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The Copyright and Authorship for Non-Biological Intelligence Self-Creation in Algerian Legislation

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Abstract

Objectives: Logarithms have enabled artificial intelligence to enter fields once exclusive to humans, allowing it to compete in creativity. AI now produces original works that raise questions among intellectual property scholars regarding whether to grant authorship to AI or exclude it, given the implications for law and practice. This article examines the foundations for considering AI as an author in one section, and in another, discusses the reasons for exclusion. A third section proposes a specific system for AI-generated works.

Methods: The article employs a comprehensive, descriptive, and comparative approach to address the issue, analyzing AI creations in light of authorship criteria and exploring significant legal and judicial trends adapting AI's originality within the authorship framework.

Results: The article concludes that national and international laws restrict authorship to human individuals, granting them rights as extensions of their personality while denying this status to AI. Legal scholars remain divided: some view AI creations as authorship, while others argue that such status should be exclusive to humans.

Conclusions: The article suggests classifying AI works as databases, as they derive from original, protected works. It also proposes applying the right of attribution to AI-generated works, sharing benefits among the programmer, AI owner, or those who contributed creatively, and the public domain, based on principles of justice and logic.

Keywords: Non-biological intelligence; artificial intelligence; authorship; machine innovation; self-creations.

اكتساب الإبداع الذاتي للذكاء الاصطناعي لصفة المؤلف في التشريع الجزائري

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ملخّص

الأهداف: مكنت اللوغاريتمات الذكاء الاصطناعي من ولوج مجالات كانت حكرا على البشر، فنافست البشرية في ما تستفرد به، أو هو الإبداع، وأضحت تنتج إبداعات تتجاوز في وصفها مصنفات ناتجة من مساعدة الآلة، مما أثار التساؤل المشروع لدى فقهاء قانون الملكية الفكرية، حول منح صفة المؤلف للذكاء الاصطناعي، أو استبعادها، نظرا لما سيفرزه ذلك من اشكالات في الواقع والقانون، وعليه يتطرق المقال للأسس التي يمكن وفقها اعتبار الذكاء الاصطناعي مؤلفا في قسم من الدراسة، أو استبعاد ذلك في القسم الثاني، وفي القسم الثالث اقتراح نظام خاص بمصنفات الذكاء الاصطناعي.

المنهجية: اعتمد المقال في الاجابة عن الإشكالية، واستنادا على تكامل منهجي، وصفي ومقارن، على مقاربة إبداعات الذكاء الاصطناعي، بالقواعد المانحة لصفة المؤلف، وأحاطت الدراسة بأبرز الاتجاهات الفقهية والقضائية التي سعت إلى تكييف الإبداع الذاتي للذكاء الاصطناعي، والبحث في منحه الصفة القانونية، وفق قانون حق المؤلف.

النتائج: خلص المقال إلى أن التشريعات الوطنية والدولية، تحصر صفة المؤلف بالفرد البشري، وعلى ذلك الأساس تمنحه حقوق باعتبارها امتدادا لشخصيته، وتنكر ذلك على الذكاء الاصطناعي، في حين أن الفقه القانوني لم يتفق حول توصيف مصنفات الذكاء الاصطناعي، فجانب يعتبره مؤلف، ويروا أنه الحل الأمثل، في حين يتشدد جانب آخر في رفض منحه هذه الصفة، ووجوب اقتصارها على الفرد البشري.

الخلاصة: اقترح المقال اعتبار مصنفات الذكاء الاصطناعي قواعد بيانات من منطلق تشكلها من مصنفات سابقة أصيلة تحوز الحماية، فذاك يقارب مصنفات الذكاء اللابيولوجي، ويقترح المقال إعمال ضوابط حق التتبع على مصنفات الذكاء اللابيولوجي، مناصفة بين مبرمج الذكاء الاصطناعي، مالك الذكاء الاصطناعي أو من مده بأمر الإبداع، وبين الملك العام، باعتباره يقوم على اعتبارات العدالة والمنطق.

الكلمات الدالة: ذكاء اصطناعي لا بيولوجي، صفة المؤلف، ابتكار الآلة، الإبداعات الذاتية.

Introduction

The close association of creativity with humans, rather than other beings, has laid the foundation for regulatory frameworks designed to protect it, surround it with care, and elevate its status. This emphasis arises from creativity's profound impact on the advancement and prosperity of nations, which has led to an extraordinary number of innovations. These developments, however, have increasingly called into question the established legal, judicial, and jurisprudential constants, necessitating their reconsideration.

Perhaps the most critical player in this evolving dynamic is artificial intelligence (AI), or the concept of self-creativity within non-biological intelligence. Algorithms have endowed AI with capabilities that were once considered uniquely human, often surpassing human abilities. Distinguishing between human and artificial outputs has, in some cases, become an exceedingly complex task. In this context, the philosopher Paul Valéry aptly observed: "Every human being is in the process of becoming a machine; rather, it is more correct that the machine is in the process of developing into a human being" (Chehibi Kammoura, 2018, p. 1).

