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Intellectual Property Challenges for Works Created by Generative Artificial Intelligence Systems from a Spanish Perspective

1. Introductory remarks

The pace of progress in the field of artificial intelligence (AI) in general, and generative artificial intelligence (GenAI) in particular, is immense. GenAI, including large language models such as ChatGPT and image generation software, are powerful new tools, but they also raise profound, cutting-edge questions about how data is used in AI models and how the law applies to the outputs of these models, such as a paragraph of text or a computer-generated image. In just a few years, we have moved from a GenAI that depends on human programming to one that is almost completely independent, with results that are almost independent of human creative activity required by copyright law. At this point, it should be emphasized that AI does not possess intelligence but only imitates it, implementing an elaborate algorithm created by a programmer. Furthermore, thought processes determined by human intelligence cannot be covered by a uniform standardization of actions. Thus, it would rather be appropriate to define AI as the trained ability of algorithms to artificially replicate advanced cognitive systems, as human action is commonly considered, resulting from the ability to correctly interpret data from external sources, learn from it, and use this knowledge to perform specific tasks and achieve goals through flexible adaptation.

The operation of AI is based on analysing information obtained as input and then identifying rules and patterns based on machine learning in order to achieve the goals and results programmed for it. The predominant definition of AI implicitly designates the term intelligence as the human variety. AI is therefore understood to be a technical solution (by default, a computer programme), performing activities which are usually the domain of humans, specifically those requiring the use of human intellect.[1] Copyright in a computer product should also not be granted to the creator of AI, as

[1] T. Zalewski, *Definition of Artificial Intelligence* [in:] *Legal and technical aspects of Artificial Intelligence*, eds. L. Lai, M. Świerczyński, Warsaw 2017, pp. 9–23.

the programmer's effort here is essentially limited to the creation of the computer programme itself, and his or her influence on the creation of the object created by the programme is minimal. In other words, the view that it is the user who can be considered the creator of computer-generated creations is difficult to defend due to the lack of intervention by that person in the creation process sufficient to satisfy the requirement of creative contribution, as AI-generated creations are created without influence and independently of human action.

Questions arise as to what generative AI is and what distinguishes it from other AI models, as to what kind of output can be created by a generative AI model, and how much human input is required, as well as the importance of training data and whether the output imitates the input. It is also necessary to consider whether current intellectual property law applies to generative AI models and whether it adequately protects the rights of human innovators and creators.

It has to be noted that in the first phase of development, AI produced artistic and literary results formally very much determined by the information implemented by the programmer, and this still allowed existing copyright rules to be stretched to find solutions. Currently, in the era of ChatGPT it seems that the rope cannot be stretched any farther. The practically accessory and formally irrelevant character of human participation in the results generated by generative AI makes it impossible to protect those results in this way. The human-centred, or anthropocentric, foundation of copyright, typical of civil-law system countries, as well as the progressive understanding of copyright as a suitable instrument to protect and promote the creative interest of human beings through motivation and, incidentally, to guarantee the progressive enrichment of our cultural heritage, is not present when it comes to results generation which is not the result of human ingenuity.[2] Algorithms, in contrast to human creators, lack consciousness and emotions that could be influenced by the protection afforded through exclusive rights to the outcomes of their creative processes. Nevertheless, a fundamental question persists, much as it did a decade ago: Is it necessary to protect these results in any manner? The current legal debates primarily revolve around the acquisition of extensive datasets used to train these systems, many of which consist of pre-existing works. However, the absence of protection for the results produced introduces ambiguity into the solutions offered by the market.

Given all this, in the following sections of this article, the evolution of these productive AI systems will be analysed from a copyright law perspective, and then the challenges that currently arise will be outlined using selected examples from case law.

[2] For a complete overview of the history of copyright law, see: J. Marco Molia, *Bases históricas y filosóficas y precedentes legislativos del Derecho de autor*, "Anuario de Derecho Civil" 1994, vol. 47, nº 1, pp. 121–208.

2. The evolution of AI in the area of creativity in phases

The evolution of creations in the field of art and literature through the use of AI tools can be divided into three phases, although, on the one hand, these phases do not coincide exactly with the stages of the technological development of artificial neural networks[3] and, on the other hand, the fact that the phases can be associated with specific works need not be interpreted in a strict sense. We have chosen them simply because they are the most emblematic and representative from each point in time.

The first phase of generative AI is characterized by human control of the results. In this phase, humans used software as a tool for their creativity (AIaaT),[4] whether to translate a text or to paint a picture,[5] etc. In this stage of machine learning, AI as we currently comprehend it did not yet exist. AI was described as the ability of the machine to behave like the human brain with the same reasoning, learning and, in this case, creative capabilities. At this time (about the 1980s) neural networks capable of learning on their own already existed; nonetheless no deep learning was recognized.[6] The machine's behaviour, although potentially partly unpredictable, had been shaped by the data and the "artisanal" learning process to which it had been subjected. This implies a true collaboration between the programmer (acting as an artist) and the machine, with human input being important in the context of copyright.

