Asian Journal of International Law (2024), 1–24
doi:10.1017/S2044251323000735

CAMBRIDGE UNIVERSITY PRESS

ARTICLE

Copyright Protection for AI-Generated Works: Exploring Originality and Ownership in a Digital Landscape

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(Received 3 July 2023; revised 19 October 2023; accepted 2 November 2023)

Abstract

This research explores AI-generated originality's impact on copyright regulations. It meticulously examines legal frameworks such as the Berne Convention, EU Copyright Law, and national legislation. Rigorously analyzing cases, including Infopaq International A/S v Danske Dagblades Forening and Levola Hengelo BV v Smilde Foods BV, illuminates evolving originality and human involvement in AI creativity. The study also contemplates global perspectives, drawing from esteemed organizations such as the World Intellectual Property Organization and the European Court of Justice and exploring diverse approaches adopted by individual nations. The paper emphasizes the imperative need for legislative updates to address the challenges and opportunities of AI-generated works. It highlights the pivotal role of international collaboration and public awareness in shaping copyright policies for the AI-driven creativity era. It also offers insights and recommendations for policymakers and researchers navigating this complex terrain.

Keywords: Copyright law; artificial intelligence; authorship; ownership; human author; non-human author; originality; copyrightability; Berne Convention; AI-generated works.

Artificial intelligence (AI), as defined by A.M. Turing, refers to the development of computer systems that can perform tasks requiring human-like intelligence.[1] In recent years, there has been a surge of interest in the legal issues surrounding AI-generated content, particularly about copyright. The rapid advancement of AI technology has led to questions regarding the legal status and protection of AI-generated works.[2] AI has emerged as a transformative force, revolutionizing various aspects of human life, including creating and producing artistic and literary works. However, existing copyright legislation in most

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[1] A.M. TURING, "Lecture to the London Mathematical Society", in D.C. INCE, ed., *Mechanical Intelligence: Collected Works of A.M. Turing* (North Holland, 1992).

[2] Tianxiang HE, "The sentimental fools and the fictitious authors: Rethinking the copyright issues of AI-generated contents in China", (2019) 27.2 Asia Pacific Law Review 218.

countries cannot protect AI-generated works, which include creative works produced with AI technology and even computer-generated works. These involve creative content generated exclusively by computer algorithms or programs and fail to address the complex issues surrounding AI-generated works.[3]

Undoubtedly, human authors form the foundation of copyright, and, as such, the law protects them in recognition of their originality and creativity.[4] Hence, the author's identification is important as it is a prerequisite for "copyrightability". Granting authors copyright entails bestowing on them two distinct sets of rights. The first set enables authors to reap the financial rewards of their creative endeavors, such as selling copyrights. The second set encompasses moral and enduring rights, including the right of paternity, which allows authors to be recognized by name, use pseudonyms, and remain anonymous, and the right to integrity, which empowers authors to refuse modifications that could harm their reputation.[5]

Consequently, the foundation of copyright and intellectual property law rests on the notion of human "authorship". However, this established legislative policy has been significantly disrupted by the emergence of AI and its growing involvement as human assistants in creating diverse forms of works, including literary and artistic creations. As a result, the determination of who should be recognized as the author of such works has become a highly contentious matter, not only for policymakers but also for judicial systems.[6] Given the significant impact of AI-generated works and their substantial role in the creative process, it is now essential and unavoidable for legislative policymakers to establish a clear legal framework that defines the precise legal relationship between computers and their operators or programmers. By doing so, courts will be empowered to address the authorship of computer-generated works and allocate ownership rights accordingly.[7]

Notably, certain countries, such as the UK, Hong Kong, Ireland, New Zealand, and India, have taken significant steps and initiatives to address the issue of AI-generated works. These jurisdictions have taken proactive measures by amending their statutes to accommodate the copyrightability of works that involve computer-generated elements and human intervention. By doing so, they have surpassed the international legal community in providing legal clarity in this area.[8] Nevertheless, these laws do not comprehensively address those scenarios where a computer creates a work with minimal or indirect human involvement, potentially leaving a lacuna in the legal framework. By contrast, most jurisdictions worldwide still struggle to grapple with the complex issue of authorship and remain silent on this contentious matter.[9]

This article aims to delve into the intricate realm of AI authorship and explore how the emergence of smart technologies may disrupt the existing copyright framework. Specifically, it focuses on determining the authorship of works created by AI. A

[3] Yurii BURYLO, "AI-generated works and copyright protection", (2022) 3 Entrepreneurship, Economy and Law 7.

[4] The legal frameworks adopted with regard to attributing copyright to AI-generated works would strike at the core of the social purpose for which the copyright system existed. See WIPO Secretariat, "Revised Issued Paper on Intellectual Property Policy and Artificial Intelligence", WIPO/IP/AI/2/GE/20/1 REV (11 June 2022), para. 23.

[5] Sam RICKETSON and Jane C. GINSBURG, *International Copyright and Neighboring Rights: The Berne Convention and Beyond*, 2nd ed. (New York: Oxford University Press, 2006) 87, at 586.

[6] Jane C. GINSBURG, "The Concept of Authorship in Comparative Copyright Law", (2003) 52 DePaul L. Rev. 1,063, at 1,066.

[7] Pamela SAMUELSON, "Allocating Ownership Rights in Computer-Generated Works", (1986) 47 U. Pitt. L. Rev. 1,185, at 1,189–90.

[8] See s 9(3) of the Copyright, Designs, and Patents Act (CDPA) of 1988; s 5 of New Zealand Copyright Act (1994); s 11(3) of Copyright Ordinance (CO) (Cap. 528); s 21(*f*) of Copyright and Related Rights Act (2000).

[9] Daniel BÖTTICHER, "Copyright Protection for Artificial Intelligence Output", (2019), Master Thesis, University of St. Gallen) at 33–5.

https://doi.org/10.1017/S2044251323000735 Published online by Cambridge University Press

comprehensive analysis of the prerequisites of authorship within the established legal system is necessary to address this question. Through an analytical approach, this article carefully examines the landscape of copyright law and judicial practices in various countries, including the US, the UK, and China. Additionally, it considers the copyright framework at the EU level and the judicial practices of the Court of Justice of the European Union (CJEU). The selection of these jurisdictions was based on several key considerations. The jurisdictions were chosen based on their significant impact on developing and interpreting copyright law. These jurisdictions have well-established copyright systems and have previously dealt with emerging technologies, making them relevant for our analysis. Additionally, jurisdictions were selected to represent different legal systems or approaches to copyright law, enabling a comparative analysis of how they address the issue of authorship in AI-generated works. Furthermore, consideration was given to jurisdictions where AI-generated works had been subject to legal disputes or where ongoing debates on authorship existed, ensuring the practical relevance of the analysis. The availability of research resources, including scholarly articles, legal opinions, and case law for the selected jurisdictions, was also taken into account to facilitate a comprehensive examination of the legal principles surrounding authorship. By exploring these jurisdictions, this article seeks to provide insights into the current landscape of copyright law relating to AI-generated works. It investigates the role of judicial interpretations in establishing principles to address the deadlock surrounding authorship in AI-generated works. This article aims to contribute to the field in multiple ways by exploring different jurisdictions under civil and common law legal systems. First, it strives to provide a comprehensive understanding of the attribution of authorship in cases where the production involves human intervention or is autonomously generated. Such an understanding is valuable to judges, lawyers, and legal scholars working in copyright law. Second, the critical analysis conducted can highlight potential challenges that may arise in judicial practice. This information can then be utilized to enhance judicial practices and ensure justice's effective and efficient delivery.