The concept of artificial intelligence dates back to the 1950s, with the term being first introduced at the Dartmouth University Conference in 1956 (Fawzi Ahmed Aawadh, 2021, p. 2). While numerous definitions of AI have emerged over time, we will focus on the definition provided by Professors Stephen Haags and Peter Keen. They describe AI as "a technique that has the ability to reach conclusions that help find solutions to objective problems. Artificial intelligence also has the ability to understand natural languages, perceive live environments, and perform other tasks that require intelligence when executed by humans" (Al-Dabousi Assayed, 2021, p. 2).

In the modern era, law—as international law professor C.A. Colliard notes—has increasingly become the product of engineers and their inventions, rather than philosophers and their theories. This shift underscores the need to reevaluate established copyright rules, adapting or modifying them to address the creations of artificial intelligence. Works produced by AI may possess originality, which invites consideration of their protection under copyright law.

This research paper aims to explore these issues by examining the principal jurisprudential trends that have sought to determine the legal adaptation of non-biological intelligence works, the challenges surrounding their attribution, and approaches compatible with copyright regulations. It will also propose potential solutions within the framework of copyright law by addressing the central question: To what extent can works created by non-biological intelligence be attributed to artificial intelligence itself?

This inquiry will be structured as follows:

1. **The first section** will examine protection rules under copyright law.
2. **The second section** will explore whether artificial intelligence can be considered an author under copyright law or if authorial status should be denied to non-biological intelligence.
3. **The third section** will analyze recent trends in adapting artificial intelligence and propose possible approaches to classifying and protecting works created by AI..

1. Rules for granting protection according to the Copyright Law:

Comparative legislation, both national and international, unanimously emphasizes the necessity of specific conditions for granting protection to creative works. These conditions are generally classified into two categories: objective and formal. To address the central issues surrounding the association of authorial status with artificial intelligence, this analysis will focus on the key elements underpinning the adaptation of works generated by non-biological intelligence: the requirement of originality, the rights protected under copyright law, and the limitation of authorial status to natural persons. This will be examined through the lens of Algerian and comparative legislation, with a particular focus on French law.

1.1 Originality:

Originality is the foundational pillar and basis for granting protection under copyright law. It requires that the work demonstrates some degree of innovation, making it evident that the author has imbued the work with their personality (Ahmed Al-Sanhouri, 2005, p. 292). Innovation is the basis on which protection is granted in the majority of comparative

laws. For example, the Omani legislator, in Article 1 of Act No. 2000/73, Official Journal No. 672 of 3/6/2000, which contains the Intellectual Property Law, and the Emirati legislator, in Article 1 of Act No. 2021/38, Official Journal No. 712 (Supplement) of 26/9/2021, both emphasize originality as a condition for protection.

Originality means that the work is created by the author independently and is not entirely or substantially copied from another work. Two individuals may arrive at the same conclusion and still enjoy copyright protection for their respective works, provided that neither work is derived from a previously protected source.

Based on the above, an original work is defined as the product of the independent thought and effort of an individual, a perspective upheld by most comparative legislation (Kanaan, 2009, p. 198). Article 3 of Order 03/05, Official Journal No. 44 of 19/7/2003, which contains the Algerian Copyright Law, explicitly states: "Every owner of an original creation of a literary or artistic work shall be granted the rights stipulated in this order." Similarly, the Egyptian legislator, in Article 138/1 of Copyright Law No. 2002/82, Official Journal No. 22 (bis) of 2/6/2002, defines a work as "any innovative literary, artistic, or scientific work." Furthermore, the second paragraph of the same article elaborates on the concept of innovation by stating: "Innovation: the creative character that gives originality to the work."

It is notable that the Algerian legislator uses the term "originality" instead of "innovation," the latter being employed by the Egyptian legislator in Law No. 82/2002. The Lebanese legislator, in Article 1/7 of Law No. 75 of 3/4/1999, Official Journal No. 18/99 of 13/4/1999, which contains the Intellectual Property Law, also adopts the term "originality." This terminology aligns more closely with the French approach, where the term "originalité" is used instead of "innovation." The French legislator also employs the term "œuvre d'esprit" and explicitly mentions originality in Article L112-4, which concerns the title of a work, and in Article L112-3 of Act No. 92/597, Official Journal No. 0153 of 3/7/1992, Amended Intellectual Property Act, which addresses derivative works. While originality is not always explicitly stated, it remains a condition for granting protection under French copyright law.

The American legislator similarly underscores the importance of originality, stating in Article 102 of the Intellectual Property Law that protection applies only to "authentic works resulting from the author's creativity" (Bertrand, 1999, p. 131).

It is noteworthy that comparative legislation, including Article 3 of Order 03/05 (Algerian Copyright Law), Article 138, Paragraph 1, and Article 3 of Law No. 82/2002 (Egyptian Intellectual Property Law), and Article L112-1 of Act No. 92/597 (French Intellectual Property Act), agree that the originality of a work is not contingent upon novelty. Originality, in this context, does not necessarily mean creating something entirely new. Nor is originality dependent on the artistic merit of a work, as it differs conceptually from both novelty and artistic value.