The second phase of the evolution is the moment when the results of the project "The Next Rembrandt" (2016) were made public. This landmark project aimed to produce a painting that could perfectly well have been painted by Rembrandt if he were still alive today. By using deep learning algorithms and facial recognition software, the programmers were able to recognise the habitual patterns of the painter. One programme replicated the artist's techniques, while another analyzed dimensions, proportions, structure, and arrangement of facial features in various portraits. The topographies and reliefs of the paintings were scrutinized to prepare a file suitable for 3D printing and then, the state-of-the-art 3D printing machine replicated the appearance of an oil painting, mimicking the artist's style. For the development of the project, the team used deep learning algorithms, i.e. algorithms that use deeper (more layered) neural networks, rather than decision trees as machine learning does, so that the system learns by itself.[7]

In the light of the challenges posed by this project, with regard to the protection not only of the results obtained, but also of the methodologies and algorithms

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[3] *Breve Historia de las Redes Neuronales Artificiales. Aprende Machine Learning*, https://www.aprendemachinelearning.com/breve-historia-de-las-redes-neuronales-artificiales/ [accessed: 2023.08.15].

[4] This is an acronym for what is known as *Artificial Intelligence as a Tool* [C. Saiz García].

[5] As did Aaron, the painting robot of Harold Cohen, a well-known British artist who spent much of his life training Aaron's software; https://theconversation.com/aaron-vida-y-obra-de-la-primera-inteligencia-artificial-creativa-192281 [accessed: 2023.10.12].

[6] *Breve Historia de las Redes…*

[7] https://d3.harvard.edu/platform-digit/submission/the-next-rembrandt/ [accessed: 2023.04.13].

developed to produce them, academic legal doctrine began to publish the first studies on the possibility of protecting these results under copyright law.[8] The European Commission also noted the need for European IP offices and users to examine these issues, "in order to promote innovation and legal certainty in the field of intellectual property."[9] It can certainly be said that this project represents one of the milestones in the development of GenAI in the field of intellectual property. In general, experts did not consider such possible solutions from a scenario in which GenAI systems would be fully autonomous.[10] Instead, they assumed that GenAI systems had no place within the current copyright regime. In the case of more progressive doctrines, some attempted to apply the existing legal framework to new issues. In the case of the most far-reaching doctrine, the first proposals were made before the arrival of the third phase. Under these doctrines, an author's work is regarded as a product of individual genius, which justifies the copyright protection within the existing copyright system.[11] In relation to the attribution of the ownership of an exclusive right, although the collective work scheme is not contemplated in all the legislations within the EU or, if it is contemplated, it is not regulated in the same way, nonetheless, this rule of attribution of copyright was presented with certain adjustments, in this second phase, as adequate to resolve the issue of a large part of the results derived from large creative projects in which AI systems are involved. However, in order to be able to apply this attribution rule, it is first necessary to be able to qualify the result as an original work, which presupposes having considered the degree of human participation of a creative nature relevant

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[8] See: A. Guadamuz, *La inteligencia artificial y el derecho de autor*, "OMPI revista" 2017, nº 5, https://www.wipo.int/wipo_magazine/es/2017/05/article_0003.html [accessed: 2023.08.13]; A. Ramalho, *Will robots rule the (artistic) world? A proposed model for the legal status of creations by artificial intelligence systems*, 2017, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2987757 [accessed: 2023.04.14]; L. Bentley, *The UK provisions on computer generated works: A solution for AI creations?*, https://europeancopyrightsociety.org/wp-content/uploads/2018/06/lionel-the-uk-provisions-on-computer-generated-works.pdf [accessed: 2023.11.13]; J. Ginsburg, *People not machines: Authorship and what it means in the Bern Convention*, "IIC-International Review of Intellectual Property and Competition Law" 2018, no. 49, pp. 131–135; S. Navas Navarro, *Obras generadas por algoritmos, en torno a su posible protección*, "Revista de Derecho Civil" 2018, vol. 5, nº 2, pp. 273–292; C. Saiz García, *Obras creadas por sistemas de inteligencia artificial y su protección por el derecho de autor*, "In Dret – Revista para el Análisis del Derecho" 2019, nº 1; N. Sanjuan Rodríguez, *Inteligencia artificial y Propiedad Intelectual*, "Actualidad Jurídica Uría Menéndez" 2019, nº 52, pp. 82–94, https://www.uria.com/documentos/publicaciones/6675/documento/foro04.pdf?id=8960&forceDownload=true [accessed: 2023.04.13]; P. Lanteri, *La problemática de la IA y el Derecho de autor llama a la puerta de OMPI* [in:] *Cuadernos jurídicos del Instituto de Derecho de Autor – 15 aniversario*, ed. Á. Díez Alfonso, Madrid 2020, pp. 351–376; M. Duque Lizarralde, *Las obras creadas por inteligencia artificial: un nuevo reto para la Propiedad Intelectual*, "Pe. i.: Revista de propiedad intelectual" 2020, nº 64, pp. 13–67.

[9] Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions, Artificial Intelligence for Europe, (SWD(2018) 137).

[10] See: S. Navas Navarro, *Obras generadas*…

[11] C. Saiz García, *Obras creadas*…, p. 38; IVIR & JIIP, *Trends and Developments in Artificial Intelligence: Challenges to the Intellectual Property Rights Framework*, Final Report for the European Commission, Brussels 2020, p. 8.

to these effects. The core issue is not entirely new to copyright law, nor is it limited to the point where copyright intersects with AI. It is a question of delimiting the quality and quantity of participation required from a natural person in the creative process of a work in order for that person to receive the legal consideration of co-author (when we are talking about collaborative works regulated by art. 7 TRLPI – Real Decreto Legislativo 1/1996[12] – Phase 1, and as happened in the Barceló case, which was resolved by the Court of Appeal of Mallorca on 22 January 2008)[13] or in order that the result receive legal qualification of a work when human and non-human factors are involved in collaboration to produce it (in our case an AI system).