However, while there has been considerable discourse and research on the legal issues surrounding AI-generated works and copyright, there appears to be a research gap in examining the specific criteria and implications of originality in AI-generated works within different legal jurisdictions. Existing literature primarily focuses on the general intersection of AI and copyright law, with limited attention given to the nuanced requirements of originality for AI-generated content. Furthermore, there is a lack of comprehensive analysis and comparison of the approaches taken by different jurisdictions in addressing the copyright protection of AI-generated works. Our research seeks to address this gap by critically examining the concept of originality in AI-generated works and exploring the divergent legal approaches across various jurisdictions, specifically focusing on the implications for copyright law.

As we navigate these complex issues, it is important to emphasize that this paper represents an ongoing dialogue in a rapidly evolving field. The conclusions and insights drawn will contribute to the broader discussions surrounding AI and copyright law, serving as a foundation for further exploration and the development of legal frameworks that can effectively address the challenges posed by AI-generated authorship.

I. The Orthodox Concept of "Authorship" and the Premature Consideration of AI's Capability to Create Literary And Artistic Works

In the realm of literary and artistic works, the concept of authorship has traditionally relied upon the significance of human creativity. Consequently, human authors are

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granted certain exclusive rights over their original creations. These rights encompass the ability to publish their work, reap the financial rewards, transfer ownership of copyrights, and safeguard their reputation by preventing any actions that could harm it. The Berne Convention stands as a cornerstone in the realm of copyright protection, offering a compelling example of the principles underlying the authorship concept. This international treaty ensures that literary and artistic works receive global protection, extending its benefits to authors and their successors in title. Doing so empowers authors, granting them the authority to assert their rights and safeguard their creative expressions. The Berne Convention further promotes transparency by encouraging the inclusion of clear indications of the author's name or pseudonym, effectively eliminating any ambiguity surrounding the author's identity. Consequently, the Berne Convention assumes a pivotal role in advocating for the safeguarding, recognition, and preservation of the contributions made by authors in the realm of literature and art. Together with other international treaties, the Berne Convention lays the foundational framework for comprehending authorship and copyright on a global scale.

The unresolved questions surrounding the author's identification and copyright attribution have given rise to significant attention from intellectual property (IP) experts. Works created with the aid of software have been a subject of discussion within the field of intellectual property for several decades, particularly regarding the role of AI or computers as tools. Despite the passage of time, these fundamental questions remain unanswered, creating a need for further examination and clarification.[10] In 1978, the US established the Commission on New Technological Uses of Copyrighted Works (CONTU) to address challenges arising from technological advancements.[11] CONTU proposed key amendments to copyright law, recognizing computer programs as eligible for copyright protection and extending copyright provisions to cover all uses of copyrighted programs in computer-related activities. Additionally, it emphasized the importance of ensuring that the rightful possessors of copies of computer programs have the freedom to use and adapt those copies within copyright law bounds.[12]

In 1986, the Office of Technology Assessment (OTA) studied emerging developments of the technology's impact on intellectual property.[13] OTA focused on the federal copyright system's efficacy in addressing emerging technologies,[14] concluding that technological advancements significantly impacted the intellectual property system. These advancements necessitated ongoing adaptation of laws to keep pace with the evolving technological landscape.[15]

The emergence of AI algorithms has revolutionized the impact of new technologies. These algorithms have become ubiquitous, influencing various aspects of life extending beyond mere predictive capabilities for the future. In essence, the aspirations of the past have become a reality. The transformative power of AI algorithms has reshaped our understanding of technological progress and its profound influence on society.[16] Drawing insights from the challenges posed by utilizing new technologies is crucial. One notable illustration is an intriguing poem created through the capabilities of AI

[10] Pamela SAMUELSON, "AI Authorship?", (2020) 63.7 Communications of the ACM 20, at 22.

[11] National Commission on New Technological Uses of Copyrighted Works (CONTU), "Final Report on the National Commission on New Technological Uses of Copyrighted Works", (1981) 3 Computer L. J. 53.

[12] *Ibid.*, at 54.

[13] Annemarie BRIDY, "Coding Creativity: Copyright and the Artificially Intelligent Author", (2012) 5 Stan. Tech. L. Rev. 1, 5, and 7.

[14] U.S. Congress, Office of Technology Assessment, "Intellectual Property Rights in an Age of Electronics and Information", OTA-CIT-302 (Washington, D.C.: U.S. Government Printing Office, 1986) (II).

[15] *Ibid.*

[16] *Ibid.*

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algorithms. In this instance, British scientists developed a program that assimilates verses from over one hundred contemporary British poets, enabling it to learn and emulate the distinctive poetry writing styles of acclaimed poets like Simon Armitage and Alice Oswald. The machine was able to generate its own poems. A representative example of poetry generated by AI is presented below:[17]

> and soon I am staring out again,
> begin to practice my words, expecting my word
> will come. it will not. the wind is calling.
> my friend is near; I hear his breath. his breath
> is not the air. he touches me again with his hands
> and tells me I am growing old, he says, far old.
> we travel across an empty field in my heart.
> there is nothing in the dark, I think, but he.
> I close my eyes and try to remember what I was
> he says it was an important and interesting day,
> because I put in his hands one night
> the box of light that had been a tree.

In 2016, another captivating illustration of machine-generated content emerged with the publication of a novel by a Japanese AI program titled *The Day a Computer Writes a Novel*. Remarkably, this novel garnered significant recognition and was even shortlisted for the prestigious "Star New First Prize" award.[18] The creation of SKYGGE's *Hello World* serves as a noteworthy example that highlights the convergence of AI and human collaboration. This groundbreaking achievement marked the first-ever fully AI-generated song.[19] The company Jukedeck utilized machine learning to train its system on the principles of music theory, enabling it to compose various genres of music, including jazz, blues, and rock.[20] This evidence strongly suggests that AI-generated creations are no longer confined to the realm of dreams. Consequently, it is imperative to consider the implications of AI-generated works within the framework of copyright law.