According to legal scholar Henri Desbois (Bertrand, 1999, p. 133), originality is the cornerstone of copyright law. It must be distinguished from novelty, which is the primary criterion for industrial property. Originality is assessed subjectively, reflecting the creator's personal contribution, while novelty is evaluated objectively, based on the absence of prior existence. Novelty often hinges on establishing the priority and primacy of one work over another (Kanaan, 2009, p. 198).

Moreover, originality does not require a work to possess high value or seriousness. A work is considered original regardless of its usefulness, merit, or significance. Copyright law does not assess the work's value or importance but focuses on protecting the work itself, irrespective of its quality, purpose, or intended audience—be it short or long, practical or dangerous, the product of genius or ordinary artistic thought (Colombet, 1999, p. 24).

1.2 Protected rights:

There is a close connection between every original creative work and the person who created it, as literary and financial rights are a manifestation of this connection (Badr, 2004, p. 20). National and international legislation has not overlooked this connection, recognizing the author's enjoyment of a moral right over the product of their thought and creativity. It considers this an important aspect, as it provides for the protection of the author's personality as the creator of the work and the protection of the work itself. In this sense, it involves two aspects: respect for the author's personality as a creator and protecting the work as something of intrinsic value, regardless of its author (Kanaan, 2009, p. 83).

This principle was established by the French judiciary in a 1927 ruling of the Seine Court, which stated: "The artist who throws some of his paintings in a trash bin on a public road after tearing them and scratching them with ink continues to

enjoy his moral right over the parts of his paintings he threw in the trash. If a passerby collects it, the latter has only material ownership of these paintings and, accordingly, is not entitled to repair any damage to these paintings or to collect their parts and display them in a public place, as this would be a violation of the moral right of the artist. It would be absurd to rely on Articles 539 and 713 of the French Civil Code, which stipulate that abandoned funds are considered public funds. The provisions of these two articles do not apply to the artist who throws away parts of his paintings after tearing them up and distorting them, because the intention of abandoning is only focused on the material aspect of the work and not the scenes themselves, which are due to his talent and taste" (Daverat, 2011, p. 78).

This shows that the author's moral right includes characteristics that prove its close connection to the author's personality. It is a permanent right that lasts throughout their life and continues after their death, which is what most legislation has adopted, such as French copyright law in Article L121-1, stating: "A perpetual, non-transferable, inalienable right" (Bertrand, 1999, p. 261). Similarly, Egyptian legislation, in Article 143 of Law No. 82 of 2002 on copyrights, stipulates: "The author and his general successor—over the work—enjoy non-prescriptive literary rights or waiver" (Ahmed, 2005, p. 165).

This principle was also adopted by the Algerian legislator in Article 21/2 of Order 03/05, Official Journal No. 44 of 19/7/2003, containing the Algerian Copyright Law, which states: "Moral rights are inalienable, subject to prescription, and cannot be abandoned..." The author's moral right is also inalienable and cannot be restricted, as it is an extension of the author's personality. Any waiver of this right is considered a departure from its basic nature in the eyes of the judiciary, jurisprudence (Blanc-Jouvan, 2011, p. 71), and law. The French Intellectual Property Law considers copyright a right closely linked to the author's personality that may not be waived, as expressly stated in Article L121-1. This view was adopted by the Egyptian legislator, which explicitly stipulates that any disposal of any of the author's moral rights is invalid in Article 143.

The author's moral right includes several subsidiary rights that result from it. These subsidiary rights represent privileges or powers that enable the author to protect their personality (Colombet, 1999, p. 126), as expressed in their intellectual production, and are mainly represented in publishing the work, attributing the work to them, the right to repent, and the right to respect.

As for the financial right of the author, it grants every owner of a creative work the exclusive right to exploit this creativity for benefit or financial gain (Ali Muhammad Al-Razzazi, 2013, p. 20). It represents the financial value of the work the author has created. Since the work is the product of the author's mind and the fruit of their labor, they have the right to exploit this intellectual production and innovation in all available and exclusive ways (Abd Eldjalil, 2005, p. 45).

This right has not raised any problem in its recognition by comparative legislation, as legislatures unanimously agree on establishing the author's financial right. The Algerian legislator stipulated in Article 21 of Order 03/05 that the author enjoys moral and material rights over the work they created. Similarly, the French legislator stipulated this right in Article L123-1 of Act No. 92/597, Official Journal No. 0153 of 3/7/1992, Amended Intellectual Property Act, stating that the author enjoys, throughout their life, the exclusive right to exploit their work in any way that will bring them profit.

The Egyptian legislator, in Article 147 of Law No. 82 of 2002, limited its scope to mentioning what the financial right provides exclusively. Article 147 stipulates: "The author and his general successors after him shall enjoy an exclusive right to license or prohibit any exploitation of his work in any way, especially by copying or radio broadcasting, public radio rebroadcast, public communication, translation, editing, rental, loan, or making it available to the public, including making it available via computers or through the Internet, information networks, communications networks, and other means."