Moreover, it is crucial to remember that the element of originality required by European national legislations must be interpreted in a subjective manner, i.e., it is sufficient that the work reflects the personality of its author, i.e., that the author "has been able to express his creative ability by making free and creative decisions."[14] This implies the existence of a margin of creative freedom, not limited by technical or other conditioning factors.[15] The second requirement is to be precisely and objectively defined.[16]

In this technological state, AI learns autonomously, not solely relying on what programmers instruct. Therefore, determining whether copyright protection applies to one of these outcomes hinges on whether the involvement attributed to the human party goes beyond merely technical, organizational, or insignificant participation. It must involve a contribution through free and creative decision-making, ensuring that the result is objectively what it is, and not something else. The assessment must be carried out in the same way as for works of plural authorship whether in collaboration (art. 7 TRLPI) or in collective work (art. 8 TRLPI)[17] – when the creative activity of different authors is structured throughout the process, with one person taking control, directing, coordinating the project through the modification, adjustment, repetition, selection, etc. of each of the elements, original or not, that will compose the final work. Nonetheless, in situations where both individuals and algorithms contribute to the autonomous and creative decision-making process, the human intervention involved must be such that it guarantees not only the originality of the work but also the originality of the ultimate outcome. Otherwise, it cannot be considered original,

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12 Royal Decree 1/1996, of 12 April 1996, approving the revised text of the Intellectual Property Law, regularising, clarifying and harmonising the legal provisions in force on the matter (TRLPI).

13 The "Barceló Case" is one of the landmarks judgments in Spain that respond to the problem of authorship [M. Węgrzak]. See more: R. Casas Valles, *La condición de autor: los casos Barceló y Boadella*, "Pe.i.: Revista de propiedad intelectual" 2008, nº 28, pp. 127–142.

14 CJEU of 11 December 2011, Case C-145/10, "Eva-Maria Painer", marg. (89).

15 CJEU of 12 September 2019, Case 638/17, "Cofemel" and, in Spain, STS of 16 February 2021, "faena taurine."

16 CJEU (Grand Chamber) of 13 November 2018, Case C-310/17, "Levola Hengelo"; STS of 16 February 2021, "faena taurine."

17 See: Royal Decree 1/1996, of 12 April 1996, which approves the revised text of the Intellectual Property Law, regularising, clarifying, and harmonising the legal provisions in force on the subject, "BOE" No. 97, 22.04.1996.

and as it does not meet all the requirements of the legal concept of a work, thus, the protection of copyright does not arise. It is a different matter if, in the face of an alleged infringement, it can be demonstrated that the part used without authorization belongs to the author and not to the machine.[18] It is one thing to admit that a result is original for the purpose of predicating its protection by copyright, and another is to determine whether there has been an infringement. In the evaluation of the latter question, originality is used as a parameter to measure the content protected by the exclusive right.

In the case of "The Next Rembrandt," the human factor delimited the artistic genre, the author on which the painting was to be based, the works that were to feed the learning algorithms that were also created, as well as the facial recognition software programmes that were to be used for the purpose of creating a work (irrespective of the author's name). They also directed both its operation and the elements that were to determine the result (selection/choice of data with which to feed its learning – supervised or unsupervised). Further, the appearance of the partial results was modified (art. 11 TRLPI) or the software was reprogrammed and discarded, and the results were reworked along the way (art. 12 TRLPI) until the definitive result was achieved.

This is normally contained in the contract binding the definitive result to the company. If it is an employment contract, as in our case, it will be by way of art. 51 TRLPI; if it is a simple work lease, that will have to be expressly agreed. In order to comply with the requirements of art. 26.2 of Royal Decree 281/2003.[19] According to art. 26.2 of Royal Decree 281/2003: "The registration shall contain: the number of the registration record; the title of the work, performance or production; the subject matter of the intellectual property; the kind of work, performance or production with the specific description or identification data contained in the registration application; the identification data of the author or the original owner; the rights to be registered, their extent and conditions, if any; the owner of the economic rights with his identification data; if any, the title containing the right being registered, its date and the court, tribunal or notary who, if any, authorises it; the place, date, hour and minute of filing of the application for registration, the entry number assigned to it and the date from which the registration takes effect."

From the project's inception to its execution and post-production, the involvement of the human party is formally integrated into the expression of the outcome. Consequently, without the human factor, the result would yield a distinct outcome. This outcome is eligible for copyright protection. It is important to note that in the event of modifying a pre-existing work owned by a particular individual involved in the project, obtaining the relevant rights assignment is essential. This information should be incorporated into the formal documentation presenting the project's outcome. If it

[18] See: C. Saiz García, *Objeto y sujeto del derecho de autor*, Valencia 2000.

[19] Royal Decree 611/2023, of July 11, which approves the Regulations of the Intellectual Property Registry (art. 26.2 RRGPI), "BOE" No. 97, 22.04.1996.

is a labour contract, as in the case analyzed, it is by way of art. 51 TRLPI; if it is a simple work lease, it must be expressly agreed on.

However, in other cases, the presence of the human factor may not exceed this threshold, and the AI system generates the literary or artistic result autonomously, and thus that result is not subject to copyright protection. This is the case for most of the results created by generative AI tools; nevertheless, it should be borne in mind that free and creative decision-making on the part of the author may take place at various points in the creative process, including the post-production phase.[20] In the later stage, when applied to a protected work from another property, permission (for a derivative work) is necessary. Consequently, any creative process can be divided into two distinct phases: conception and performance. The conception starts with an idea, and ideas, as is well-known, are not protected by copyright. Once the execution phase commences, involving action to implement the project, that project might have evolved to a point where, contingent on the creative genre, there is minimal room (creative freedom margin) for the performer's independent decisions. In such cases, it does not matter whether a machine is responsible for the execution of the whole, because the result can only be attributed to the person who developed the detailed concept, whether it is one person or several people. On the contrary, the more human involvement there is in the process and the more the machine determines the formal elements of the final product, the more likely it is that the result will fail to meet the legal threshold for copyright protection.

