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INNOVATIONS OF ARTIFICIAL INTELLIGENCE IN LIGHT OF THE APPLICABLE COPYRIGHT LAW: REALISTIC SOLUTIONS AND FUTURE PROSPECTS. A COMPARATIVE STUDY OF UAE, EGYPTIAN, AND FRENCH LAWS

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ABSTRACT

Background: *This paper focuses on the works and innovations accomplished by artificial intelligence (AI) and how current laws and regulations address these innovations within the framework of copyright law. It examines the challenges faced by legal systems in the UAE, Egypt, and France concerning the copyrights of intellectual works produced through AI systems, such as ChatGPT. The study highlights the issue of defining "author" in copyright law, particularly given that AI lacks the personal characteristics associated with human creators.*

Methods: *The paper employs a comparative legal analysis, focusing on the legal frameworks of the UAE, Egypt, and France. It examines how each jurisdiction currently addresses AI-generated intellectual property and whether existing laws adequately account for AI's role in creative processes. The study also explores the possibility of granting AI systems "legal capacity" and the need for a specific Code of Ethics to regulate AI use in a manner consistent with human and ethical values.*

Results and Conclusions: *The study concludes an urgent need to review and amend existing laws to create a legal framework that effectively addresses copyrights related to AI-generated innovations. This framework should balance the promotion of innovation with the protection of legal rights, ensuring that AI developments are ethically regulated and legally recognised.*

1 INTRODUCTION

1.1. Research Subject

Artificial intelligence (**AI**) replicates human intelligence by simulating human thinking, bringing both advantages and challenges. Hence, certain measures and precautions must be taken to benefit from the positive aspects of artificial intelligence while avoiding its potential risks. Furthermore, recent developments in AI have contributed significantly to reframing the concept of copyright, given AI's capacity to generate creative content. Therefore, there is an urgent need to establish new legislative controls that regulate the use of AI across various fields of innovation.

In other words, in light of the applicable copyright laws and provisions, the issue of innovations in artificial intelligence represents a highly important matter that may require a comprehensive review of current laws and regulations. Therefore, this research paper examines several innovations introduced by AI systems and their impact on copyright and neighbouring rights protection laws. By doing so, it identifies the current status of protection, as well as any relevant shortcomings that could be addressed through the introduction of new regulations to meet all future challenges.

1.2. Research Problem

Recently, numerous artificial intelligence applications with increasingly advanced creative abilities have been introduced, raising several legal questions regarding copyright. For instance, some systems, such as ChatGPT, can now generate complete literary and artistic content that not only simulates human creativity but, in some cases, surpasses it in producing independent intellectual content. This rapid development has raised an essential legal problem concerning the protection of those new innovations in light of the currently applicable legal framework of intellectual property rights.

In other words, can the output of artificial intelligence systems be considered an innovation that is eligible for legal protection? If so, who is eligible for copyright protection—the AI system itself, the owning company, or the user operating the machine?

Naturally, addressing these questions requires an in-depth study that examines the current legal status of AI-generated intellectual works under existing copyright laws. It also necessitates considering future prospects to establish a comprehensive legal framework for the copyright protection of these non-human innovations.

1.3. Research Methodology

This paper adopts an analytical inductive comparative approach. It begins with an analysis of key legal provisions within existing applicable copyright protection laws, followed by an examination of relevant facts to identify potential solutions for any shortcomings in the legal

framework governing AI-generate innovations. Finally, the results will be subject to a comparative examination in light of UAE, Egyptian, and French law. Particular attention will be given to practical applications, considering the legal principles stated by competent courts within these jurisdictions.

1.4. Research Scope

In light of the subject of this current study—artificial intelligence vs. copyright protection law—two possible courses of action may be considered for determining the legal status of works created by AI systems:

First Course of Action

Copyright protection law (or intellectual property rights protection law) could entirely exclude the notion of providing any legal protection for works created by AI systems or smart applications, particularly those lacking human intervention or involving limited partial human intervention. However, this approach does not imply that all relevant disputes remain unsettled. If a case involving AI-generated content is brought before a competent court, it would be heard and adjudicated pursuant to existing laws. In the absence of relevant legal provisions, judges would rely on prevailing customs, general legal principles, or fundamental rules of justice to resolve the dispute.

As a matter of fact, this approach was historically quite common in intellectual property rights protection before the introduction of specialised copyright legislation and other similar rights concerning the outcomes of the human mind. During that period, the judiciary relied on general principles of law and justice to protect those rights.

Second Course of Action

Alternatively, intellectual property rights law could grant legal protection to works created by artificial intelligence by treating them as human-generated or as outcomes involving human intervention—such as the contributions of the software developer or designer of the AI system. However, this approach also presents challenges, as it does not stipulate specific solutions for all perceived problems. For example, a software developer is not the only human contributing to the work in question; AI-generated works often result from the collective efforts of several other participants.

1.5. Research Plan

In light of the above, it is imperative to address the issue of providing legal protection for works created by AI pursuant to the applicable laws and regulations. In other words, this study will examine the current legal situation, including any objections against granting AI-generated works the same legal protection afforded to human-created works under intellectual property protection laws. One key objection is the notion that such works are

the fruit or outcome of a machine. For instance, if AI applications are not recognised as authors, to whom should works generated by AI systems be attributed?

In addition, while the current solution to this dilemma represents the only realistic option in light of the applicable laws, this does not necessarily mean that future prospects will not demand alternative, forward-looking visions. Questions that arise include: What are the necessary requirements for recognising AI applications as authors? Will the proposed solution have significant legal benefits, or will it impose an unnecessary burden on the legal system?