It is worth noting that legislation in Anglo-Saxon countries related to copyright tends to specify everything that the financial right of the author provides, unlike the legislation of Latin countries, which tend to expand this area (Lucas, *Le Droit d'Auteur et Numérique*, 1998, p. 116). Comparative copyright legislation has defined the means by which an author can financially exploit their work. These means are mentioned as examples and are not limited to those specified, as there is no objection to the emergence of other means of financial exploitation in the future. This flexibility is necessitated by developments in communication and the dissemination of intellectual production (Kanaan, 2009, p. 130).

Reality has shown that the accelerated development of humanity, whether in the content of creativity or the means of communicating it, is incompatible with limiting the means of financial exploitation. Comparative legislation also provides

that the author's financial right includes three branches of exploitation (Colombet, 1999, p. 161) while accommodating new methods, such as the right of publication allowing electronic dissemination and the right of public performance that includes satellite broadcasting.

1.3 The author as a natural person:

The majority of copyright laws and relevant international agreements agree in defining the author who is protected by law as the natural person who created the work. However, in most cases, they have not adopted a specific definition of the author covered by copyright protection, based on the premise that creativity is a human characteristic closely related to human personality. It is impossible for non-humans to have the capacity to create, as creativity can only originate from a natural person. The legislator expressed this in Article 12 of Order 03/05, stating: "The owner of the work is considered the owner of the copyright, unless proven otherwise, the natural or legal person who distributes the work in his name or places it in a legitimate manner for the public to access, or submits a declaration in his name to the National Office for Copyright and Related Rights..."

In contrast, the French legislator, in Article L111-1 of Act No. 92/597 (above-mentioned), did not explicitly require that the author be a natural person. However, this can be inferred from the language used in intellectual property law, particularly in Article L121-1, which considers that the author enjoys a right closely related to their personality and the right to respect for their name, as well as Article L111-2, which stipulates that a work is considered created once it is implemented according to the author's vision. According to this perspective, the French legislator only grants the status of author to a natural person, except in cases of collective works and works of automated media programs completed within the framework of a contract. However, the French judiciary deviated from this principle in decisions issued regarding computer programs, such as the decisions *C.A. Paris, 4e ch. civ. sect B. 5 mars 1987* and *Cass, 1er ch. civ. 8 décembre 1987*. In these cases, it was stated that judges had the right to investigate whether the company had created a personal work under the law of March 11, 1957. These decisions were criticized on the basis that a legal person cannot create a work that reflects personality (Lucas, J-CL propriété littéraire et artistique FASC1185, 1994, p. 3).

Meanwhile, the Egyptian legislator did not explicitly stipulate that the author must be a natural person, as Article 138 of the Intellectual Property Law does not specify this.

The motivation to limit the status of author, creator, and innovator to a human being is rooted in the legal-philosophical dimension prevailing in the eighteenth century. This perspective, saturated with subjectivity, created privileged rights for the author, allowing absolute control over their creations. Additionally, the social and economic dimensions played a role in establishing this view (Azzaria, 2018, p. 931). Therefore, the title of author is exclusively associated with a human being and cannot be imagined as applicable to anyone else, taking into account the exceptions granted to legal persons in comparative intellectual property laws.

Although the legal framework establishing copyright has not kept pace with rapid technological development—which has led to radical changes in the methods of creativity, its dissemination, and even its sources—granting the status of author to someone other than a human being is not currently possible under the concept of existing intellectual property laws.

2. Considering artificial intelligence as an author in the sense of copyright law:

The International Organization for Standardization (ISO) defines artificial intelligence as the ability to perform functions related to human intelligence, such as thinking and learning (Courtois, Mariez, & Roussel, 2020). However, unprecedented technological development has created types of artificial intelligence that are distinguished by their ability to operate independently of human intervention. This independence is due not only to the complexity of the programs, algorithms (Ochoba & Welser IV, *Artificial Intelligence with Features Human - Risks of Bias and Errors in Artificial Intelligence*, 2017, p. 4), and processing methods that comprise them but also to the vast amounts of data that feed them as input.

Artificial intelligence has advanced to the point of producing output data, results, or creations that may qualify as creative works (Mazzi, 2024, p. 11). These outputs often result from merging or drawing inspiration from the data provided to the AI, leading to differing opinions on whether such outputs or creations can be considered works under the concept of

copyright law. Thus, considering non-biological intelligence as an author—or attempting to find a legal approach to address the existing legal vacuum—is crucial to avoiding future conflicts.

2.1 Denying the authorship of non-biological intelligence:

A review of comparative national and relevant international legislation and judicial rulings (Le Calm, 2020) makes it unthinkable to consider artificial intelligence as an author within the meaning of copyright law. Jurisprudence (Caron, 2018, p. 19) justifies this with the following arguments:

First, comparative and relevant international legislation provides for the protection of all works. While it mentions the total number of protected works, the list is not exhaustive, allowing for the protection of new works not explicitly mentioned. However, this does not mean that works generated by artificial intelligence are considered creativity within the meaning of copyright law. The outputs of artificial intelligence are merely the automatic execution of its programming and do not constitute a free, conscious, or creative choice. This view was confirmed by the French judiciary in the *Eva-Marie Painer* case, where it was held that artificial intelligence merely performs automated executions and does not make choices (Rouxel, 2019, p. 48).

