on that of subjects without legal responsibility, i.e., holders only of certain duties. These hypotheses are not embraced by much of the doctrine since, in the first case it would mean the possibility for them to be represented and directed, which cannot happen for robots, and in the second case, robots would be excessively humanized[6]. From an ethical point of view, this would lead to serious problems as doubts would arise about what will be considered

[5] Intelligenza Artificiale e responsabilità civile – Burgio. E; De Simone. L; www.medialaws.eu ; 15 aprile 2021.

[6] Intelligenza Artificiale e responsabilità civile – Burgio. E; De Simone. L; www.medialaws.eu ; 15 aprile 2021.

as a unique and exclusive characteristic of the human being and whether the ability to think and feel emotions is sufficient to distinguish him from machines. According to recent analyzes, on this same line there are also those who consider AI as a mere reproductive process of human abilities as they argue that machines do not perform a sufficiently original and independent action to be considered an autonomous center of legal imputation. The debate continues today because intelligent machines cannot in any way be grouped into the same group, even if they are capable of decision-making and behavioral autonomy, as they have different characteristics such as their nature, the environment in which they operate and the type of human control needed. With this in mind, the concept of electronic personality is considered by the doctrine to be still premature[7].

As for works of art, the cases of artistic creations made through the use of artificial intelligence have increased considerably: an author painting as if it had been made by him, poems created following the neutral networks of an individual, portraits created using algorithms, robotic compositions and many other examples of works created by machinery that raise many doubts about the authorship of the work, copyright and related economic rights. To whom will these rights belong, to the artist, to the computer scientist, or to the machine itself?

The first case that made people talk and that raised many questions, ending up both in the courtrooms and in the media spotlight, was that of the professional photographer David Slater. Finding himself in Indonesia for a studio photo shoot of a group of local monkeys, he left his camera unattended. The camera was found by a macaque monkey who, unaware of what it was and what it was used for, took it and unwittingly took several photos and even selfies, and two of these were perfect selfie. The photo was published by the photographer and soon went around the world. But soon an important question was raised: who was the owner of the right of economic use of the photo, and therefore also copyright, the photographer who owned the camera who left it in a certain place and position permitting the monkey to use it or no one since the animal could not be considered as a legal subject and therefore not even

[7] Intelligenza Artificiale e responsabilità civile – Burgio. E; De Simone. L; www.medialaws.eu ; 15 aprile 2021.

the bearer of copyright? The issue became so important in the United States that it ended up in courtroom and the decision of the first grade denied the recognition of the ownership of copyright to the photographer, arguing that „only a creation that is the result of intellectual work is worthy of protection". This argument, which did not accept the possibility of attributing the quality of the author of an intellectual work to somebody other than a human being, will certainly subsequently also affect the works created by machines, which are also considered to have no legal personality. After this first sentence of the first instance, the question no longer continued the judicial process in the courtrooms as it was resolved through an agreement: in fact, the photographer agreed to recognize an animal welfare association a certain percentage of the economic revenue from the distribution of photo[8]

The question, even if one of the first to raise these issues and extremely interesting, differs from the case of the creation of an artistic or ingenious work by a machine because, in the first case, the taking of the photos by the monkey was involuntary, which does not occur in the second case when a subject other than human creates a work of ingenuity through artificial intelligence, which, as we have mentioned previously, is considered almost a simulation of human intelligence by of certain machines or computers.

This, is in fact, is the case of the painting entitled „Portrait of Edmond Bellamy". We can affirm that the painting in question, currently is the most famous work of art created entirely by artificial intelligence. It all started as an experiment, an experiment by the Paris-based collective "Obvious". The purpose of the experiment was to create a picture, a portrait, in a pictorial style that included different styles from the fourteenth century to the twentieth century. The portrait was created using the GAN (Generative Adversarial Network) computer system and the collective that created it relied on certain algorithms developed by the British researcher Goodfellow for this creation. The GAN system is based on two devices that interoperate with each other where the first is constituted by an image generator to which certain inputs are provided, and in the concrete case it was about 15,000 portraits made between the 14th and 20th century. This first device, in fact, identifies and

[8] Profili giuridici delle opere dell'ingegno create da intelligenze artificiali – Attolico. L; www.centrostudi-italiacanada.it

adapts the main characteristics of the pictures supplied and, in this way, creates a growing number of new images in sequence. At this moment the second device takes over (i.e., the so-called discriminator system), which is part of the machinery, which does not accept these images, being no longer able to distinguish them from those made by actual human authors and which are part of the database of the machine. At the end of this first process ever made using a similar technology, the portrait „Portrait of Edmond Bellamy" was considered an original and indistinguishable work from a portrait made by a human author (style and subject). This work created by the collective „Obvious", which in reality does not identify itself as either the author or the artist of the work, was considered to all intents and purposes an intellectual work protected by copyright laws and of equal value to the other works of art made by human artists. The painting thus created was initially sold to an English collector for the sum of 10,000 euros but was subsequently auctioned off at Christie's for the astounding amount of 432,500 dollars[9].

Although in this case, the work, which obviously gives us a concrete example of the great influence of artificial intelligence also in the artistic field, has been deemed to be of equal value to other artistic works created by human artists, there remains a doubt about the originality of the work as in this kind of work, made entirely by artificial intelligence, there is no manual skill of the artist or author which means that this cannot be considered unique as it can be reproduced in the exact same way by the same machine. A large part of the doctrine continues to be opposed to recognizing the copyright to creations produced by artificial intelligence because, on the one hand, the physical personality of the author remains an indispensable regulatory requirement for the recognition of copyright in the majority of states and on the other hand, the production of an immense number of artistic works produced by machines, with sophisticated and expensive technologies, could prevent third parties from creating new works and barriers to the entry of protected works[10].