II. AI-Works and the Riddles of Authorship

The evolution of the copyright law system has witnessed significant transformations, from the advent of the printing press to the emergence of AI, which stands out as a pivotal milestone in its history. Amid this backdrop, the remarkable ability of AI applications to create literary and artistic works has triggered a global disruption within copyright systems. The reverberations of this disruption are palpable in the ongoing discourse surrounding the intricate matter of authorship about the works generated by AI. Professor Sam Ricketson's foresight led him to delve into the intriguing question of the "true

[17] Alison FLOOD, "'A box of light': AI inspired by British verse attempts to write poetry", 20 March 2021, *The Guardian*, online: The Guardian https://www.theguardian.com/books/2021/mar/20/a-box-of-light-ai-inspired-by-british-verse-attempts-to-write-poetry.

[18] Jacob BROGAN, "An A.I. Competed for a Literary Prize, but Humans Still Did the Real Work", 25 March 2016, *Slate*, online: Slate https://slate.com/technology/2016/03/a-i-written-novel-competes-for-japanese-literary-award-but-humans-are-doing-the-work.html.

[19] Melissa AVDEEFF, "Artificial Intelligence & Popular Music: SKYGGE, Flow Machines, and the Audio Uncanny Valley", (2019) 8(4), Arts 130.1, at 11.

[20] Samuel FISHWICK, "Robot rock: How AI singstars use machine learning to write harmonies", 1 March 2018, *The Standard*, online: The Standard https://www.standard.co.uk/tech/jukedeck-maching-learning-ai-startup-music-a3779296.html.

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author" behind works created by AI: was it the result of human ingenuity or the creative prowess of machines? This prescient inquiry resonates deeply with the current conundrum surrounding authorship in AI-generated works[21]. In his analysis, Professor Ricketson made an observation about the Berne Convention. He argued that the Convention did not explicitly define the author as a human being, as it was considered a self-evident truth among its members. This implicit assumption, while seemingly innocuous, raises thought-provoking questions regarding the evolving nature of authorship in the face of AI-generated works.[22] In recent years, the prevalence and effectiveness of AI applications in creating literary and artistic works has reached unprecedented levels. This exponential growth has given rise to a host of complex issues at the intersection of humans and machines, raising profound policy concerns within the realm of copyright systems. Fundamental questions have emerged, such as the preservation of traditional copyright principles, the potential impact of AI on human-related copyrights, and the determination of authorship when a non-human entity is the creator or composer of a work.

A. Should Copyright be Granted to AI-Generated Literary and Artistic Works, or Should Human Involvement be Mandatory?

For a literary or artistic work to qualify for legal protection, it must exhibit a certain level of creativity attributable to the author. The concept of authorship is intricately linked to the requirement of originality and personal creative input in creating the work. This criterion serves as a fundamental principle in determining the eligibility of a work for copyright protection.[23] The Berne Convention, a foundational international treaty for copyright protection, ensures that literary and artistic works are granted protection globally, extending its benefits to authors and their successors in title.[24] By empowering authors, the Berne Convention grants them the authority to enforce their rights and safeguard their creative expressions. It encourages the inclusion of clear indications of the author's name or pseudonym, thereby eliminating any ambiguity surrounding the author's identity.[25] As a result, the Berne Convention plays a pivotal role in promoting the protection, recognition, and preservation of the contributions made by authors in the realm of literature and art.

Although the Berne Convention does not explicitly define the term "author", it is widely understood that the absence of such a definition is not a limitation to human beings alone. The context and indications within the convention suggest that the term encompasses both human authors[26] and legal entities.[27] The focus of the Berne Convention is to ensure that the rights of creators, whether individuals or organizations,

[21] Sam RICKETSON, "The 1992 Horace S. Manges Lecture - People or Machines: The Bern Convention and the Changing Concept of Authorship", (1991) 16 Colum. VLA J. L., Arts 1, 37.

[22] *Ibid.*

[23] P. Bernt HUGENHOLTZ and João Pedro QUINTAIS, "Copyright and Artificial Creation: Does EU Copyright Law Protect AI-Assisted Output?" (2021) 52.9 IIC-International Review of Intellectual Property and Competition Law 1,190, at 1,195–6.

[24] *Berne Convention for the Protection of Literary and Artistic Works*, 4 May 1896, 828 U.N.T.S. 221 (entered into force 29 January 1970) [*Berne Convention*].

[25] *Paris Act relating to the Berne Convention for the Protection of Literary and Artistic Works*, 9 September 1886, 3 U.N.T.S. 1,161 (entered into force 15 December 1972).

[26] Caroline ANFRAY *et al.*, "Reflection paper on copyright, patient-reported outcome instruments and their translations", (2018) 16 Health and Quality of Life Outcomes 1.

[27] Paul GOLDSTEIN, International Copyright: Principles, Law, and Practice, (New York, USA: Oxford University Press, 2001).

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are protected and that their creative works receive the benefits of copyright protection. Thus, while the Convention does not explicitly define the term "author", it encompasses a broad understanding that includes both human and legal entity creators.[28] The sources of copyright law in the European Union (EU) include international treaties, Union legislation, and national law. The rights granted to creators of original works vary across EU Member States, influenced by their national law and legal tradition.[29] The concept of the "author" in EU copyright law can vary depending on the legal tradition followed in each Member State. In the continental European model, inspired by the French "droit d'auteur", authorship encompasses moral and economic rights. Moral rights, such as the right to identification and integrity, are inalienable and cannot be transferred or waived. Economic rights, on the other hand, can be conveyed. Economic rights take precedence over moral rights in common law systems, which include the UK, Ireland, Malta, and Cyprus. The right to claim authorship and object to modifications are recognized as moral rights in British and Irish law, but these are granted rights that can be waived.[30] Therefore, determining who qualifies as an "author" in EU copyright law depends on the specific legal framework and the extent to which moral and economic rights are considered.[31]

According to Chinese copyright laws, copyright protects the producers of original artistic and literary works. The creator of a work automatically enjoys copyright protection from the moment the work is created. Copyright grants the author or creator exclusive rights, including the right to reproduce, distribute, exhibit, perform, broadcast, adapt, translate, and exploit the work for economic gain. The concept of authorship in copyright law refers to the individual who created the original work; the author is the rightful owner of the copyright and holds the moral and economic rights associated with the work. Therefore, the authorship of artistic and literary works is protected under copyright law, ensuring that the original creators are recognized and have control over their works.[32] US copyright law protects authorship of literary and artistic works under Title 17 of the US Code. This protection encompasses original works of authorship fixed in any tangible medium of expression, including literary, musical, dramatic, pictorial, graphic, sculptural, motion pictures, sound recordings, and architectural works.[33] Based on the laws discussed earlier, particularly in the context of the Berne Convention, EU copyright law, and copyright laws in China, and the US, it becomes evident that the concept of authorship is primarily centred around human involvement. These laws emphasize the recognition and protection of the rights of human creators as the original authors of literary and artistic works.