The transition to the third phase was facilitated by advancements in cloud computing and the arrival of generative AI based on natural language. This enables users to prompt the system to produce a specific result matching their requirements. The AI system is presented to the user, whether the user be a company or an individual, as a content generation tool. Importantly, users are spared the necessity of investing in programming and fine-tuning the system, a service commonly referred to as AI as a Service (AIaaS).[21] If you asked DALL E (from OpenAI) to make an image of "a kiwi-shaped house with an open roof in a snowy landscape" it probably will generate the image without our reiterating the request (which is irrelevant for assessing originality) or employing editing tools (a relevant consideration, as derivative works may be produced). To receive these images, it is not necessary to be actively engaged in feeding or programming the system with data, as it is pre-fed with data, often comprised of protected works. Instead, the generation process is autonomously managed by the system. These indications receive the technical name of prompt and the prompt is the only thing that the human being can do throughout the whole "creative" process of generating the result. Certainly, once generated, there is the option to work on and modify the output. However, engaging in this post-production activity is neither obligatory nor necessary; it is merely possible. As previously mentioned, such

[20] CJEU of 11 December 2011, Case C-145/10, "Eva-Maria Painer", marg. (90–94).

[21] The AI system is offered to the user as a tool to generate content, without the user having to invest in programming and setting it up: AIaaS [C. Saiz García]; IVIR & JIIP, *Trends and Developments*…, p. 28.

modifications would subject the work to the legal framework governing derivative works (art. 11 TRLPI[22]).

It is remarkable that generative AI systems with these attributes extend beyond the realm of the visual arts, encompassing various artistic and literary genres. The rapid proliferation and continual refinement of these tools pose a challenge for those interested in staying abreast of developments in this domain. However, as far as copyright law is concerned, there are no major differences, as far as their functioning is concerned, between one application and another. Each of these applications, in reaching their current state, undergoes extensive training with vast amounts of information translated into data. They extract patterns through statistical induction processes, and their decisions are made through probabilistic calculations.[23] Despite their widespread impact on society, neither the EU[24] nor Spain has yet formulated a mature regulatory solution for these outcomes.[25] This is currently covered by the European Parliament's resolution of 20 October 2020 on intellectual property rights in relation to the development of technologies related to AI, and more recently, on 9 May 2023, by art. 28b. 4 of the proposed Artificial Intelligence Act, which imposes a number of obligations on these types of systems regarding their design and transparency, among others, in relation to one of the main problems that arise with these tools, that is when the data used to train them is protected in general and in particular by copyright.[26] The European Parliament resolution mentioned above was issued within a context where AI as a Service (AIaaS), specifically in the field of intellectual property rights, had not been conclusively demonstrated. After reiterating that in situations where AI serves merely as a tool to assist the author in the creative process (AIaaT), the resolution urged the Commission to diligently analyze the technology's impact on intellectual property rights. This analysis is crucial before Europe establishes a position, including considerations on the protection of autonomously generated results (paragraph 18).

Therefore, according to the position of the European Parliament, it is first necessary to assess whether some of these results can be considered as works created by means of AI systems (AIaaT) on the basis of the usual criteria set out in the explanation of Phase 2, taking into account the differences that characterise the new creative context created by AIaaS. The evaluation involves not just the degree of human involvement in the creative process leading to artistic or literary outcomes but also the quality of those outcomes, specifically whether they fulfill the criteria outlined by the Court of Justice

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22 Royal Decree 611/2023, of July 11, which approves the Regulations of the Intellectual Property Registry, "BOE" No. 97, 22.04.1996.

23 N. Rodríguez Ortega, *Inteligencia artificial y campo del arte*, Malaga 2020.

24 European Parliament Resolution of 20 October 2020, on Intellectual Property Rights for the development of technologies relating to artificial intelligence, P9 TA(2020)0277.

25 Digital Agenda 2025, p. 38, https://portal.mineco.gob.es/RecursosArticulo/mineco/prensa/ficheros/noticias/2018/Agenda_Digital_2025.pdf [accessed: 2023.04.13].

26 https://www.europarl.europa.eu/meetdocs/2014_2019/plmrep/COMMITTEES/CJ40/DV/2023/05-11/ConsolidatedCA_IMCOLIBE_AI_ACT_EN.pdf [accessed: 2023.04.13].

of the European Union (CJEU) for establishing copyright protection. When considering this inquiry in the area of GenAI, one must ask whether the text inputted by a user into the system holds relevance for these purposes. The prompts, inherently, can be classified within the "concept" phase of the creative process. Conversely, the machine algorithm, in response to such prompts, retains the liberty to make independent creative decisions, determining the specific forms of the results.

In principle, applying the theory of (controlled) conception and execution, if the prompt is sufficiently detailed so as to constrain the machine's activity to the point of limiting its margin of creative freedom, the prompt, if original, determines the result and it should generally be possible to state that, in such cases, human originality transcends machine originality, and the user can be attributed copyright over it. If, on the other hand, human involvement remains in the realm of mere ideas, the conclusion should be the opposite, and it should be considered that these results are absolutely autonomous and, therefore, not susceptible to copyright protection.