2 INNOVATIONS OF ARTIFICIAL INTELLIGENCE IN LIGHT OF THE APPLICABLE LEGAL RULES

2.1. The Author as an Innovative Person

By virtue of intellectual property law, any intellectual work is entitled to legal protection as long as it involves an innovation introduced by its author. This principle has been acknowledged globally by all laws and conventions governing copyright protection.[1] For example, pursuant to Article 2(6) of the Berne Convention for the Protection of Literary and Artistic Works 1886,[2] legal protection is provided to the author, a stance reflected in UAE, Egyptian and French law, as well as many other comparative legal systems. That is to say, legal protection is provided for an innovative work that can be attributed to a specific author.

In this sense, the property rights of an intellectual work are granted to the author based on their creativity and innovation.[3] From this personal perspective, the legal capacity of an author can only be granted to the person who created the work. For example, Article 1 of the UAE Federal Decree-Law No.38 2021 on Copyrights and Neighboring Rights[4] and Article 138 of the Egyptian Law No.82 2002 on Intellectual Property Rights Protection[5] both

1 Michel Vivant et Jean-Michel Bruguière, *Droit d'Auteur et Droits Voisins* (2e éd, Précis, Dalloz 2013) 265, n 274.

2 Berne Convention for the Protection of Literary and Artistic Works [1972] UNTS 828/11850.

3 Article L.111-1 of the French Intellectual Property Code (CPI) provides:
"The author of a work of the mind enjoys, by the mere fact of its creation, a property right over that work." See: Loi de la République Française no 92-597 du 1992 'Code de la propriété intellectuelle' <https://www.legifrance.gouv.fr/codes/texte_lc/LEGITEXT000006069414/2024-11-25> consulté le 25 novembre 2024.

4 Federal Decree-Law of the United Arab Emirates no (38) of 2021 'On Copyright and Neighboring Rights' [2021] Official Gazette 712.

5 Law of the Arab Republic of Egypt no (82) of 2002 'On the Protection of Intellectual Property Rights' (amended 2020) <https://www.wipo.int/wipolex/en/legislation/details/22066> accessed 25 November 2024.

define the term "author" as a person who creates a work.[6] Similarly, under the 1976 Copyright Act in the United States,[7] an author is defined as the creator or originator of an original work of authorship, encompassing individuals such as writers, composers, and visual artists who contribute to the creation of such works.[8]

In this context, pursuant to the Egyptian judiciary, a work eligible for legal protection is an innovative work of literature, art or practice that presents a distinctive expression, importance or purpose. Innovation is the key element on which legal protection is granted. Here, the term "innovation" refers to the mental effort of the author and their mind, which reflects their distinctive personality and is clearly visible in his work. This innovation can be seen in the subject matter, the presentation style, or the subject processing method (i.e. its arrangement and organisation). In this sense, the author's personality is evident in the work; hence, innovation becomes the cornerstone on which legal protection is based. It is the price for such protection. Therefore, a minimal limit of independent intellectual effort will always be required to qualify for copyright protection.[9]

Based on this premise, under the UAE, Egyptian and French laws, and other Latin-oriented laws, an intellectual work must reflect the personal character of its author; i.e. the author plays a pivotal role in ensuring the legal protection of his works. In contrast, AI systems lack this personal character that could be reflected and detected in the outcome of their work. That is to say, those systems depend entirely on electronic processes, as well as data and information provided by humans, without the ability to make innovative decisions or independent choices spontaneously.

Hence, AI systems' outputs may not be considered innovations or original works, pursuant to the legal standards set by the Latin school of thought. Consequently, AI-generated creations would naturally fall outside the scope of copyright protection, at least for the time being.

2.2. The Author as a Natural Person

By virtue of law, "author" is defined as a person, and in law, "person" is currently still limited to either a natural person or a legal entity. Indeed, when intellectual property law was enacted, the concept for the author was limited to natural persons; however, this concept

6 Even if the Berne Convention and French Law has not provided specific definitions for the term "Author", this does not change the fact that the said legal protection is meant for the author's innovations; and no other innovators may limit the scope of this protection; for instance, the holders of neighboring rights (especially performers) may not limit the legal protection stipulated for copyrights.

7 Copyright Act of the United States <https://www.copyright.gov/title17> accessed 25 November 2024.

8 Veronica Acevedo, 'Original Works of "Authorship": Artificial Intelligence as Authors of Copyright' (*Seton Hall University eRepository*, 2022) Student Works 1272 <https://scholarship.shu.edu/student_scholarship/1272/> accessed 25 November 2024.

9 Court Ruling no (69) Judicial Year 24 (Economic Courts, Misdemeanors Circuit – Economic (Arab Republic of Egypt), 30 January 2024).

was later broadened to include legal entities along with natural persons in the provisions of intellectual property protection law.

It is legally established that the author of an intellectual work is typically a natural person, with each work being attributed to the individual who created it upon its publication. Egyptian jurisprudence confirms that an author is the person who creates the work, and the work should bear the name of its author or be appropriately attributed to them unless evidence to the contrary is provided.

In addition, it is permissible for an author to publish their work anonymously or under a pseudonym, as long as there are no doubts about their true identity. That is to say, if there are any doubts concerning the author's identity, the work's publisher or producer—whether a natural person or a legal entity—may act as the representative for the author, handling their rights and affairs until the author's identity is clarified.[10]

In contrast, under French intellectual property law, a joint work is defined as a work resulting from the collaboration of a group of natural persons,[11] as is common with audiovisual and audio works. Thus, by virtue of law, the author of such works is the natural person or persons who contribute to the process of intellectual innovation. In the case of collective works, where several natural persons are involved in the work upon the guidance and instruction of a natural person or a legal entity, the latter entity may be entitled to the relevant intellectual property rights. However, this entity may not be considered as an author. This distinction is not only drawn from explicit legal provisions but also highly imperative pursuant to what is known as the "Spirit of Law" (*L'Esprit de la Loi*).[12]

Furthermore, while the provisions of the law—both in text and spirit—reflect the legislator's goals and objectives, the judiciary has consistently supported the confirmation and application of these legislative principles. Along with jurisprudence, the judiciary plays a major role in the establishment and interpretation of all relevant principles and ideas concerning the Copyrights Protection Law.[13]

When addressing the relationship between innovation and the natural person, the judiciary has always defended this connection, in spite of all relevant difficulties resulting from the surrounding environment of an industrial nature with some works of applied art.[14] For instance, the First Civil Circuit of the French Court of Cassation has ruled previously that a legal entity may not be considered an author. While a legal entity may hold original

10 ibid.