B. What is the Concept of an "Author" in Common Law Countries?

In countries that have a common law system, such as the US, the UK, Ireland, Malta, and New Zealand, there are discussions and debates regarding the recognition of non-human

[28] The wording of the above text strongly suggests that "author" and "authorship" for the purposes of the Convention refer to the individual who created the work. As a result, it seems acceptable to say that copyright protection is exclusively granted to man-made creative works. See Ginsburg, *supra* note 6 at 1069.

[29] Comparative Law Library Unit, European Parliamentary Research Service, "Copyright Law in the EU: Salient Features of Copyright Law Across the EU Member States" (2018), *European Parliament* online: European Parliament https://www.europarl.europa.eu/RegData/etudes/STUD/2018/625126/EPRS_STU(2018)625126_EN.pdf.

[30] See sections 77 and 80 of the Copyright, Designs and Patents Act (CDPA) 1988, *Legislation.gov.uk* online: Legislation.gov.uk https://www.legislation.gov.uk/ukpga/1988/48/contents.

[31] *Ibid.*

[32] China IPR SME Helpdesk, "Copyright Protection in China: A Guide for European SMEs", *China IPR Helpdesk* online: European Commission https://intellectual-property-helpdesk.ec.europa.eu/system/files/2020-10/EN_Copyright_guide_Aug_2010.pdf.

[33] "Copyright Law of the United States, and Related Laws Contained in Title 17 of the United States Code", *U.S. Copyright Office* (2022) online: U.S. Copyright Office https://www.copyright.gov/title17/title17.pdf.

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authors in copyright law. These countries follow a utilitarian theory that focuses on incentivizing innovation and providing public access to creative works for the benefit of society. This perspective places less emphasis on the personality or identity of the author, potentially opening the door for non-human authors. However, examining the case law in these countries, particularly in the US, clarifies the stance taken on this issue. The US Supreme Court, in its interpretation of the Copyright Act, has consistently maintained that copyright protection is limited to works created by human authors. This judicial stance narrows the scope of copyright protection and restricts its application to creations that stem from human creativity. An illustrative example is *Burrow-Giles Lithographic Co. v Sarony*,[34] where the court defined an author as the "originator" or "maker" to whom a work owes its origin. The court specifically referred to photographs as representatives of the original intellectual conceptions of an author. Similarly, in the case of *Goldstein v California*, the Supreme Court reaffirmed that an author, in the constitutional sense, refers to an individual who writes or composes an original work. The term "author" was interpreted as the "originator" to whom the work owes its origin. These legal precedents emphasize the importance of human involvement and creativity in the concept of authorship. They establish that the term "author" is closely tied to the act of creation, attributing the origin of a work to an individual who exercises intellectual effort and originality. The decisions highlight the requirement for a human originator, excluding non-human entities from being recognized as authors within the constitutional framework.

The case of *Feist Publications, Inc. v Rural Telephone Service Company, Inc.*[35] further clarified the requirement for copyright protection. The court concluded that a work must be original to the author to be eligible for copyright. In other words, the work must demonstrate sufficient creativity and originality attributable to the author. This ruling reinforces the notion that copyright protection is contingent upon the presence of originality, emphasizing the importance of individual creative expression. It establishes that mere factual information or data compilation without the requisite creative input does not meet the threshold for copyright protection. Therefore, to qualify for copyright, a work must exhibit a distinctive and independently created expression from the author.

The settled case law of the Supreme Court has consistently underscored the requirement of human authorship, and the lower courts have reiterated this position. The lower courts have consistently rejected the possibility of non-human authors aligning themselves with established legal precedents. In the case of *Urantia Foundation v Maaherra*,[36] the Ninth Circuit Court of Appeals ruled that a book containing words purportedly "authored" by non-human spiritual beings can only be eligible for copyright protection if there is evidence of human selection and arrangement of the content. The court emphasized the importance of human involvement in the creative process and required a significant level of human input for copyright protection to be granted. In the case of *Cetacean Community v Bush*,[37] a ruling was issued in 2018 that addressed the question of legal standing for animals, specifically a monkey, in relation to copyright claims. The court concluded that the monkey had standing under Article III of the US Constitution, which pertains to the jurisdiction of federal courts. However, the court held that the monkey, like all animals, lacked statutory standing under the federal Copyright Act. This case highlighted the distinction between constitutional standing and statutory standing in the context of copyright law. While the monkey was deemed to have constitutional standing

[34] *Burrow-Giles Lithographic Co. v Sarony*, 111 U.S. 53 (1884).
[35] *Feist Publications, Inc., v Rural Telephone Service Co.*, 499 U.S. 340 (1991).
[36] *Urantia Foundation v Maaherra*, 114 F.3d 955, 964 (9th Cir. 1997).
[37] *Cetacean Community v Bush*, 249 F. Supp. 2d 1206 (D. Haw. 2003).

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to bring a lawsuit, the court determined that the statutory framework of the Copyright Act did not extend copyright protection to non-human animals. Therefore, the monkey's claim for copyright infringement was ultimately dismissed based on the lack of statutory standing. In the case of *Kelley v Chicago Park District*,[38] the court held that a copyright protection claim was invalid in the context of a living garden. The court reasoned that a living garden does not possess the necessary attributes of authorship and stability required to meet the criteria for copyright protection. Unlike fixed and tangible work, such as a written composition or a sculpture, a garden is a dynamic entity that is inherently cultivated and subject to seasonal changes. Therefore, it was determined that the garden was not sufficiently composed or installed to be considered a permanent work deserving of copyright protection. This case exemplifies the limitations of copyright law in recognizing certain types of works that do not conform to traditional notions of authorship and stability. While copyright law aims to protect original creative works, including literary, artistic, and architectural works, the court's decision in *Kelley* highlights the inherent challenges in extending copyright protection to living and evolving creations such as gardens. The court emphasized the need for a work to exhibit a certain level of permanence and fixation in order to qualify for copyright protection.

Furthermore, it is worth noting that the US Copyright Office recently rejected a request for copyright protection for a work titled "*A Recent Entrance to Paradise*". The decision by the Copyright Office's board affirmed a previous ruling, citing the absence of human authorship as a key factor in denying the copyright claim.[39]

In the evolving landscape of copyright law and AI, several notable litigations have emerged that underscore the complexities of this intersection. A prominent case is the lawsuit initiated by Getty Images against Stability AI, where the former accused the latter of misusing copyrighted photos to train its AI systems.[40] This litigation has broader implications, as highlighted by a report which noted that Stability AI allegedly copied at least 12 million copyrighted images from Getty Images for its Generative AI models.[41] Parallel to this, there have been significant legal challenges in the UK, with Getty Images seeking to halt the sales of Stability AI's system, accusing them of using copyrighted images to "train" its Stable Diffusion system.[42] Furthermore, a federal judge in the US dismissed an attempt to copyright artwork produced by an AI image generator, emphasizing the intricate nature of authorship and copyright in the age of AI.[43] These cases highlight the ongoing debates and challenges in defining copyright boundaries in the realm of Generative AI.