Second, copyright legislation stipulates that the author of a work is the first owner of the rights associated with it. This requirement implies that the author must be a natural person. If the legislator had intended otherwise, copyright legislation would have explicitly outlined the ownership rights for works created by entities other than natural persons.

Additionally, the provision in copyright legislation that regards copyright as a temporary right, expiring 50 years after the author's death, further excludes the possibility of non-biological intelligence being considered an author. This stipulation clearly presumes the author to be a natural person with a finite lifespan.

National and international legislation also stipulates that, to calculate the date of creation of a work, the author must be a citizen or resident of one of the countries that signed the relevant agreement. Jurists argue that this requirement confirms the necessity of a natural person who can be described as an author.

Furthermore, the recognition by comparative legislation of moral rights closely tied to the personality of the author supports the restriction of authorship to natural persons. These rights, which are seen as an extension of the author's personality, further confirm that only natural persons can hold the status of author.

Limiting authorship to natural persons also ensures that the deadline for the expiration of copyright is met after the author's death. This protects society's right to access information and emphasizes the importance of works entering the public domain. Granting authorship to artificial intelligence would disrupt this balance, as it lacks a finite lifespan, thereby harming society's access to information.

Granting artificial intelligence the status of author, while disregarding the individuals who created and programmed it, would not only harm these individuals but also society at large. Such a decision could discourage creators from investing effort in intellectual and creative pursuits, thereby negatively affecting society.

The enactment of national and international legislation aimed at protecting intellectual property rights is based on the principle of preserving human thought and creativity and ensuring its continuity (WIPO, 2019). This principle is the essence of the social purpose for which the copyright system was created, reflecting the unique value of human creativity. It would be illogical to extend this characteristic to non-human entities. As Professor Michel Vivant aptly stated (TREPPOZ et al., 2019, p. 2): "In the strict personalist conception, it is the imprint of the personality that makes a work protectable. … We do not see how personality could proceed from anything other than a person."

Non-biological intelligence, despite its ability to produce data or results that might resemble creative works, lacks emotion, perception, and a sense of creative expression as an extension of its personality. Furthermore, it does not possess legal personality.

In this regard, computer science professor Joseph Weisenbaum (Fawzi Ahmed Aawadh, 2021, p. 113) argued that artificial intelligence should never replace humans in certain roles, such as customer service, psychotherapy, elderly care, security, judiciary, and policing. These professions require a level of care and respect that artificial intelligence cannot provide, as genuine feelings of emotion and altruism play a crucial role in them.

Reality has demonstrated that non-biological intelligence falls short of human intelligence in many fields of social and human sciences. These disciplines are not always governed by clear logic; instead, they often rely on the logic of ambiguity. This unique characteristic of the humanities and social sciences, including legal sciences, limits the application of non-biological intelligence in these areas (Irfan Al-Khatib, 2020, p. 4).

2.2 Granting author status to artificial intelligence:

The first obstacle preventing the recognition of artificial intelligence as an author is the absence of the "human condition" required by national and international copyright legislation. As explained in the conditions for granting protection, current legislation does not allow non-biological intelligence to be considered an author. Consequently, artificial intelligence cannot be granted moral or financial rights over data, results, or outputs that might otherwise be regarded as creative works. French law and jurisprudence, as well as American jurisprudence, follow this approach, as they view copyright law as inherently human in concept. This perspective aligns with Arab legislation, including Algerian copyright law.

Despite this consensus, some scholars have argued for recognizing artificial intelligence as an author under copyright law. This argument is largely based on advancements in artificial intelligence, particularly the development of deep learning (Haas & Perretin, 2017). Deep learning employs neural networks inspired by the human brain (Basdevant, 2017, p. 20), enabling artificial intelligence to self-learn through interaction with its environment. For example, the artificial intelligence "Ben Jamin" can independently complete scenarios based on provided data, while IBM's Watson is capable of creating movie trailers and promotional content.

Proponents of this view argue that failing to acknowledge artificial intelligence as the creator of such achievements constitutes fraud. They cite the case of American engineer Steven Thaler, who applied for a patent for his AI creation, "DABUS AI." Thaler argued that artificial intelligence deserved recognition and credit for designing innovative products. However, patent offices in the United States, Britain, and Europe rejected his application, maintaining that legal rights arising from creativity are reserved for humans (Al-Dabousi Assayed, 2021, p. 10).

Interestingly, the judiciary in China has taken a different stance. In the *Tencent* case, the Shenzhen Court in Guangdong Province ruled that artificial intelligence could receive protection under copyright law. The case involved "Dreamwriter," an AI developed by Tencent in 2015, which produced accurate financial reports based on algorithms and data provided by the company. On August 20, 2018, Tencent published these reports online, explicitly stating they were generated by Dreamwriter. Subsequently, Shanghai Yingxun Technology Company republished the reports without authorization. The court found that the reports created by Dreamwriter were original, logical, and acceptable, qualifying them for copyright protection. The court's decision concluded that the unauthorized republication violated Tencent's rights (Le Calm, 2020).