11 Article L.113-2, paragraph 1 of the French Intellectual Property Code (CPI) states: "A collaborative work is one that has been created through the contributions of several natural persons." See: Loi de la République Française no 92-597 du 1992 (n 3).

12 Vivant and Bruguière (n 1) 270, n°282.

13 Alexandra Bensamoun, *Essai sur le Dialogue entre le Législateur et le Juge en Droit d'Auteur* (Préface de Pierre Sirinelli, PU Aix-Marseille 2008).

14 Vivant and Bruguière (n 1) 271, n°283.

copyright investments in collective works, these works are generally achieved and completed upon the instruction of the entity and published in its name.[15]

Interestingly, the ruling of the French Court of Cassation is not unique or isolated; other similar rulings have supported the same principle. The ruling by the Paris Court of Appeal on 18 April 1991 marks a significant shift concerning intellectual property rights, particularly regarding the moral rights of legal entities. The Court's decision indicated that copyright protection law has never stipulated any provisions that exclude the recognition of moral rights for legal entities that create works.

This ruling represents a departure from the earlier interpretation[16] that copyright protection, in relation to moral rights, should be attributed only to natural persons. This was previously reflected in the ruling requiring Apple to fulfil the personal fingerprint requirement for their computer software (*Logiciels*). However, with this ruling, the Court appeared to abandon the personal requirement of copyrights. Moreover, this ruling was further reinforced by similar rulings, suggesting that French courts, including the French Court of Cassation, have acknowledged and upheld this more flexible interpretation of authorship.[17] However, the question remains whether these developments mean that a legal entity could be granted the legal capacity of an author.

2.3. Legal Entity and Copyrights

If the French judiciary has partially abandoned the personal nature of copyrights, does this mean that a legal entity could be acknowledged as an author? Or, at least, could this legal entity acquire the features and traits of an author? While there have been instances where legal entities have been granted certain rights associated with works they have created, this does not necessarily equate to full recognition of their status as authors. In fact, while a few rulings have relaxed the personal nature of copyrights, there are several other rulings stating that, according to the case of collective works, a legal entity may have an investment in the work's copyrights. As such, the judiciary could grant the legal entity the capacity to enjoy those rights.

15 In this regard, Egyptian Judiciary has differentiated between Collective Works and Joint Works. That is to say, "Collective Works" are defined as follows: "It is a work that is created by a group of authors working under the guidance, instructions and supervision of a Natural Person or a Legal Entity, who develops their work plan, supervises its execution and publishes the work for his own interest, not for that of the authors". On the other hand, "Joint Works" are defined as follows: "It is a work in which the share of each participant could be distinguished and separated from the shares of all other contributors". Hence, the major difference between Collective Works and Joint Works is represented in the fact that with Collective Works, the authors work under the supervision and instructions of a Natural Person or a Legal Entity who is entitled to publish this work for his own interest; however, with Joint Works, the work is usually published by its co-authors and for their interest. See: Court Ruling no (7017) Judicial Year 70 (Administrative Judiciary (United Arab Emirates), 23 December 2020).

16 Vivant and Bruguière (n 1) 271, n°283.

17 Michel Vivant et Jean-Michel Bruguière, *Droit d'Auteur et Droits Voisins* (3e éd, Précis, Dalloz 2015).

The first significant attempt to raise this issue is recorded in a decision issued on 21 November 1972 by the French State Council on the property rights (*La Titularité*) of works performed by an employee of a public facility.[18] That is to say, contrary to the applicable legal provisions issued on 11 March 1957, the State Council, as well as the Court of Cassation, granted copyrights to public legal entities, even though these works fell outside the scope of collective works as defined by law.

In this sense, some jurists argue that the significance of this solution cannot be underestimated, particularly in light of the necessities that have dictated this new development—namely, the needs of public institutions.[19] In fact, those necessities may also justify a similar approach adopted by the First Civil Circuit of the French Court of Cassation on 24 March 1993, which confirmed that the economic utilisation of certain works entitles the legal entity to full property rights related to those works.[20]

In light of the above, some jurists believe that the aforementioned rulings and solutions do not imply that the judiciary is seeking to formally acknowledge legal entities, whether public or private, as authors. Instead, those actions and decisions reflect a convenient point of view that could be closely linked to the judicial approach that prefers to define originality objectively.[21] This approach aligns closely with the "Work Made for Hire" doctrine in American jurisprudence.[22] That is to say, under American Jurisprudence, the owner company is considered the author.[23] This perspective is grounded in a utilitarian view, where all involved facts are taken into consideration, including any potential disputes that could be raised in relation to the returns, rather than being concerned with the legal capacity of an author.

3 INNOVATIONS OF ARTIFICIAL INTELLIGENCE APPLICATIONS AND LEGAL SOLUTIONS

It is conceivable that several concerned parties could be involved jointly in the innovations of artificial intelligence. For instance, the innovation process might include the person who designs the AI software or application, the person who provides the application with data and information, the person who uses or manages the application, and the AI system itself,

18 Avis du Conseil d'Etat (France) n 309.721 du 21 novembre 1972 'Propriete intellectuelle et personnes publiques: Propriété littéraire et artistique' <https://www.dgdr.cnrs.fr/bo/2004/special10-04/avis-conseildetat211172.htm> consulté le 25 novembre 2024.