Based on the established case law and the current practices of the US Copyright Office, it is evident that claiming or registering independently generated AI works is not permissible. The legal framework maintains that creative works produced solely by AI machines are not eligible for copyright protection unless they meet the criteria of being created by

[38] *Kelley v Chicago Park District*, 635 F.3d 290, 304 (7th Cir. 2011).

[39] Copyright Review Board, U.S. Copyright Office, "Re: Second Request for Reconsideration for Refusal to Register a Recent. Entrance to Paradise" (Correspondence ID 1-3ZPC6C3; SR # 1-7100387071), 14 February 2022.

[40] Blake BRITTAIN, "Getty Images lawsuit says Stability AI misused photos to train AI", 7 February 2023, *Reuters*, online: Reuters https://www.reuters.com/legal/getty-images-lawsuit-says-stability-ai-misused-photos-train-ai-2023-02-06/.

[41] "Generative Artificial Intelligence and Copyright Law", (29 September 2023) *Congressional Research Service* online: Congressional Research Service https://crsreports.congress.gov/product/pdf/LSB/LSB10922.

[42] Sam TOBIN, "Getty asks London court to stop UK sales of Stability AI system", 2 June 2023, *Reuters*, online: Reuters https://www.reuters.com/technology/getty-asks-london-court-stop-uk-sales-stability-ai-system-2023-06-01/.

[43] "Getty Images v Stability AI", *BakerHostetler* online: Baker Law https://www.bakerlaw.com/getty-images-v-stability-ai/.

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a human author. The settled case law and the guidelines set forth by the Copyright Office reinforce the principle that copyright law is designed to safeguard the originality and creative contributions of human authors. While AI technology has advanced significantly and is capable of producing impressive works, the absence of direct human involvement in the creative process raises questions regarding the applicability of copyright protection.

C. The Dilemma of AI Authorship under Asian Law

In the context of Asian copyright systems, the concept of attributing authorship to humans is evident. China, known for its significant advancements in AI and extensive use of AI programs, encountered the question of authorship in relation to AI-generated works in legal proceedings. One notable case is *Shenzhen Tencent v Shanghai Yingxun*,[44] where the Nanshan District People's Court had to determine whether AI-created works should be eligible for copyright protection. The court's ruling acknowledged that works produced by AI applications such as Dream Writer deserve copyright protection. However, it emphasized that the individual asserting authorship must fulfil the general requirement of intellectual creativity under Chinese law to claim authorship.

Another significant case involving Gao Yang and Youku emerged before the Beijing Court. The central question raised in this case pertained to the copyrightability of photos taken automatically by a camera attached to a hot-air balloon. The court was tasked with determining whether these AI-generated photos could be protected under Chinese copyright law. In its ruling, the court concluded that the automatic photos captured by the plaintiff's camera were indeed eligible for copyright protection in accordance with China's copyright law. Consequently, the defendant's unauthorized use of these photos was deemed to be an infringement of the plaintiff's copyright.[45] Undoubtedly, the analysis of this judgment aligns with the overall direction because it recognized that, despite the photos being taken automatically by the hot air balloon, the plaintiff was still granted protection due to their minimal contribution. Their act of attaching a sports camera to the hot-air balloon was considered a sufficient creative input to qualify for copyright protection.

Similarly, in India, copyright law attributes authorship for computer-generated literary, dramatic, or artistic works to the person who undertakes the necessary arrangements for their creation. However, it is important to note that the human author is still considered the driving force behind the scenes, even though AI may have played a significant role in the creative process.[46] India's 1957 Copyright Act[47] does not explicitly define "author" for artistic and literary works. However, section 2(d) of the Act provides a comprehensive understanding of the term. According to the Act, the "author" of a literary or dramatic work refers to the person who created the work, while for a musical work, it refers to the composer. In the case of an artistic work other than a photograph, the "author" is considered to be the artist. Additionally, the Act recognizes the person taking the photograph as the "author" in the case of photographs.

In the context of copyright law, it is interesting to note the contrasting approaches taken by Australia and Thailand. Unlike some jurisdictions, these countries currently lack sufficient protection for works created by AI. This deficiency arises due to the

[44] (2019) Yue 0305 Min Chu No. 14010.

[45] (2017) Jing 73 Min Zhong No. 797.

[46] Andres GUADAMUZ, "Artificial Intelligence and Copyright", *WIPO Magazine* (2017), online: WIPO https://www.wipo.int/wipo_magazine/en/2017/05/article_0003.html#:~:text=Artificial%20intelligence%20is%20already%20being,used%20and%20reused%20by%20anyone.

[47] Section 2(d) of the Indian Copyright Act, 1957, No. 14, Acts of Parliament, 1957.

https://doi.org/10.1017/S2044251323000735 Published online by Cambridge University Press

requirement of human personality for copyrightability, which is not fulfilled by AI-generated works. While such works may demonstrate the necessary originality, critics argue that they fail to exhibit the collective attributes of effort, knowledge, and intellect that contribute to the concept of originality.[48]

In a similar vein, Singapore's copyright law places the requirement on human authors rather than machines, reflecting its preference for human involvement. This was evident in the case of *Asia Pacific Publishing Pte Ltd v Pioneers & Leaders (Publishers) Pte Ltd*, where the Singapore Court of Appeal delineated four essential characteristics that determine copyright eligibility. Initially, section 2(7)[49] of the Act did not clearly define who could qualify as an author of a subsisting copyright under the Act. However, the absence of such a definition did not imply that the concept of a "qualified person" could be extended to include non-living entities such as incorporated bodies. Moreover, it was evident that the historical context of the act envisioned granting rights exclusively to natural persons rather than corporate bodies, emphasizing that legal rights derive solely from human authorship.[50] This historical perspective further reinforced the notion that originality was closely tied to human authors. Therefore, the identification of an author was a prerequisite before determining whether a work could be considered original. Without establishing the human author from whom the work originated, it would be impossible to classify it as an "original work" eligible for copyright protection. Interestingly, this issue was raised and discussed in the case of *B2C2 Ltd v Quoine Pte Ltd*.[51] The Singapore International Commercial Court was tasked with addressing issues pertaining to AI in the context of cryptocurrency. The central question at hand was how legal principles should be applied to a cryptocurrency transaction that was entirely executed through AI algorithms. In this regard, Judge Simon Thorley, in his opinion, provided insightful observations on the matter:[52]

> Turning to the issue of knowledge attribution, the legal framework for determining knowledge in cases where computers have replaced human actions is expected to evolve as legal disputes arise from such circumstances. This is especially relevant in situations where the computer involved is equipped with artificial intelligence, potentially possessing a degree of autonomy. Given these complexities, I do not intend to express any specific opinions regarding the precise legal relationship between computers and those who control or program them. In the present case, the algorithmic programs in question are deterministic, meaning they strictly adhere to the instructions programmed into them. They function in a predetermined manner when called upon and lack independent decision-making capabilities. They do not possess their own consciousness or understanding of why they perform certain actions, nor are they aware of the external events that trigger their operations. It is worth noting that as disputes arise involving AI-driven systems, the legal

[48] Nattapong SUWAN-IN, "Copyright Protection on AI-Generated Work: The Case Study of the US, UK, and Thailand Copyright Laws", (2021) Journal of Law Public Administration and Social Science 131, 142. See also the Australian Copyright Act 1968 (Cth) (Copyright Act) and *IceTV Pty Ltd v Nine Network Australia Pty Ltd* [2009] HCA 14, where the High Court of Australia clarified that factual data contained in a compilation is not sufficient to attract protection under the Copyright Act.