[9] Artificial Intelligence and Copyright Protection – Lavagnini, S; www.lexology.com ; 2018.
[10] La società della mercificazione e della sorveglianza: dalla persona ai dati. Casi e problemi di diritto civile. Parte terza, Capitolo 22; Intelligenza artificiale e diritto d'autore; Caso, R. Ledizioni Web Books www.ledibooks.com.

It is obvious that the creator of an intellectual work is the one and only owner of the related rights of economic use. He is the only one who is entitled to benefit from the economic revenues deriving from the use of this work, as he is therefore the owner of what is defined as copyright. But then to whom should we recognize the property rights in these situations?

The current legal doctrine is not yet consolidated on the subject and there are different lines of thought.

The majority of that doctrine agrees that it is objectively impossible to consider artificial intelligence as the owner of the patrimonial right of the work. But if so, then who should we identify as the exclusive bearer of this right and the beneficiary of the profits deriving from its exploitation?

A first line of thought tends to identify the copyright on a work created by an AI in the person who invented the machine. This possibility does not seem to be fully satisfactory because the subject, who has limited himself only to the creation of the machine, without performing any other function for the machine to create a specific work or start an economic use of the same, cannot claim any property rights on of it. Therefore, it is not enough to be the creator of a specific software to claim patrimonial rights on the works created by it. The creator of the software, in fact, has already made use of this right at the moment in which he obtained the economic revenues from the use of that particular software and therefore, logically, he cannot also expect any other profit from the work created through the use of the same machine[11] (think of the creator of a particular musical program who claims economic revenues also from the music created by the use of this program).

A second line of thought tends to recognize the owner of the copyright on a work created by an AI in the subject who has somehow imposed the functions of the machine itself, so that this could create the said work. The problem in this option is to identify beyond all reasonable doubt and on a case-by-case basis what have been and if there have been such settings, entered by a particular person, as to make it possible to create a specific work, a difficulty that persists even under the technical aspect. There is therefore no certainty that a work is the direct result of human intervention in setting data functions. However,

[11] Profili giuridici delle opere dell'ingegno create da intelligenze artificiali – Attolico. L; www.centrostudi-italiacanada.it

if this causal link can be fully proved, then yes, the person in question could be considered the bearer of these rights.

The third line of thought identifies the owner of the copyright on a work created by the AI in the person who initiated the economic exploitation, being the owner of the machine but regardless of who entered the functions. This doctrine argues that these rights belong to the person who exercises them, provided that they have been acquired legitimately and that the user is also the owner of the AI. This means that the owner of an AI machine that has created a specific work must also consider himself the owner of the patrimonial rights on it, and so he must have the full right of economic exploitation of the same. Unlike the second hypothesis, in this case we do not take into consideration who uploaded the contents to the machine[12] (this could also be any employee of the owner of the AI).

In the international arena, several states have embraced different solutions in merit to these still so delicate issues.

In fact, as pointed out by authoritative doctrine[13], in the United States, the US Copyright Office, has established that it will register an intellectual work only if it was created by a human being, also providing a list of unprotected works in the which includes all those works created by machines and which are the result of a mechanical or casual realization, devoid of any human creative intervention. On the other hand, in Japan, in 2016 it was established that the copyright law does not protect works created by AI, but recently they are working to find a solution to this situation, also because Japan recognizes the right to patented the work of AI. In the United Kingdom the situation is, at least partially, more stable. In fact, here the copyright on a work created by an AI is recognized, and consequently also the patrimonial rights, to the subject who in any way organized the functions of the machine so that it could create the specific work.

In Europe, in February 2017, the EP forwarded to the Commission some recommendations regarding the civil law rules on robotics with the aim of making the Commission aware of the need to verify the adequacy of the

[12] Profili giuridici delle opere dell'ingegno create da intelligenze artificiali – Attolico. L; www.centrostudi-italiacanada.it

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current rules with technological evolution and the need to adapt the legal systems as soon as possible to this new industrial revolution. The EP mainly takes into consideration the impact that machines could have on work activities, of the responsibilities deriving from the activity of such machines, and finally, also mentions the issue of copyright. On the question of whether or not a robot can be considered the author of an intellectual work, it seems that it is oriented towards the creation of a new kind of legal entity that owns intellectual property, that is the electronic subject, which we have mentioned earlier. Regarding the responsibility, the issue has been considered only in a generic way on robotics, avoiding to comment on the problem of real estate as it is still considered a very delicate issue[14].

In April 2019, the European Commission provided guidelines for an ethical, reliable and sustainable AI, but still avoiding taking a clear position with regard to copyright because it is clear that difficulties remain regarding the now consolidated notion of author, of originality and consequently of copyright.

In conclusion, it seems that now the possibility of AI creations is a real, tangible and increasingly accepted possibility, which could soon be part of the normality of everyday life. The problems arising from this new technology and relating to the ownership of rights (copyright and relatively also patrimonial ones) require immediate solutions, as legal systems are obliged to keep pace with technology. The real challenge for state systems, therefore, both European and international ones, will be to be able to ensure adequate legal protection for these works created by an AI since, in this case, man loses his traditional central role in original creation of an artistic work and, at the same time, do not exceed to humanize beyond measure the machines that create works of genius.

[14] Profili giuridici delle opere dell'ingegno create da intelligenze artificiali – Attolico. L; www.centrostudi-italiacanada.it