19 Vivant and Bruguière (n 1) 273, n°284.

20 De pourvoi no 91-16.543 (Cour de Cassation, Chambre civile 1 (République Française), 24 mars 1993) [1993] Bulletin I 126/84.

21 According to this objective view, "Originality" is no longer represented in the author's personal character; hence opening the door for the legal protection of innovations of legal entities.

22 'Work Made for Hire', *Wex* (LII 2024) <https://www.law.cornell.edu/wex/work_made_for_hire> accessed 25 November 2024.

23 See: Copyright Act (n 7) art 201.

which could be operating independently. Hence, if a single individual performs all these roles, that person would be considered the author and entitled to all relevant copyrights concerning the innovations resulting from AI.[24] However, when those roles are distributed to several persons, naturally, some problems may emerge. In other words, if the designer, data provider, and user are separate entities, a major question emerges regarding how to determine and distribute the creative copyrights among them and how these copyrights should be addressed legally.[25]

3.1. Artificial Intelligence Innovations as Public Property

According to this solution, innovations of AI could be considered works of public property, making them freely available for public and free use. However, it is well known that works of public property are typically those whose term of legal protection has expired, meaning they are no longer protected from material use.[26] This is not the case with works created by artificial intelligence, as they are novel works whose term of legal protection has not yet expired.

Based on this, this solution could address AI-generated works as public property due to their lack of authorship, which would be problematic. It contradicts most legal provisions that define works of public property[27] and the notion that AI innovations lack authorship or an innovator.

Another approach could be to treat works created by AI as works excluded from legal protection "to begin with", as stipulated in Egyptian or UAE law. But what is meant by works excluded from legal protection "to begin with", and do those AI-generated works fall under this category?

24 Ali Al-Obeidi and Shuq Hussein, 'The Legal Nature of Contracts Concluded by Artificial Intelligence According to The Uae Electronic Transactions and E-Commerce Law No (46) of 2021' (2023 International Arab Conference on Information Technology (ACIT), Ajman University, IEEE, UAE, 6-8 December 2023) doi:10.1109/ACIT58888.2023.10453892.

25 Ahmed Eldakak, 'How Can Lower-Income Countries Access COVID-19 Medicines Without Destroying the Patent System? The National Exhaustion Solution' (2022) 27(3) Journal of Intellectual Property Rights (JIPR) 181, doi:10.56042/jipr.v27i3.57951.

26 Abdelrashid Maamoun and Mohamed Abdelsadek, *Copyrights and Neighboring Rights in Light of the New Intellectual Property Rights Protection Law no (82) of 2002* (Dar Al Nahda Al Arabia 2007) 498; Ashraf Gaber, 'Blockchain and Digital Verification in the Field of Copyrights' (2020) 1 International Journal of Doctrine, Judiciary and Legislation (IJDJL) 32, doi:10.21608/ijdjl.2020.49876.1038.

27 In this regard, Clause (8) of Article (138) of the Law of the Arab Republic of Egypt no (82) of 2002 (n 5) has defined "Public Property" as follows: "It is the property, to which all non-eligible works are attributed, whether they are works excluded from legal protection to begin with, or works whose term of legal and financial protection is expired; and that is pursuant to the provisions of this part (Part III: Copyrights and Neighboring Rights)".
In addition, the Federal Decree-Law of the United Arab Emirates no (38) of 2021 (n 4) has defined works that are considered as Public Property or are attributed to Public Property as follows: "They are all works excluded from protection in the first place, or works whose term of legal and financial protection is expired".

Works excluded from legal protection refer to intellectual works that do not fulfil the legal requirements for protection as stated by virtue of law, namely the requirements of form (innovation) and originality (subjective or objective in character). Additionally, works that violate public order or threaten social security may also be excluded from protection.

In fact, while laws of intellectual property rights clearly define works that have been transformed into public property after the expiration of their protection period, works excluded from legal protection from the outset are addressed implicitly, based on applicable legal and judicial frameworks. In other words, any intellectual work that does not fulfil legal protection requirements is excluded from this legally stated protection, pursuant to the copyright protection laws. Nonetheless, this does not imply that such works are completely unprotected, as legal grounds may still protect against any infringements, even though they are merely not subject to copyright protection laws.

3.2. Artificial Intelligence Innovations as Creative Commons or Open-Source Works

According to this point of view, innovations of AI could be considered as Creative Commons. However, neither Egyptian nor UAE law has defined the term "Creative Commons". In general, Creative Commons refer to works that are covered by the legal protection of intellectual property protection laws but are available for use by others under certain conditions. For instance, an author may forfeit the financial rights of his work. Hence, those works would not be considered public property in the traditional sense but would remain legally protected works with full copyrights, albeit with more flexible terms.

That said, innovations created by artificial intelligence cannot be considered Creative Commons or open-source works. While no legal obstacles prevent them from becoming Creative Commons, they would still need to fulfil all the requirements and license terms. In such cases, the author (or those claiming to be the authors) could still retain full copyrights over the works.[28]

However, this assumption does not provide an adequate solution for the issue. That is to say, while the concept of Creative Commons or open-source works settles the issue of copyright assignment, it does not provide a clear solution to the following questions: Who is the author of these works? Who is entitled to the rights? These are critical questions that cannot be adequately answered by the premise of Creative Commons.

28 Abdelhadi Al-Awadi, *Free Software in Egyptian Law: A Comparative Study* (Dar Al Nahda Al Arabia 2012).

3.3. Comparing Innovations of Artificial Intelligence to Prior Innovations of Workers

From this perspective, innovations produced by artificial intelligence should be compared to those previously created by workers in the course of their work or as part of their employment. In such cases, the employer typically holds the financial rights associated with this work in exchange for paying the worker a compensatory reimbursement or proper fee. In this sense, for AI-generated innovations, the employer—whether a designer, programmer or user—would be entitled to the financial rights of those works, provided they compensate the relevant human contributors appropriately.