[49] *Asia Pacific Publishing Pte Ltd v Pioneers & Leaders (Publishers) Pte Ltd* [2011] SGCA 37.

[50] The 1911 Act was enacted in a different era where the concept of copyright was in its infancy. The 1911 Act was primarily concerned with the rights of authors, and it is clear from the historical context that the Act was intended to protect the rights of individual authors rather than corporate entities. The emphasis was on human creativity and the personal rights of the author.

[51] *B2C2 Ltd V Quoine Pte Ltd* [2019] SGHC(I) 03.

[52] *Ibid.,* at paras. 206–8.

https://doi.org/10.1017/S2044251323000735 Published online by Cambridge University Press

understanding of knowledge attribution in relation to computer actions will likely develop further. The unique nature of AI and its impact on legal principles will necessitate ongoing examination and refinement within the legal domain.

Based on the cases discussed, it can be inferred that Singaporean law does not currently offer explicit protection for literary and artistic works generated by AI. The cases above illustrate a lack of legal provisions and a reluctance to extend copyright protection to works solely created by AI systems.

D. Should Copyright Law Extend Protection to AI-Generated Works or Exclude Them?

The World Intellectual Property Office (WIPO) released a discussion paper titled "Conversation on Intellectual Property Policy and Artificial Intelligence",[53] which addresses the increasing utilization of AI in generating literary and artistic works. The rapid growth of AI capabilities in this domain raises significant policy considerations within the copyright system, which has long been intertwined with the human creative spirit and the recognition of and incentives for human expression. Determining the appropriate legal framework for attributing copyright to AI-generated works raises fundamental questions that touch upon the fundamental objectives of the copyright system. The copyright system traditionally aimed to safeguard and foster human creativity. Therefore, any decisions regarding the eligibility of AI-generated works for copyright protection would significantly impact the underlying social purpose for which the copyright system was established. If AI-generated works were excluded from copyright protection, it would reinforce the notion that copyright law exists to uphold the dignity and preference given to human over machine-generated creativity. Such an approach would highlight the belief that the copyright system is designed to incentivize and reward human creative efforts. On the other hand, if copyright protection is extended to works created by AI, the copyright system would be perceived as favoring the proliferation of creative works in the hands of consumers, regardless of whether they were generated by humans or machines. This perspective implies that the copyright system prioritizes the availability and accessibility of creative works without making a distinction between human and machine-generated creativity.[54]

During the Third Session on Intellectual Property and Artificial Intelligence, the discussions revolved around two opposing perspectives on the issue. The opponents argued against providing copyright protection to works created by AI, basing their opposition on several grounds.[55] They highlighted the technical nature of human input combined with the automated processes of AI algorithms, asserting that it does not sufficiently justify copyright protection for AI-generated works. They emphasized that the principle of human authorship is firmly established in copyright law, while the concept of AI is still evolving and lacks clarity. Furthermore, the opponents contended that works produced by AI should be considered part of the public domain.[56] They asserted that expanding the scope of AI-assisted outputs, including the arrangement, creation, and selection stages, would raise policy concerns and potentially diminish the public domain. The opponents argued that the public's access to such creations could be restricted by subjecting more AI-generated literary and artistic works to copyright law.[57]

[53] WIPO Secretariat, *supra* note 4 at para. 23.
[54] *Ibid.*
[55] *Ibid.*
[56] *Ibid.*
[57] *Ibid.*

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Conversely, some scholars have presented arguments advocating for the protection of AI-generated works, asserting that denying such protection due to the absence of human intervention would result in these works falling into the public domain.[58] This, in turn, would allow consumers to access and use these works without the fear of copyright infringement claims. They contend that refusing authorship to these categories of works would be detrimental because it would stifle and impede creativity.[59] Moreover, granting patent protection to the entity or programmer who created the software used by AI is seen as contradictory when protection is denied to the outputs produced by that software.[60] These viewpoints led to the conclusion that AI works should be eligible for copyright protection, regardless of their nature.[61] The argument highlights the importance of recognizing and rewarding the creative elements and outputs generated by AI systems.[62] By extending copyright protection to AI-generated works, it is believed that a balanced approach can be achieved, fostering both innovation and access to creative works.[63] This perspective emphasizes the need to adapt copyright law to accommodate advancements in AI technology and ensure that appropriate legal frameworks are in place to support and incentivize AI-driven creativity.[64]

III. Ownership of Copyright in AI-Generated Works: Attribution and Vesting Considerations

In the context of works produced by AI applications, the term "author" is generally understood as referring to the creator or maker of a work.[65] Hence, the debate surrounding the author's identification in the case of AI-generated works may seem inconsequential; these works ultimately stem from human creativity. Therefore, it can be contended that AI should be regarded as a tool or instrument employed by the human author rather than an autonomous creator in its own right.[66] When considering the question of copyright ownership, some scholars have proposed three possible candidates. The first nominee is the human author who made the necessary arrangements for the creation of the work, particularly in the case of AI-assisted works.[67] The suggestion of attributing copyright to a human author is rooted in the idea that establishing a causal connection between the input of the human author and the resulting AI-generated work can serve as a significant factor in determining authorship. This approach becomes especially

[58] Jie ZHANG and Xin XIE, "Research on the Copyright Protection of Artificial Intelligence Generation in the Smart Media Environment", 2023 3rd International Conference on Public Management and Intelligent Society (PMIS 2023) 665.

[59] *Ibid.*

[60] Ryan ABBOTT, "Artificial Intelligence, Big Data and Intellectual Property: Protecting Computer-Generated Works in the United Kingdom" in Tanya APLIN, ed., *Research Handbook on Intellectual Property and Digital Technologies*, (Edward Elgar Publishing Ltd, Forthcoming), online: Social Science Research Network https://ssrn.com/abstract=3064213.

[61] *Ibid.*

[62] Eloghene E. ADAKA and Ifeoluwa A. OLUBIYI, "Lessons for Nigeria: Determining Authorship and Inventorship of Artificial Intelligence Generated Works", (2022) 2 Journal of Intellectual Property and Information Technology Law 15.