3. Recent trends in adapting artificial intelligence:

The dilemma posed by artificial intelligence (AI) in the field of copyright—whether it can be considered an author or not—has prompted jurisprudence to propose temporary solutions to address the issue until definitive legislation is enacted. These proposals aim to bridge the gap between those advocating for recognizing AI as an author and those who categorically deny this possibility.

3.1 Jurisprudential approaches to adapting artificial intelligence:

Legal scholars have suggested several approaches to adapting AI-generated works to avoid the resulting legal vacuum and its potential implications. These approaches include considering such works as part of the public domain, granting AI a legal personality, or applying the system of neighboring rights. Others propose treating these works as joint creations.

3.1.1 Considering artificial intelligence works as public domain works:

The public domain generally encompasses all intellectual creations not protected by copyright or whose protection has expired. It may also include works for which exceptions or licenses have been granted (Dusolier, 2011, p. 6).

Some scholars argue that AI-generated works should be considered public domain. American law professor Ralph D. Clifford frames the issue by asking: "Who can claim copyright over artificial intelligence works?" He argues that the user of an AI system cannot claim authorship because they do not engage in any creative or intellectual effort. At the same time,

the AI itself lacks the human capacity to claim rights. Thus, Clifford concludes that no one can claim copyright, and these works should be considered public property (Caron, 2018, p. 67).

Canadian scholars Mark Perry, Thomas Margoni, and Rex M. Shoyama support this view, advocating for AI-generated works to be treated as public property for cultural, economic, and scientific reasons (Caron, 2018, pp. 67-68).

However, other scholars criticize this approach, arguing that placing AI-generated works directly in the public domain may deter creators from publishing them. This could lead to dishonesty or falsification to avoid such classification, ultimately hindering creativity and depriving society of its benefits (Caron, 2018, p. 67).

3.1.2 Recognizing the legal personality of artificial intelligence:

Part of jurisprudence holds that the solution lies in granting artificial intelligence legal personality, and then artificial intelligence can be granted the right to patent the invention and the benefits arising from it. So that these innovations and creations produced by artificial intelligence do not become available without compensation, and then lose their value and importance, which negatively affects artificial intelligence inventors on the one hand, and investment in this field on the other hand.

Another aspect of jurisprudence justifies that granting artificial intelligence a legal personality does not require it to have a human personality. Legal personality extends to include people other than humans, as in the case of legal persons such as companies and associations, and sometimes humans are deprived of it. As long as artificial intelligence becomes capable of creativity independently of human intervention, in a way that makes it difficult to distinguish it from natural human inventions and innovations, there is nothing preventing artificial intelligence from being recognized as a legal entity. (Al-Dabousi Assayed, 2021, p. 96).

Professor Alain Ben Soussan justifies this approach by saying: "There is nothing preventing the recognition of the legal personality of artificial intelligence in the same way that legal personality is granted to legal persons, so that artificial intelligence has a legal electronic personality of a special nature that approaches being a legal personality, and then it has an independent financial liability, so that the artificial intelligence with this legal personality acquires the rights and bears the obligations like other legal persons, which legally allows the artificial intelligence to obtain the right to a patent, and the recognition of the artificial intelligence as an inventor and then benefit from the rights legally assigned to it and associated with these inventions (Al-Dabousi Assayed, 2021, p. 97).

This jurisprudential approach has not been free from criticism. Another jurisprudential approach considered that the granting of legal personality to AI is a deviation, leading to the disclaimer of AI manufacturers' companies and institutions, so the physical and moral rights of AI cannot be finally recognized. (Rouxel, 2019, p. 51).

3.1.3 Implementing the rules of the neighboring rights system:

The neighboring rights system, or the rights related to copyright, recognized by national and international legislation, means the legal interests of some persons or institutions, which contribute to making the work available to the public, or produce materials with a sufficient degree of creativity, technical, and organizational skills, that justify recognizing that they have a right similar to copyright. The related rights protection law considers these persons and institutions entitled to legal protection similar to copyright protection.

Some jurisprudence (Azzaria, 2018, p. 939) started from this framework to try to adapt works produced by artificial intelligence and consider them works that can be protected according to the rules regulating related rights. They relied on the ruling issued in the United Kingdom in 1988, which considered that in the case of a literary, dramatic, musical, or artistic work produced by computer, the author is considered the person through whom the necessary arrangements are made to create the work (Rouxel, 2019, p. 43). They considered that clarifying the scope of this rule, Section 178 (Rouxel, 2019, p. 44) of the British Intellectual Property Act, which corresponds to Section 5/2A of the New Zealand Code and Section 21F of Ireland (Azzaria, 2018, p. 939), defines a computer-generated work as work in which there is no human intervention. However, this jurisprudential approach in adapting artificial intelligence works collided with the amazing and accelerating development that enabled artificial intelligence to go beyond the stage of a programmed machine to a self-learning machine, in addition to the problems raised by the multiplicity of programmers and users.