However, this approach could be described as dodging or avoiding the problem without providing the appropriate solution. That is to say, under certain laws—including those laws subject to this current comparative study—this premise presupposes the existence of an employer-employee relationship. In such a relationship, when a work is created, the copyrights of this work are granted to the employer.[29]

4 CONCEIVABLE LEGAL SOLUTIONS

In this regard, two potential solutions could be proposed: a) to grant the capacity of an author to all involved parties (i.e., the designer of the AI application, the provider of data and information, and the user); or b) to grant the capacity of an author to one individual only, reimbursing other contributors to the intellectual work pursuant to the rules of justice (i.e. Accession of Movables).

4.1. Artificial Intelligence Innovations as Joint Works

One perspective on addressing authorship of works created by AI is to consider them joint works. The term "joint works" here refers to creations produced by multiple contributors, distinct from collective works. A joint work may be one in which the contributions of each creator can either be identified and separated or remain inseparable.

Under Article (138/5) of the Egyptian copyright law and Article (1) of the UAE copyright law, a joint works refers to a collaborative creation in which each contributor holds

29 For example, see: Osama Ahmed Badr, 'Intellectual Works in the Provisions of Labor Law: A Comparative Study' (2008) 2 Journal of Law for Legal and Economic Research, Faculty of Law, Alexandria University 1, doi:10.21608/lalexu.2008.272800; Fréderic Pollaud-Dulian, 'Ombre et Lumière sur le Droit d'Auteur des Salariés Doctrine' (2019) 150 La Semaine Juridique - Edition Générale (JCP G) 1283.

copyright either to a specific, distinguishable part or to the entire work if it is not possible to specify and separate the share of each person in the work.[30]

Under this model, all involved parties—designer, data provider and user—are all considered co-authors of the AI-generated work. Each one of them would be entitled to the copyrights of their contribution or the copyrights of the entirety of the work, depending on whether it is possible to separate each share.[31]

4.2. Applying the Rules of Accession of Movables to Artificial Intelligence Works

One possible solution to the authorship and ownership challenges surrounding AI-generated works is the application of the rules of **accession of movables**. Under this approach, the competent court of law would have judicial authority in settling disputes regarding the ownership rights of the work pursuant to the rules of justice.

The concept of **accession of movables** traditionally applies when two separately owned movables become merged in such a way that separating them would cause damage. In such cases, pursuant to the rules of justice, the competent judge determines the rightful owner of the movable and provides appropriate compensation to the other party. However, in a ruling by the Paris Court of Appeal in 1993, it was held that the rules of **accession** could only be applied to tangible property, not intangible assets such as intellectual works.[32]

Nonetheless, some French jurists have challenged the notion that rules of accession should never apply to funds or intangible things. In fact, similar principles have been applied in the financial system of spouses, particularly when a jointly acquired business is later awarded to one spouse based on financial solvency.

On this basis, the exclusion of applying the principle of accession of movables to the field of copyrights is not attributed to the difficulty of such application or to the assumption that this principle requires special adaptation to be suitable to each dispute; this exclusion is attributed to other reasons. In this sense, the adoption of a legal regulation (whether it is legislative, common or customary) that prohibits applying the principle of accession of movables to derivative works should rest on the presence of an applicable legal regulation that is stipulated and specified for those works; hence, the application of this principle could be excluded with any work that is already covered by a legal or customary regulation.

30 Mohamed Abdelsadek, *Copyrights of Joint Works* (Dar Al Nahda Al Arabia 2002); Mohamad Arfam ElKhatib, 'Artificial Intelligence: Towards a Legal Definition an In-Depth: Study of the Philosophical Framework of Artificial Intelligence from a Comparative Legal Perspective' (2022) 2021 BAU Journal: Journal of Legal Studies 35, doi:10.54729/ERKF2181.

31 Ali Hadi Al-Obeidi and Muaath Sulaiman Al-Mulla, 'The Legal Basis of the Right to Explanation for Artificial Intelligence Decisions in UAE Law' (2022 International Arab Conference on Information Technology (ACIT), IEEE, UAE, 22-24 November 2022).

32 Vivant and Bruguière (n 1) 273, n°284.

Unfortunately, no such legal regulation currently exists for AI-generated works. As a result, several concerned parties must either regulate ownership rights through contractual agreements or resort to competent courts of law to resolve disputes based on principles of justice—a solution already embedded in the same legal provisions concerning the accession of movables.

5 THE FUTURE OF LEGAL PROTECTION FOR PURE ARTIFICIAL INTELLIGENCE INNOVATIONS

5.1. Pure Artificial Intelligence Innovations and Human Intervention

With regard to intellectual works created by AI systems, the primary question is always whether the AI System created the work independently and autonomously or whether human intervention has played a role. In fact, this issue has been subject to wide debate, particularly in relation to satellite images.

According to jurisprudence, even when human intervention in producing such images—or any other computer-generated works—seems minimal, it nevertheless still exists. In other words, these images are merely the result of a sequence of processes initiated by a natural person or legal entity that uses or publishes them. Hence, such works are, by definition, deemed as collective works, with copyrights granted to the natural person or the legal entity who took the initial initiative.[33]

Similarly, the same reasoning applies to works of AI systems. That is to say, AI-generated outputs stem from several processes, including designing the application, entering and arranging the data, connecting the application to the information sources, and using the application to produce work. Since these steps are initiated by a natural person or legal entity, the resulting work is ultimately attributable to them, granting them copyright ownership.[34]

Crucially, this issue here is around the assignment of financial rights of some work that has been created by a computer application or an AI system to a natural person or a legal entity; thus, although the AI system itself is not an author in the legal sense, the natural person directing the AI's operations has the author's capacity and moral authority. This person is the one performing all sequential processes of designing, arranging, and giving orders, hence accomplishing the work in its final form through the use of an electronic tool.