[63] Sik Cheng PENG, "Artificial Intelligence and Copyright: The Authors' Conundrum", (2018) 9 WIPO-WTO Colloquium Papers 173, online: WTO https://www.wto.org/english/tratop_e/trips_e/colloquium_papers_e/2018/chapter_13_2018_e.pdf/

[64] *Ibid.* See also Saleh AL-SHARIEH, "The intellectual property road to the knowledge economy: Remarks on the readiness of the UAE Copyright Act to drive AI innovation", (2020) 13 Law, Innovation and Technology 141.

[65] *Ibid.*

[66] WIPO Secretariat, *supra* note 4 at para. 23.

[67] *Ibid.*

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valuable when multiple individuals are involved in the creative process; it aids in determining the true relationship between the contributors and deciding issues of authorship or co-authorship of the work.[68]

The approach to authorship aligns with the statutory definitions found in various jurisdictions. For instance, in the UK, section 9(3) of the Copyright, Designs and Patents Act (CDPA) of 1988 stipulates that in the case of a computer-generated literary, dramatic, musical, or artistic work, the person who undertakes the necessary arrangements for the creation of the work is considered to be the author.[69] Similarly, section 178 of the CDPA defines AI-generated works as those produced by a computer in circumstances where no human author is involved. This perspective is also reflected in the legislation of other countries such as New Zealand,[70] Hong Kong,[71] and Ireland,[72] where the person who makes the essential arrangements for the creation of a computer-generated work is considered to be the author.

The copyright laws of the UK and similar jurisdictions established a legal framework that addressed the protection of AI-generated works in cases where there is no identifiable human author. This legal framework recognizes the significance of the individual who undertakes the essential steps for the creation of such works. As a result, it can be inferred that copyright protection for AI-generated works is contingent upon a substantial contribution made by the person responsible for orchestrating the necessary processes involved in their creation. These legal provisions acknowledge the importance of human involvement in the creative process, even in cases where the final output is generated by AI or computer algorithms.

The second contender for copyright ownership is the technical program itself, particularly in cases where the work is solely generated by AI. Advocates of this viewpoint argue that it diverges from the previous scenario where human input played a role. In the context of AI applications, a unique situation exists wherein a computer, utilizing AI capabilities, autonomously generates literary or artistic works without direct human intervention. This apparent gap between human input and the computer's output creates the possibility of considering the AI program itself as a candidate for copyright ownership.[73] Regarding the previous hypothesis, it has been contended that the user's contribution alone may not be adequate to trace the complete creative process of a work generated by AI. Consequently, it has been suggested that, in such cases, the individual responsible for programming the intrinsic elements of the work should be regarded as

[68] *Ibid.*

[69] Andrés GUADAMUZ, "Do Androids Dream of Electric Copyright? Comparative Analysis of Originality in Artificial Intelligence Generated Works", (2017) 2 Intellectual Property Quarterly 169.

[70] Section 5 of the New Zealand Copyright Act (1994) states:

"Meaning of author:
(1) For the purposes of this Act, the author of a work is the person who creates it.
(2) For the purposes of sub-section (1), the person who creates a work shall be taken to be:
(a) in the case of a literary, dramatic, musical, or artistic work that is computer-generated, the person by whom the arrangements necessary for the creation of the work are undertaken".

[71] Section 11(3) of Copyright Ordinance (CO) (Cap. 528), states: "In the case of a literary, dramatic, musical or artistic work which is computer-generated, the author is taken to be the person by whom the arrangements necessary for the creation of the work are undertaken".

[72] Section 21(*f*) of Copyright and Related Rights Act (2000) states: "In this Act, 'author' means the person who creates a work and includes: in the case of a work which is computer-generated, the person by whom the arrangements necessary for the creation of the work are undertaken."

[73] Nahide BASRI, "The Question of Authorship in Computer-Generated Work", *Journal of Law & Social Change* (13 January 2020), online: Penn Carey Law https://www.law.upenn.edu/live/news/9691-the-question-ofauthorship-in-computer-generated.

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the author. This perspective highlights the essential role played by the person who develops the programming that enables the production of the specific work. Furthermore, it has been argued that copyright ownership should be vested in the entity or programmer who developed the AI application itself. By recognizing the entity or programmer as the copyright holder, this approach acknowledges the overarching creative input involved in designing and implementing the AI system.[74] It emphasizes that copyright protection should be attributed to those responsible for developing and establishing the AI application that ultimately generates the work.[75] Initially, it was suggested that the person responsible for making the necessary arrangements, particularly in the case of AI-assisted works, where AI serves as a creative tool or aids in the work's production, should be recognized as the author of the work and thus entitled to copyright ownership. The rationale behind this argument is that it would be unrealistic to expect a human imprint on every aspect of AI-assisted works. Instead, the focus should be on the minimum level of contribution required to meet the criterion of originality. It is important to consider that assigning a copyright solely based on a human identity would not adequately address the complexities of works solely generated by AI. Merely attributing authorship to a human without direct creative input may not capture the true nature of the work. In such cases, the conventional notion of authorship tied to human identity may not sufficiently reflect the abstract reality of AI-generated works.[76] When approaching the question of authorship within the context of AI-generated works, it becomes apparent that it is a complex issue, and ascribing traditional notions of authorship in this scenario may present significant challenges. However, a more pragmatic solution could involve assigning ownership of the produced work to the owner of the AI program itself.

IV. Can AI-Generatyed Works Be Regarded as Original If Copyright is Attributed?

The criterion of originality plays a crucial role in copyright law, serving as a yardstick to determine whether a specific work is eligible for copyright protection. This term is commonly employed to differentiate between works that possess originality and those that do not. Essentially, "originality" signifies that a work deserving of protection must originate from an identifiable creator or author, thereby reflecting the author's distinctive personality rather than being wholly derivative or entirely new.[77]

Under the common law, the concept of originality has historically been associated with the "sweat of the brow" theory.[78] However, it is important to note that in countries such as the US, the criterion for originality has evolved, and the mere labour employed in the creation of a work is no longer a requisite for establishing originality or for qualifying a work for copyright protection. This theory aligns with the utilitarian approach that promotes human creativity and incentivizes authors to gain copyright protection for their works. According to this approach, authors can acquire copyright through their diligent efforts during the creation of a work, whether it be a database, a collection of literary

[74] Peng, *supra* note 63 at 181–2.

[75] Robert C. DENICOLA, "Ex Machina: Copyright Protection for Computer-Generated Works", (2016) 69 Rutgers U. L. Rev. 251, at 280–1.

[76] Darin GLASSER, "Copyrights in Computer-Generated Works: Whom, if Anyone, Do We Reward?" (2001) 1 Duke Law & Technology Review 1.