3.1.4 Considering AI classifiers as joint authorship:

A side of jurisprudence considered that combining the intellectual contribution of the artificial intelligence programmer and its user, within the framework of the concept of a joint work, could be the solution to the problem of adapting and attributing artificial intelligence works (Caron, 2018, p. 51), on the basis that they are considered two natural persons who contributed to the creative process of artificial intelligence works. Although the jurisprudential approach is considered a theoretical solution, its implementation on the ground faces many legal obstacles (Caron, 2018, p. 52), as:

The joint work allows the contributions of the authors of the joint work to be unsegregated, according to the rules of copyright law, which is not available in the artificial intelligence works. Also, jurisprudence requires that there be an agreement between the contributors to the creation of the joint work, which is not available and is shrouded in ambiguity in artificial intelligence works.

In addition to the above, the contribution of the artificial intelligence programmer is dominated by the purely technical aspect, which is the creativity of artificial intelligence, while the role of the artificial intelligence user is to direct it to create a specific type of work.

The tendency to apply the rules of a collective work, instead of a joint work, is discouraged by the problems mentioned above, especially with the necessity of the originality of each party's contribution, and the inability to distinguish each of them. Applying this requires that artificial intelligence be granted legal personality.

3.2. Possible approaches in adapting artificial intelligence classifiers:

The technical nature of artificial intelligence works, the rapid development of the latter, and the attempts of jurisprudence to find an adaptation for these works, as well as the agreement reached between jurists to limit the description of the author to a human individual, require finding a solution to the problems raised in reality and in law. It is possible—albeit temporarily—until decisive legislation is issued, to adapt it to databases, or, resorting to granting the moral and financial rights generated from it equally between the public domain and its creator, in the form of the right of traceability, and between its user.

3.2.1 Considering artificial intelligence works as electronic databases:

It is established jurisprudentially and legally (Daverat, 2011, p. 6) that databases are works protected in accordance with copyright law (Lucas, le droit d'auteur et numérique, 1998, p. 6), and their originality comes from the way in which the total data, information, or works organized in the database are arranged or classified. Databases are defined as a collection of data or other materials, whatever their form, if they are considered intellectual innovations due to the selection and arrangement of their contents. This concept does not include any database that is not considered an innovation of this kind (Kanaan, 2009, p. 248).

It is also defined as: "the acts of selecting, collecting, and assembling literary, artistic, or musical works, computer programs, or any other data such as texts, images, documents, numbers, and facts, which are arranged and stored in an organized and systematic manner, and cannot be accessed and information retrieved from them except by information means or by any other means" (Issa Wansa, 2002, p. 39).

Based on the definitions of electronic databases, which indicate that they are collected data or other materials, whether in machine-readable form or any other form, if they constitute intellectual creativity as a result of the selection or arrangement of their contents, this protection does not include data or materials (WTO, 1994) in and of themselves, nor does it infringe the copyrights related to these data or materials. It is possible to say that they can be compared to works of artificial intelligence, given that they are formed from previous, original works that are protected on the basis of copyright law, which is similar to works of non-biological intelligence, as they consist of the programmer's contribution (even though purely technical) and the contribution of those who provided it with the matter that fuels the creativity of the work. The right granted to it should belong to the person who directed its creation, given that their contribution was the impetus for the creativity, without prejudice to the inherent right of the original work, represented here by the contribution of the artificial intelligence programmer. Although it is possible to adopt this solution, until decisive legislation is issued on the matter, it is hampered by the development that has enabled non-biological intelligence to become more independent of human intervention, through deep learning, which gave it the human characteristic of learning by being influenced by its surroundings, and this allows it

to produce results that can be described as original works without the slightest human intervention.

3.2.2 Adopting the right of traceability controls equally:

The right of appropriation is the enjoyment by the owners of works of drawing, works of fine art, and authors of manuscripts of an inalienable right to participate in the proceeds of every sale to which this right is subject, whether it is carried out through a public auction or by a merchant (Kanaan, 2009, p. 180). The right of appropriation is also known in the field of copyright as the right of the author and his heirs after his death to receive the price of a work of plastic arts, which is sometimes represented by a percentage of the value of the work when it is resold at a public auction or by a merchant (Issa Wansa, 2002, p. 74).

The determination of the right of traceability is based on considerations of justice towards the authors of personal works of art, as the painter or sculptor often sells the painting he painted or the sculptural work at a low price under the pressure of the need and desire to obtain urgent resources. Often, this artistic work, from which its author has been stripped, becomes a place for successive sales. According to market requirements, it can increase in value and also serve as a source of profit for a number of intermediaries. Therefore, it seems fair for the author to be allowed to contribute to the wealth achieved by his work, participate in the enrichment that has befallen the work over the years, and obtain a portion of the sale price every time the owner of the work changes (Kanaan, 2009, p. 180).

Implementing traceability controls on non-biological intelligence works, dividing the rights equally between the artificial intelligence programmer, the owner of the artificial intelligence or the one who provided it with the creative input, and the public domain, can help bridge the gap in the attribution of artificial intelligence works, as:

Based on the fact that the right of traceability is based on considerations of justice, which stipulate the possibility of an increase in the value of the creative work after it is put into circulation, and the absence of the author earning a financial return for his creativity and intellectual effort, the right of the artificial intelligence programmer has priority over a percentage of the returns of the works produced by non-biological intelligence. Although the right of traceability is limited to works of drawing, works of plastic art, and manuscripts, it is similar to and shares with works of artificial intelligence in that their authors are considered the basis for their appearance. Without their contribution, works cannot exist. In addition, this makes the artificial intelligence programmer reassured that his intellectual and creative effort will be protected, which prompts him to exert more intellectual effort that will inevitably benefit the individual and society.