In this context, the European Court of Justice has reaffirmed the necessity of human authorship in copyright protection on multiple occasions, particularly in the *Infopaq* case. The court held that "Copyright law may only be applied with original works, whose originality manages to reflect the author's intellectual creativity." This ruling underscores

33 André R Bertrand, *Droit d'Auteur* 2011/2012 (3e éd, Dalloz-Action, Dalloz 2010) 105, n°103-21.
34 ibid 110, no°103-27.

the judiciary's consistent position that human intervention is essential for any work to be eligible for the legal protection of copyright law.[35]

Similarly, the United States Copyright Office has asserted that it will decline to register works "produced by a machine or mere mechanical process that operates randomly or automatically without any creative input or intervention from a human author."[36]

This principle was highlighted in a related case, where the plaintiff asserted that they had developed and owned computer programs equipped with artificial intelligence capable of generating original visual art akin to that of a human artist. One such AI system, known as the "Creativity Machine," created the work in question, titled "A Recent Entrance to Paradise". After the work's creation, the plaintiff sought to register it with the Copyright Office. However, the Copyright Office rejected the application, stating that the work "lack[ed] the human authorship necessary to support a copyright claim," emphasising that copyright law only covers works created by human authors.[37] The court rejected the lawsuit, affirming that copyright protection is a human endeavour. The ruling relied on several judicial precedents, including *Kelley v. Chicago Park District*, where the Seventh Circuit refused to recognise copyright in a cultivated garden, emphasizing that copyright protection applies only to works created by humans.[38]

English intellectual property law (Copyright, Designs and Patents Act of 1988) provides a special legal provision addressing the issue of "works accomplished by a computer system, without any human author". Article (9/3) states: "In case of a literary, dramatic, musical or artistic work which is computer-generated, the author shall be taken to be the person by whom the arrangements necessary for the creation of the work are undertaken."[39]

In the same vein, the Dubai Court of Cassation has held that; "The legislator has defined a work as any innovative creation in the fields of literature, arts, or sciences, regardless of its type, the method of its expression, its significance, or its purpose. The author is the person who creates the work. A person is considered the author of a work if their name appears on it or it is attributed to them upon publication as the author, unless proven otherwise."[40]

35 *Infopaq International A/S v Danske Dagblades Forening* Case C-302/10 (CJUE (Third Chamber), 17 January 2012) <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A62010CO0302> accessed 25 November 2024; Clara Sultan, 'Droit d'Auteur et IA: L'Exemple ChatGPT' (*linkedIn - Clara Sultan*, 14 Février 2023) <https://fr.linkedin.com/pulse/droit-dauteur-et-ia-lexemple-chatgpt-clara-sultan> consulté le 25 novembre 2024.

36 Kalin Hristov, 'Artificial Intelligence and the Copyright Dilemma' (2017) 57(3) Idea: The IP Law Review 431.

37 *Thaler v Perlmutter* no 22-CV-384-1564-BAH (US District Court for the District of Columbia, 18 August 2023) <https://casetext.com/case/thaler-v-perlmutter> accessed 25 November 2024.

38 ibid.

39 Copyright, Designs and Patents Act 1988 (UK), art 9(3) <https://www.legislation.gov.uk/ukpga/1988/48/contents> accessed 25 November 2024.

40 Appeal no 683 of the Judicial Year 2023 (Court of Cassation, Commercial (Emirate of Dubai), 18 September 2024).

English courts had already applied this principle in earlier cases involving computer-generated innovations under the Intellectual Property Rights Law 1956. A notable case in 1985 involved the Daily Express newspaper, which had published a number of issues containing a computer-generated lottery. When a competing newspaper replicated the same lottery numbers, the Daily Express initiated a plagiarism claim. In their defence, the respondents argued that those lottery numbers could not be covered by the legal protection of the copyright law, as they were works not created by a human author. However, this plea was rejected on the legal grounds that the computer was merely a tool, much like a pen in a human hand.[41]

In France, Egypt, and the UAE, copyright laws provide legal protection for intellectual works involving human innovation. Hence, a work must result from human intervention to qualify for copyright protection. Authors (i.e., the natural person) may use any tangible means or tools, including computer systems or smart applications, to complete their intellectual works.

Reflecting this principle, the Bordeaux Court of Appeal ruled that copyright protection extends to intellectual works even when their initial origin is an information system, provided there is a minimal limit of originality intended by the designer.[42] Likewise, the Paris Court of First Instance ruled that: "Upon fulfilling the requirement of a human intervention, a computer-generated musical piece shall be considered as an innovation of an original work, hence being eligible for legal protection; and that is regardless to the quality of this musical piece."[43]

Interestingly, in all of the above examples, artificial intelligence is considered an auxiliary tool used in the process of human innovation; hence, the copyrights of the resulting innovation are granted to a natural person or legal entity that holds the legal personality. For example, OpenAI is considered the owner company of all contents generated by its famous application, Chat-GPT, in accordance with its General Conditions of Use (CGU).[44] That is to say, these terms and conditions define both the legal liability for publication and exploitation and the parties entitled to the copyrights of works created by ChatGPT.

Under these terms and conditions of use, an innovator may publish content written for the first time with the aid of ChatGPT (e.g., a book or any other publications), provided they acknowledge the role of AI in its creation and refrain from publishing any content that could incite hatred or serves political campaigns. Users are also permitted to reuse ChatGPT-generated content, subject to compliance with the mentioned terms and conditions.

41 *Express Newspapers v Liverpool Daily Post & Echo PLC* (Chancery Division of the High Court (UK), 28 February 1985) [1985] 3 All ER 680; Bertrand (n 33) 105, n°103-22, note de bas n°2.