In support of this, reference can be made to the judgment of the CJEU of 16 June 2009, which permitted the possibility of originality of a passage consisting of eleven words. However, it should be noted that this conclusion refers to an unauthorised partial reproduction of another's work, and not to whether eleven words (although most prompts have more words) are sufficient to confer originality on a work, of whatever nature, made entirely by a machine.[27] It should be remembered that art. 10.2 TRLPI[28] protects the title of a work when it is original, "as part of it," which would seem to exclude its protection when the work it gives a title to is not original. This argument is perfectly transferable to works generated by an AI system on the basis of prompts, especially those whose form of expression cannot be precisely defined by language, such as painting, video, or music. However, that argument would have to be excluded *a priori* in those cases where the result shares an expressive form with the prompt. Theoretically, this issue is once more a matter to be determined on a case-by-case basis.

Nevertheless, the practical implementation of all AI systems involves a character limit and it is recommended for the system's optimal performance to keep prompts as concise and clear as possible. Consequently, in practice, the likelihood of encountering original results in the third phase is considerably lower than one might initially assume. The situation may differ if, after obtaining a non-protectable result, the user subjects it to a post-production process. As already mentioned, in these cases, it will be necessary to apply the legal regime of derivative works, with the added problem that, unlike those that transform other previous works, even those that have already entered the public domain, it will be very difficult to prove which part of the work is due to the automatic operation of the machine (not original) and which part is due to human activity.

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27 Paragraphs 44 to 47, CJEU of 16 June 2009, Case C-5/08, "Infopaq."

28 Royal Decree 611/2023, of July 11, which approves the Regulations of the Intellectual Property Registry, "BOE" No. 97, 22.04.1996.

In the absence of precision in this regard, on the one hand, it is very likely, as is currently the case, that the registration of a machine-generated work in the Intellectual Property Register will be rejected on the grounds of incompatibility with art. 26(2) RRLPI).[29] On the other hand, legal certainty is a key principle in the CJEU's interpretation of the autonomous concept of „work," as outlined by the Grand Chamber in its judgment of 13 November 2018 (32). The court stated that for a result to be considered original, it must "necessarily be an expression of the subject matter of copyright, identifiable with sufficient precision and objectivity, even if that expression is not necessarily permanent." Thus, it is likely that the courts will functionally extend this interpretation to these cases and also refuse its protection.[30] In this ruling, the CJEU compares the taste of a food to literary, artistic, or scientific works, noting that the latter, unlike taste, provide a clear and objective expression of the subject matter being protected (paragraph 42).

3. The current situation and legal challenges

Various questions persist regarding these types of AI productions discussed above; such questions include exploring the possibility or necessity of alternative outcomes. In particular the concept of rights related to copyright, but distinct in their basis of protection from the personalist position, should be considered. However, the analysis of this concept reveals important differences between such rights that make it necessary to favour drawing a parallel with the basis of the neighbouring right of the creator of a non-original photograph or a reproduction that is the result of a process similar to that involved with AI (art. 128 TRLPI).[31] This, though, would require an appropriate legislative response addressing the literary and artistic outputs generated by AI systems. Such a potential reform should be of international or at least regional scope, without being an issue to be resolved internally in each country.[32]

In addition, one of the relevant concerns has to do with the vast amount of data with which AI systems are programmed. Phase 1 and 2 models (known as "narrow models") were trained to perform a single task. They were fed with specific data to focus them on the target they were aimed at. However, the algorithm of phase 3 models (known as "base models"), in addition to being trained with a huge amount and variety of data, has the ability to transfer knowledge from one task to another. As such,

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[29] The anonymized decisions of the Madrid IP Registry can be consulted at the following link: https://alternativaseconomicas.coop/trabajo-inteligencia-artificial/chatgpt-pone-en-pie-de-guerra-a-las-professions-qualifications [accessed: 2023.09.20].

[30] CJEU (Grand Chamber) of 13 November 2018, Case C-310/17, "Levola Hengelo", ECLI:EU:C:2018:899, paragraph 40.

[31] Royal Decree 1/1996, of April 12 1996, approving the revised text of the Intellectual Property Law, regularizing, clarifying and harmonizing the legal provisions in force on the subject; https://www.boe.es/buscar/act.php?id=BOE-A-1996-8930&tn=1&p=20220330 [accessed: 2023.09.20].

[32] See more: C. Saiz García, *Obras creadas*…, p. 30.

such a model can be trained once and then adapted to perform completely different tasks.[33] Base models or baseline models are used to train AI applications grounded in natural language processing (NLP) and natural language generation (NLG), allowing companies/users to save a huge amount of money on training their own machine learning model in the cloud and focus their efforts on tuning it to perform specific tasks.[34] Examples of baseline models include those of OpenAI, Google, or Bloom, developed by the Hugging Face platform. Some examples of generative AI applications that use pre-trained data are GPT in various versions, DALL E, BERT, etc. All of them are constantly learning and improving from their experiences, using a feedback process.[35]

In general, for data processing to occur, a copy of the data must be made to train the model.[36] The main problem revolves around the nature of this action: Does accessing, reading, analyzing, and extracting data, particularly when it involves protected works or their components, for processing purposes constitute a breach of copyright, specifically the right of reproduction? The right of reproduction, as articulated in paragraphs 21 of Directive 2001/29/EC,[37] requires a broad interpretation to provide authors with substantial protection, ensuring adequate compensation for the use of their works and enabling them to sustain their artistic and creative work.[38] Conversely, considering that many of these works have been included in a data repository with the authors' consent, one may ask whether such consent legitimizes their use for training AI tools, essentially authorizing the text and data mining required for this training purpose.[39] AI systems are not mystical black boxes that operate outside the law. The path to responsible AI lies in ensuring fairness and ethical considerations for all users. Emerging doubts and controversies have and will continue to lead to lawsuits, and case law might assist in answering these questions.