Granting the right of traceability equally to the owner of the artificial intelligence, as he is a contributor to the production of the works generated by it, by directing the specific order to produce a work, is similar to the right of the owner of paintings, works of fine art, and manuscripts, as he can be granted a percentage for all his works produced with the artificial intelligence. This would protect any possible creative right for him, especially if we adopt the principle of intellectual or creative contribution, instead of the intellectual effort in searching for originality, and the procedure also protects the inherent property right of its owner over artificial intelligence.

The recognition of public domain works aims to preserve and enhance the free collective use of its creative resources to avoid abuse of the exclusive nature (Dusolier, 2011, p. 9). Its approval is also considered a form of recognition of the right of society from which the creator inspired his idea and embodied it in a work. Accordingly, it is logical and fair for this society to be granted the right to the works of artificial intelligence, as they are works that raise problems regarding the calculation of periods of protection, due to the lack of the status of death for artificial intelligence. This also removes the problems related to deep learning, which enabled non-biological intelligence to acquire skills that it was not programmed to have when it was created, and which some jurisprudence (Al-Dabousi Assayed, 2021, p. 98) has relied on to say that it is necessary to grant artificial intelligence legal personality and thus recognize it as an author and consider its works to be authentic and worthy of protection.

Recognizing society's right to enable artificial intelligence to acquire skills that it has never possessed before makes it more entitled to protect its interests by granting it the right to use for scientific and cultural purposes the works generated from it, without harming the rights holders, in the same way as what is granted to libraries for scientific and educational exploitation.

Conclusion:

The rapid development of non-biological intelligence has raised many challenges to the legal system of copyright due to its enormous ability to simulate human capabilities. This has made the rules regulating copyright a source of controversy, particularly regarding the issue of granting non-biological intelligence the status of author, and the rights and obligations that arise from this status. Based on this, the research paper addresses this topic and concludes with the following results and suggestions:

Results:

- All national and international copyright legislation, recognizes the necessity of providing objective conditions for creative works to obtain protection on the basis of copyright law. which is concentrated in originality, which was taken into account in Algerian legislation in the article 03 of Order 03/05, and in French legislation in the article L112-3 and, L112-4.
- Majority of National and international legislation limits the authorship to the human individual.
- Comparative legislation grants moral and financial rights to the author who has a natural personality, as they are an extension of his personality.
- Comparative national and even relevant international legislation and judicial rulings agree that artificial intelligence is not granted the status of author, within the meaning of copyright law.
- Lack of agreement in legal jurisprudence regarding the description of works generated by artificial intelligence, as one side tends to consider it an author, and they believe that it is the ideal solution, while another side is strict in refusing to grant it this status, and believes that it should be limited to the human individual.

Suggestions:

- Artificial intelligence works must be considered databases on the basis that they are formed from previous original works that are protected on the basis of copyright law, similar to AI works, as they consist of the programmer's contribution - although it is purely technical - and the contribution of those who provided it with the command to create the work. Therefore, the right granted to it belongs to the one who provided it with the order, given that his contribution was the impetus for the creativity, without prejudice to the inherent right of the original work, which is represented here by the contribution of the artificial intelligence programmer.
- Implementing controls on the right of traceability to non-biological intelligence works equally between the artificial intelligence programmer, the owner of the artificial intelligence or the person who provided him with the matter of creativity, and the public domain.
- The right to trace is based on considerations of justice, which stipulate the possibility of an increase in the value of the creative work after it is put up for circulation and sale, and the absence of the author earning a financial return for his creativity and intellectual effort, which makes the right of the artificial intelligence programmer to have priority over a percentage of the returns of the works produced by non-biological intelligence.
- Granting the rights of ownership equally, to the artificial intelligence programmer, the owner of the artificial intelligence, or whoever provided it with the matter of creativity., as he is a contributor to the production of the works generated from it, by directing the specific order to produce a work, which is similar to the right of the owner of paintings, works of plastic art, and manuscripts, as he could be given a percentage for all his works produced by artificial intelligence, as this would protect any possible creative right of his, and and protect the copyright on AI works.
- Logic and justice require that society be granted the right to artificial intelligence works, as they are works that raise problems regarding the calculation of protection periods due to the absence of the status of death on artificial intelligence, also relying on this, removes the problems related to deep learning, which enabled non-biological intelligence to acquire skills that it was not programmed to have when it was created.
- Recognizing the right of society to enable artificial intelligence to acquire skills that it had not previously acquired, and which it inevitably acquired from society,By what has become allowed by deep learning. makes it more deserving of protecting its interests, by granting it the right to exploit the works generated by artificial intelligence, without harming the

rights holders, such as what is granted to libraries and scientific and educational exploitation. as exceptions on rights in favour of society.

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