42 RG n 03/05512 (Cour d'appel de Bordeaux, 31 janvier 2005).

43 Anne-Emmanuelle Kahn, 'Objet du droit d'auteur: Notion d'oeuvre musicale (CPI, art L 112-2)' dans *Juris-Classeur Propriété littéraire et artistique* (LexisNexis 2013) fasc 1138.

44 OpenAI, 'Terms of Use' (*OpenAI*, 11 December 2024) <https://openai.com/policies/row-terms-of-use/> accessed 12 December 2024.

At the same time, OpenAI retains ownership of all content and its copyrights, as the company bears legal accountability in case of any violations of the CGU in publishing or use of such content. In addition, if a user has tangibly modified AI-generated content, this user may acquire the capacity of an author of the resulting derivative work and be entitled to some copyrights. However, at the same time, OpenAI continues to hold the original content's copyrights.

Based on the above, copyrights for works created by artificial intelligence are always granted to a natural person or legal entity—that is, an entity with legal personality. This raises the question: If, one day, the legal personality of AI systems is acknowledged by law, would they then be eligible for the capacity of an author and eligible for the relevant copyrights?

5.2. The Legal Personality of Artificial Intelligence and Copyrights

As previously mentioned, copyright law is mainly concerned with providing the required legal protection for intellectual works by granting authors exclusive intangible property rights against all potential claims, i.e. an entitlement which involves both moral rights and financial rights.[45] Under copyright law, as well as French jurisprudence and judicial precedent, originality is a fundamental requirement for legal protection, which inherently means the author must be a natural person.[46]

Likewise, copyright protection laws in both Egypt and the UAE stipulate that the author must be a natural person. Article (1) of the UAE Federal Decree-Law No. (38) 2021 defines the author as a person who creates a work,[47] a definition echoed in Article (138) of the Egyptian Law No. (82) 2002. These laws explicitly state that a collective work may be created by natural persons or a legal entity, while joint works are several persons as creators.[48]

In this sense, the author must be a person, specifically, a natural person. Despite not being a natural person, a legal entity is acknowledged by intellectual property laws as it holds the legal capacity as an owner, entitling it to financial rights over some works. However, it cannot be considered the author of intellectual works.

In light of the above, even if AI were to be granted legal personality in the future, this would not necessarily confer authorship status. At most, it would extend only to financial rights over works generated by AI systems without human intervention rather than acknowledging them as authors under copyright law.

45 Loi de la République Française no 92-597 du 1992 (n 3) art L.111-1.
46 Bensamoun (n 13).
47 Federal Decree-Law of the United Arab Emirates no (38) of 2021 (n 4).
48 Law of the Arab Republic of Egypt no (82) of 2002 (n 5).

5.3. Difficulties of Acknowledging the Legal Personality of Artificial Intelligence

By virtue of law and jurisprudence, a natural person is fundamentally the only person who may be legally entitled to certain rights (*Sujet de Droits*). However, legal entities may be exceptionally entitled to such rights, depending on their recognised function. Under Egyptian Civil Law, the UAE Civil Transactions Acts 1985, and French Civil Law, legal personality is granted to some legal entities, including both public and private legal entities. These legal entities must fulfil the legal capacity required for taking any legal actions, even charitable ones, and are represented by a legal representative. In this way, a legal entity assumes legal responsibility while also acquiring legal protection against any infringements.

Despite advancements in AI and progressive legal reforms—such as French law's recognition of animals as living beings with feelings[49]—animals nor AI currently possess legal personality. While AI remains without legal status under existing laws, it is worth mentioning that several scientific attempts have been submitted to acknowledge legal personality for AI applications in the future.[50]

5.4. Feasibility of Acknowledging the Legal Personality of Artificial Intelligence Systems

Currently, French, Egyptian, and UAE laws are still highly hesitant about granting legal personality to AI systems, though there is potential for new developments in the coming years. For instance, acknowledging the legal personality of robots is an issue that is still subject to much debate; however, some countries have already taken the initiative and assumed a pioneering role in the field. Notably, in 2017, the Kingdom of Saudi Arabia granted citizenship to "Sofia," a smart robot powered by artificial intelligence.

This unprecedented move sparked significant commentary in French jurisprudence. French legal experts argue that the adoption of any similar measures in their country could cause dire consequences and endless problems, especially regarding civil rights and legal responsibility. They argue that AI should always remain, in all cases, a tool that is meant to serve man, not to replace him.[51]

49 Gwendoline Lardeux, 'Humanité, Personnalité et Animalité' (2021) 3 RTD Civ 573; Jean-Pierre Marguenaud, 'L'Animal Sujet de Droit ou la Modernité d'une Vieille Idée de René Demogue' (2021) 3 RTD Civ 591.

50 Hamdy Saad, 'The Legal Nature of Artificial Intelligence' (2021) 36(5s) Journal of the Faculty of Sharia and Law in Tanta 248, doi:10.21608/mksq.2021.269724; Hebatallah Mansour, 'Copyrights Protection for Works Published via the Internet: A Comparative Study in the French and Egyptian Laws' (DPhil thesis, Cairo University, Faculty of Law 2022).

51 Sultan (n 35): "A mon sens, adopter une solution similaire dans notre pays risquerait d'entrainer de lourdes conséquences et d'innombrables problématiques notamment en termes d'octroi de droits civiques et de responsabilité. L'IA devrait rester, en tout état de cause, un outil au service de l'homme et non un outil tendant à le remplacer …"

6 CONCLUSIONS

This study has addressed innovations in artificial intelligence in light of the applicable copyright protection laws in the UAE, Egypt and France. The analysis has led to several conclusions that could be used to inform legal considerations. Below are the research results:

6.1. Research Results

1) The human creator remains the author: When there is a human element behind any of the processes of designing, providing data, or utilising AI software, the AI remains a technological tool rather than the author of the work. The human creator retains authorship as long as the work reflects their personal creative input and fulfils the terms stated for intellectual work protection.