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33 https://www.techopedia.com/definition/34826/foundation-model [accessed: 2023.10.10].

34 For example, Stable Diffusion uses a LAION dataset, a structured dataset of more than 5 billion, not of images per se, but of its CLIP, created by a model created by OpenAI – VIT-L/14 [C. Saiz García], https://laion.ai/blog/laion-aesthetics/ [accessed: 2023.10.23], for Bloom see: https://www.techopedia.com/definition/34826/foundation-model [accessed: 2023.10.23].

35 For example, Dall E 2 can, through deep learning, identify individual objects and understand the relationship between them, which makes the tool very interesting when relating naturally unrelated objects, e.g. a sofa with a watermelon; an astronaut and a horse, etc., to provide a result tailored to the user's demand [C. Saiz García].

36 https://hipertextual.com/2023/02/getty-demanda-ia-stable-diffusion-derechos-autor [accessed: 2023.10.23].

37 Directive 2001/29/EC of the European Parliament and of the Council of 22 May 2001 on the harmonisation of certain aspects of copyright and related rights in the information society, Official Journal L 167, 22.06.2001, P. 0010–0019.

38 Paragraphs 9 to 11 Directive 2001/29, CJEU of 16 July 2009, Case C-05/08, "Infopaq", ECLI:EU:C:2009:465, Nos. 40 and 41.

39 V. Jiménez Serranía, *Data, mining and innovation: Quo vadis Europa? Analysis of the new exceptions for text and data mining*, "Cuadernos de Derecho Transnacional" 2020, vol. 12, nº 1; A. Guadamuz, *Artist file class-action lawsuit against Stability AI, DevianArt, and Midjourney*, TechnoLlama, January 2023, https://www.technollama.co.uk/artists-file-class-action-lawsuit-against-stability-ai-deviantart-and-midjourney [accessed: 2023.10.23].

4. Selected case law on GenAI in the context of copyright infringements

The majority of Generative AI lawsuits focus on the use of data, with the first US class-action case specifically addressing AI system training and output. GitHub, Microsoft, and Open AI face legal scrutiny over whether open-source code can be reproduced without licenses by AI. The lawsuit alleges copyright infringement, claiming that the development of GitHub Copilot, a coding assistant utilizing AI, constitutes "software piracy on an unprecedented scale." Although it is in the early stages, the case has potentially far-reaching implications for copyright law in the realm of generative AI. This underscores the necessity for responsible and ethical AI practices, emphasizing that AI systems, like any innovation, must adhere to the law. Copilot, which was presented by Microsoft-owned GitHub in June 2021, was trained on repositories of code collected from the public web, many of which are published under licences that require the copyright of programmer-creators to be respected. Notably, Copilot has been identified as using substantial segments of licensed code without attribution to the original authors.[40]

Furthermore, several visual artists have filed a lawsuit against the companies that created image generators Stable Diffusion, Midjourney, and DreamUp (all of which generate images based on text prompts from users), claiming that the first two browsed the Internet in order to copy millions of works without the consent of the rights holders, including the works of the plaintiffs.[41] They argue that all generated images are derivative works and are protected by copyright law and that their works were reproduced in order to train the systems. Consequently, all the works generated by these tools are their derivative works, and, in fact, not only theirs, but also those of the five billion rights holders whose works were used to train the system.[42] The companies behind these image generators programmers argue that their use of this data is covered by the fair use doctrine in the USA. However, in light of the facts of the case, this is very highly questionable. In a separate lawsuit, Getty Images sued Stable Diffusion for copyright infringement, claiming that all of the images generated by Stable Diffusion were derivative works, and some even contained a trace of Getty's watermark.[43]

In addition, there are now complaints from other professionals, for example, in the media sector. Recently, the Association of the Media of Information (AMI, formerly AEDE) has called on big technology companies (such as Google and Microsoft) to

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[40] https://www.theverge.com/2022/11/8/23446821/microsoft-openai-github-copilot-class-action-lawsuit-ai-copyright-violation-training-data [accessed: 2023.10.12].

[41] The procedure can be followed at the following link: https://www.courtlistener.com/docket/66732129/parties/andersen-v-stability-ai-ltd/ [accessed: 2023.10.12].

[42] A. Guadamuz, *Artist file class-action…*

[43] https://www.theverge.com/2023/1/17/23558516/ai-art-copyright-stable-diffusion-getty-images-lawsuit [accessed: 2023.10.22]; https://www.theverge.com/2022/11/8/23446821/microsoft-openai-github-copilot-class-action-lawsuit-ai-copyright-violation-training-data [accessed: 2023.10.22].

negotiate how to pay for the use made of their news by these tools.[44] This demand is reminiscent of the AEDE canon or Google tax, which led to the closure of Google News in Spain for eight years, following the reform of the Intellectual Property Law in 2014.[45]

One of the most important decisions in this field is that of 15 March 2023 in which the U.S.[46] Copyright Office announced that works created with the assistance of AI may be copyrightable, provided the work involves sufficient human authorship. According to the policy statement, works created by AI without human intervention or involvement still cannot be copyrighted, as they fail to meet the human authorship requirement. For example, when an AI programme produces a complex written, visual, or musical work in response to a prompt from a human, the "traditional elements of authorship" are determined and executed by the technology, not by the human user. Thus, the resulting work is not copyrightable. On the other hand, a work containing AI-generated material may be copyrightable where there is sufficient human authorship, such as when a human selects or arranges AI-generated material in a creative way or modifies material originally generated by AI technology.