2) Ultra-smart AI is not the author: In spite of their human-like abilities to act, create and make decisions, smart robots and advanced applications cannot be considered authors. Current legal frameworks require the author to be a natural person with a distinctive personal character that reflects their innovation. Even if AI systems evolve to be capable of creating intellectual works, they cannot be granted authorship until legal personality is recognised, thereby reconsidering their entitlement to the relevant copyrights.

3) There are no legal grounds for AI to have legal personality: Presently, there are no legal provisions within the applicable laws of the UAE, Egypt, or France that acknowledge AI systems or smart robots as possessing legal personality. In other words, pursuant to all applicable legal provisions, legal personality is recognised for natural persons by default and for legal entities based on their function.

4) No legal system has ever acknowledged legal personality for robots or AI: To date, no legal system has granted legal personality to robots or AI. The European Parliament has failed to find any real-life application or adoption by the legal systems of European States.[52] Even if legal personality is granted to AI systems in the future, it is unlikely that those systems would acquire the capacity of an author. The most probable achievement in this regard would be AI systems being designated as holders of rights, not authors, as legal entities are the only entities currently recognised as holders of rights under the law.

52 In this regard, we believe that it is somehow strange and unusual for the European Union to make this recommendation based on legal procedures taken with regard to the issue of Robotics by the United States of America and other countries adopting the legal system of Common Law; however, to the best of our knowledge, the mentioned legal systems have not made any decision or passed any laws that acknowledge or grant any legal personality to robots.

6.2. Recommendations

Rather than recognising AI systems as independent legal persons (*Sujets de Droit*), it is recommended that they be granted a **special legal status** (*Statut Légal)*. That is to say, in the meantime, complete recognition of their legal personality is not necessary, especially given the lack of any urgent practical need to do so. Instead, these systems could be granted some rights that reflect their advanced nature rather than treating them as mere tangible things. This approach would be akin to how some legal systems treat living beings with feelings.

A **special legal framework** should be developed to protect the copyrights of innovations created by AI systems. Legislators should investigate ways to address intellectual innovations generated by AI in light of the existing laws, thereby identifying all relevant rights and obligations concerning these innovations. The objective of this legal framework should be to strike a balance between protecting traditional copyrights and paving the way for new innovations that could emerge from artificial intelligence technologies, ultimately contributing to the enhancement of creativity and innovation in the future.

A **code of ethics** should be developed and approved for AI systems to specify all permissible and impermissible matters concerning their use and operation. In fact, it seems the world is already moving in this direction, as demonstrated by the United Nations World Organization initiative in announcing a Code of Ethics for artificial intelligence, with various legal systems— including those of the United Nations, Europe, Egypt, the UAE— working toward its adoption. To ensure responsible AI development and application, ethical principles should guide both the processes of AI-driven searches and their results, reinforcing the notion that there is no knowledge without ethics, a principle commonly agreed upon and adopted in light of the rapid development of AI technology.

The legal value of the adopted Code of Ethics for AI should be enhanced and emphasised, particularly in addressing potential infringements by AI on the rights of other parties— namely, authors and right holders whose works represent the raw material for AI-generated outputs. This is a highly significant point that requires further in-depth study.

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RIGHTS AND PERMISSIONS

АНОТАЦІЯ УКРАЇНСЬКОЮ МОВОЮ

Дослідницька стаття

ІННОВАЦІЇ ШТУЧНОГО ІНТЕЛЕКТУ У СВІТЛІ ЧИННОГО ЗАКОНУ ПРО АВТОРСЬКЕ ПРАВО: РЕАЛІСТИЧНІ РІШЕННЯ ТА ПЕРСПЕКТИВИ НА МАЙБУТНЄ. ПОРІВНЯЛЬНЕ ДОСЛІДЖЕННЯ ЗАКОНОДАВСТВА ОАЕ, ЄГИПТУ ТА ФРАНЦІЇ

Абед Фаєд, Аліа Закаріа та Ала Абуахмед*

АНОТАЦІЯ

Вступ. *У цій статті увагу зосереджено на роботах та інноваціях, здійснених штучним інтелектом (ШІ), а також на тому, як чинні закони та нормативні акти розглядають ці інновації в межах закону про авторське право. Також вивчаються проблеми, з якими стикаються правові системи в ОАЕ, Єгипті та Франції щодо авторських прав на інтелектуальні твори, створені за допомогою систем ШІ, таких як ChatGPT. Дослідження висвітлює проблему визначення «автора» у законі про авторське право, особливо з огляду на те, що ШІ не має особистих характеристик, пов'язаних з людьми-творцями.*

Методи. *У статті використовується порівняльно-правовий аналіз, у якому увагу було зосереджено на правовій системі ОАЕ, Єгипту та Франції. У роботі з'ясовується, як кожна юрисдикція наразі вирішує питання інтелектуальної власності, створеної ШІ, і чи чинні закони зважають на роль штучного інтелекту в творчих процесах у належний спосіб. Також було досліджено можливість надання системам ШІ «правової спроможності» та потребу в спеціальному етичному кодексі для того, щоб врегулювати використання штучного інтелекту відповідно до людських та етичних цінностей.*

Результати та висновки. *У результаті дослідження було зроблено висновок про нагальну необхідність переглянути та змінити чинні закони, щоб створити правову базу, яка ефективно врегульовуватиме авторські права, пов'язані з інноваціями, створеними за допомогою ШІ. Ця система має збалансувати просування інновацій та захист законних прав, забезпечивши етичне регулювання та юридичне визнання розробок ШІ.*

Ключові слова: *закон про авторське право та ШІ, права інтелектуальної власності на ШІ, проблеми авторського права в інноваціях у сфері ШІ, закон ОАЕ про авторське право, закон Франції про авторське право, моделі Chat-GPT і штучного інтелекту.*