Here it is also worth considering a landmark court ruling in China, a country that has regulated GenAI.[47] A Beijing court, for the time being in a first-instance ruling, decided that creators of works involving AI contributions are eligible for copyright protection. The court ruled that the plaintiff, who created AI-generated images uploaded to an online platform, holds copyright. It emphasized that AI-generated images reflecting human creators' original intellectual input qualify for copyright protection, meeting the criteria of originality and reflecting human intellectual contribution. As a result, the court recognized the graphics in question as copyrighted works.[48]

Given the potential for original works, eligible for copyright protection, to be created through generative AI systems such as Open AI's ChatGPT, Microsoft Bing, Google Bart, etc., several challenges may arise when an author seeks to register such a work with the Intellectual Property Registry. Firstly, it is important to highlight that in Spain, registering a work in the Intellectual Property Register is both optional and declaratory. This registration provides the author with a probative advantage, but even if the Register refuses the application, the work can still be regarded and treated in the

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44 https://www.eldiario.es/tecnologia/creadores-canon-aede-quieren-tasa-chatgpt-inteligencia-artificial_1_10171676.html [accessed: 2023.10.22].

45 C. Saiz García, *El retorno de Google News*, "Diario La Ley" 2021, nº 9963.

46 https://www.ropesgray.com/en/insights/alerts/2023/03/can-works-created-with-ai-be-copyrighted-copyright-office-issues-formal-guidance; https://githubcopilotlitigation.com/ [accessed: 2023.10.22].

47 It is worth emphasizing that China has adopted the world's first binding national regulations on AI. In particular, in 2023 the Interim Measures for the Management of Generative Artificial Intelligence Services covered a broad range of topics related to creating and delivering generative AI services [M. Węgrzak]. See more: https://digichina.stanford.edu/work/how-will-chinas-generative-ai-regulations-shape-the-future-a-digichina-f [accessed: 2023.10.22].

48 https://www.scmp.com/tech/tech-trends/article/3243570/beijing-courts-ruling-ai-generated-content-can-be-covered-copyright-eschews-us-stand-far-reaching [accessed: 2023.12.09].

market as an original piece. In the event of conflicts, the matter of the work's originality can still be brought before the courts.

In view of the above, it has to be noted that two applications have been refused in Spain. One application involved a "literary work" with a text partially generated by ChatGPT, while the second concerned a series of images covering various themes generated by these systems. In both cases, the registrar scrutinized the applicant's contribution to the generation of images and texts to assess whether, according to prevailing legal and jurisprudential criteria, this participation implies intellectual authorship. The operation of the AI system ChatGPT cannot be described as a "mere tool" for the Intellectual Property Registry. The reason for this is that even if there are major contributions by the applicant, it is clear that a part of the final result, embodied in the copy, was generated randomly and unpredictably by the AI system.

For the images, which were obtained by the applicant using an AI tool and core prompts for generation, it was concluded that there was no significant human involvement. The applicant's participation consisted in supplying verbally, through natural language, a series of input instructions (prompts) within an AI system (Midjourney and Dreamstudio), in such a way that the AI system itself autonomously and unpredictably generated the images. Therefore, the result of the process does not respond to a previous conception or personal execution by the person who provided the instructions, but rather it was the system itself which, based on these instructions, determined the final form of expression (images, strokes, colours, and other visual elements).

These circumstances make it clear that the above-mentioned requirement of human creation and originality is not present in the images, since the result does not reflect the "personality" of the applicant, nor has the applicant had the opportunity to take "free and creative decisions." In this sense, the fact that the applicant has provided primary verbal input instructions (core prompts) and that the system itself has some functionalities that allow the user to choose certain parameters (such as the style or final touches), is not sufficient to consider that he has "authored" the final result.

In the case involving a text, the Register notes that despite the fact that ChatGPT was not used as a "mere tool," and as part of the final result was generated randomly and unpredictably by that system, some of the applicant's contributions may give rise to copyright in relation to the final result. The obstacle to entry in the Register is constituted by the requirements of the law including those in art. 26(2) RRGPI[49] 49. This is because the applicant's specific contribution to the overall result cannot be adequately identified. Consequently, the application for inscription was rejected[50]). This is because the specific participation of the applicant in the overall result cannot be adequately identified. Consequently, the application for inscription was rejected.[51]

[49] Royal Decree 281/2003, of 7 March 2003, approving the Regulations of the General Registry of Intellectual Property (RRGPI).

[50] Royal Decree 611/2023, of July 11, which approves the Regulations of the Intellectual Property Registry.

[51] https://www.monosestocasticos.com/p/por-que-el-registro-de-la-propiedad [accessed: 2023.10.02].

Conclusions

The popularization of creations created with AI makes it clear that programmes equipped with skills that their creators do not necessarily possess themselves are capable of generating works of a creative nature. Whether AI productions are subject to copyright protection and, if so, whether AI can be recognized as their creator, remains controversial. The evolution of AI in creativity is set out in three phases marked by technological advances. The diminishing role of human intervention in the creative process is observed and unlike human creators, algorithms lack awareness or influence, undermining the need for copyright protection. Ongoing legal discourse focuses on ownership and data protection, and market solutions can cause confusion. The changing landscape prompts a reassessment of the adequacy of copyright law to protect the rights of creators and maintain the human-centric foundation of copyright law, which is absent in the outcomes generated by AI. Non-acceptance of AI-generated works is the current legal state of affairs. Many things may change in the future, from the rights of authors whose works have been used to train these systems to the rights of those of us who generate text, images, and (soon) videos with them.

The contemporary challenges posed by GenAI are multifaceted and require careful consideration. The rapid evolution of these AI systems, such as ChatGPT, introduces legal and ethical dilemmas that the current intellectual property framework may not adequately address. AI's autonomy in generating creative works raises questions about copyright eligibility and the recognition of AI as a creator. The blurred line between human and machine contributions adds to the complexity of determining copyright ownership.

Moreover, the lack of a specific legal or regulatory framework tailored to the unique aspects of generative AI results in uncertainty about protection and liability. As AI systems become more sophisticated, issues related to data ownership, algorithm transparency, and potential misuse of AI-generated content require urgent attention. Emerging lawsuits illustrate existing problems, but they may also provide some insights into the gaps in the legal and regulatory framework for generative AI. Thus, the legal area surrounding generative AI requires in-depth consideration to find a balance between supporting innovation and an evolution that we can no longer restrain, on one hand, and ensuring the protection of creators' rights, on the other. The Artificial Intelligence Act which is still being processed in Europe, including setting a consistent definition of AI, can give direction and help solve the problems mentioned above.

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Summary

Małgorzata Węgrzak, Concepción Saiz García

Intellectual Property Challenges for Works Created by Generative Artificial Intelligence Systems from a Spanish Perspective

The rapid development of artificial intelligence (AI), particularly in the field of generative artificial intelligence (GenAI), raises complex questions about data use and copyright protection. This article explores the significant transition from AI models relying on human influence to achieving near-complete autonomy, presenting formidable challenges to existing copyright laws. As AI-generated creations gain widespread use, debates about copyright eligibility and the recognition of AI as a creator emerge. This article also argues against granting copyright to AI creators because their products lack human influence. The nature of GenAI is discussed, distinguishing

it from other AI models, assessing the extent of human input required and questioning the application of current intellectual property laws.

The article also follows the evolution of AI in creativity, outlining three phases marked by technological advances. The diminishing role of human intervention in the creative process is highlighted, a diminution particularly evident in contemporary models such as ChatGPT. Unlike human creators, algorithms lack awareness and influence, undermining the need for copyright protection. Ongoing legal discourse focuses on ownership and data protection, and market solutions can cause confusion. The changing landscape prompts a reassessment of the adequacy of copyright law to protect the rights of creators and maintain the human-centric foundation of copyright law, a foundation that is absent in the outcomes generated by AI. The article additionally considers recent case law that could potentially offer insights into addressing the legal issues at hand. In conclusion, the article emphasizes ongoing questions regarding the necessity of protecting AI-generated outcomes and the difficulties these outcomes present within the existing legal framework, as seen from a Spanish perspective.

Keywords: copyright, generative artificial intelligence, IP law and artificial intelligence, ChatGPT, TRLPI – Real Decreto Legislativo 1/1996.

Streszczenie

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Wyzwania związane z prawami własności intelektualnej do wytworów generatywnej sztucznej inteligencji – perspektywa hiszpańska

Gwałtowny rozwój sztucznej inteligencji (SI), zwłaszcza generatywnej, rodzi liczne pytania dotyczące wykorzystania danych, a także ochrony praw autorskich. W artykule podjęto rozważania na temat związanych z tym wyzwań prawnych z perspektywy prawa hiszpańskiego, jak również przeprowadzono analizę rozwoju modeli sztucznej inteligencji, począwszy od tych, w których widoczny jest wyraźnie wpływ człowieka, aż do wytworów praktycznie w pełni autonomicznych. Należy ponadto zauważyć, że wraz z rosnącą popularnością dzieł generowanych przez sztuczną inteligencję rodzą się kontrowersje dotyczące przyznawania sztucznej inteligencji praw autorskich jako twórcy. Autorki podnoszą argumenty opowiadające się przeciwko przyznaniu praw autorskich SI, głównie ze względu na fakt, że wytwory te są pozbawione przejawu działalności twórczej człowieka. Ponadto analizują rozwój SI w obszarze tworzenia, identyfikując trzy fazy w zależności od postępu technologicznego. W artykule podkreślono także malejącą rolę oddziaływania człowieka na proces twórczy, szczególnie widoczną w nowoczesnych modelach, takich jak ChatGPT. W przeciwieństwie do istot ludzkich algorytmom brakuje świadomości i wpływu, co czyni bezpodstawną samą potrzebę ochrony praw autorskich. W opracowaniu przedstawiono również najnowsze orzecznictwo sądowe, które bez wątpienia będzie wpływać na rozumienie obowiązujących norm z zakresu prawa własności intelektualnej oraz wpłynie na rozwiązanie omawianych kwestii prawnych

W podsumowaniu autorki formułują wnioski, wskazując w szczególności, że zmieniająca się rzeczywistość wymaga ponownej oceny aktualności prawa autorskiego w kontekście wytworów generowanych przez SI i ochrony praw twórców. Zwracają również uwagę na trudno-

ści z zakwalifikowaniem wytworów generowanych przez SI w istniejących ramach prawnych, przedstawiając omawiane zagadnienia z perspektywy prawa hiszpańskiego.

Słowa kluczowe: prawo autorskie, generatywna sztuczna inteligencja, prawo własności intelektualnej i sztuczna inteligencja, ChatGPT, TRLPI – Real Decreto Legislativo 1/1996.