[77] C.J.S. AZORO and Queen O. AGULEFO, "'Original' under the law of copyright is distinct from the ordinary meaning of 'original': A discourse", (2021) 7 International Journal of Law 29, 30–1.

[78] Alexander D. NORTHOVER, "Enough and as Good in the Intellectual Commons: A Lockean Theory of Copyright and the Merger Doctrine", (2016) 65 Emory L. J. 1,363, at 1,376–7.

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works, or an artistic compilation such as an encyclopedia.[79] The case of *Hollinrake v Truswell*[80] further clarified the concept of originality in copyright law. It established that originality is not contingent upon the novelty or uniqueness of a work but rather on its origin from the author. In other words, for a work to be deemed original, it must originate from the author's own creative efforts and not be copied from an external source. This ruling reaffirmed that originality focuses on the independent creation of a work by the author rather than its level of novelty. By emphasizing the requirement of authorship and the absence of copying, the decision in *Hollinrake v Truswell* provided clarity on the understanding of originality within the jurisdiction of England and Wales. In the case of *University of London Press v University Tutorial Press*,[81] the court highlighted that a work is considered original when it demonstrates a certain level of skill and labour and is not copied from another existing work. This understanding of originality, which focuses on independent creation and the absence of copying, has been influential in the UK. It is important to note that the standard of skill and labour applied in the UK has been significantly shaped by the perspective of the CJEU.[82]

Similar to the UK, the courts in the US have long recognized that originality requires a minimal level of creative effort. In the case of *Burrow-Giles Lithographic Co. v Sarony*, the court emphasized that copyrightability necessitates a certain amount of creative labour. Similarly, in *Time Inc. v Bernard Geis Associates*, a district court in the US reached a similar conclusion. The court referred to the standard of originality and acknowledged the presence of an element of personality in the creation of a photograph, such as the choice of subject, framing, and timing. The court recognized the visual appeal and artistic nature of a photograph but refrained from acting as a critic by evaluating the artistic merit, skill, or effort involved in the photograph.[83] In the case of *Baltimore Orioles v MLB Players Association*, the US Court of Appeals for the Seventh Circuit addressed an appeal stemming from a prolonged dispute between major league baseball clubs (referred to as "Clubs") and the Major League Baseball Players Association. The court provided clarity on the threshold of originality, asserting that it encompasses two distinct conditions. These conditions are that a work must possess an independent origin and exhibit a minimal level of creativity. By distinguishing between independent origin and minimal creativity, the court emphasized the dual requirements that must be met for a work to satisfy the threshold of originality. The concept of independent origin implies that the work must originate from the author's own creation rather than being a copy or imitation of existing material. Additionally, the concept of minimal creativity acknowledges that even a small degree of creative effort is necessary for a work to meet the originality requirement[84]. In the case of *Alfred Bell & Co. v Catalda Fine Arts Inc.*, the Court of Appeal provided further clarity on the concept of originality. It explicitly stated that originality requires two essential elements. First, the work must have originated from the author, emphasizing the need for independent creation. Second, the work must possess at least a minimal level of novelty, indicating that it should exhibit some degree of newness or uniqueness. By articulating the requirement of independent origin and the presence of even the slightest level of novelty, the court shed light on the fundamental aspects of originality. This ruling held that a work must not be a mere

[79] Azoro and Agulefo, *supra* note 77 at 31.

[80] *Hollinrake v Truswell* [1894] 3. Ch. 420, para. 427.

[81] *University of London Press v University Tutorial Press* [1916] 2 Ch 601.

[82] The CJEU has delivered a series of rulings concerning the test of originality, where the realization of a subject matter has been dictated by technical considerations, rules or other constraints which left no room for creative freedom. (See *Newspaper Licensing Agency Ltd v Meltwater Holding BV* [2011] EWCA Civ 890 detailing an equal criterion of assessing originality for other types of works.

[83] *Time Inc. v Bernard Geis Associates*, 293 F. Supp. 130 (1968).

[84] *Baltimore. Orioles, Inc. v Major League Baseball Players Ass'n*, 805 F.2d 663 (7th Cir. 1986).

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copy or imitation but must possess an element of freshness or distinctiveness in order to meet the originality threshold.[85] In the landmark case of *Feist Publications, Inc. v Rural Telephone Service Co.*, the US Supreme Court clarified the requirements for a work to be eligible for copyright protection. The Court established that for a work to be entitled to copyright, it must satisfy two crucial conditions. First, the work must be created by the author, emphasizing the importance of independent creation. Second, the work must exhibit a minimum level of creativity. The Supreme Court's ruling emphasized that originality in copyright law necessitates a modest degree of intellectual labour. This means that the work must embody a certain amount of creative effort or originality, indicating that it goes beyond mere facts or data.[86] The decision in *Feist Publications, Inc. v Rural Telephone Service Co.* provides significant guidance on the originality standard, affirming that copyright protection is granted to works that demonstrate a genuine level of intellectual contribution.[87] The consideration of two opposing views, namely the subjective and objective theories, and their impact on the test of originality for works created by technical means is crucial. However, neither of these theories has proven to be an effective sole criterion for determining the threshold of originality. The subjective theory emphasizes the individual author's subjective creativity and personal expression as the basis for originality. Strictly applying this theory to AI-generated works, however, could exclude them from copyright protection, undermining the purpose of the copyright system.[88] By contrast, the objective theory relies on objective criteria such as skill, effort, or labour invested in the work. A purely objective approach may risk attributing copyright to entities or individuals who did not contribute creatively to the work, thus assigning ownership to the wrong person. To address these shortcomings, both common law and civil law jurisdictions recognize the need for a balanced approach. They are moving towards a middle ground that acknowledges the complexities of originality in the context of AI-generated works. Instead of solely focusing on novelty, these jurisdictions seek to ascertain whether a work is created by the author and not copied from others. Common law countries such as the UK and the US prioritize authorship over novelty in their approach to originality. By avoiding the extremes of subjective and objective theories, these jurisdictions seek to maintain a fair and functional copyright system that accounts for the unique characteristics of AI-generated works.

In contrast to common law jurisdictions, civil law countries approach the question of originality from a perspective that often draws on case law, especially within the EU. They place less emphasis on rewarding the labour and skill invested in creating a work and more on the inherent connection between the author and the creation. Within civil law systems, originality is often viewed through the lens of an unbreakable link of paternity, highlighting the importance of the author's personal connection to the work. Moral rights derive from subjective theory and play a significant role in civil law countries. These rights include the author's entitlement to be credited for their work and to maintain control over its integrity. While the subjective approach underlies these moral rights,[89] opponents argue that it may not adequately address the unique nature of AI-generated

[85] *Alfred Bell & Co. Ltd. v Catalda Fine Arts, Inc. et al.*, 191 F.2d 99 (2d Cir. 1951).

[86] *Feist Publications, Inc. v Rural Telephone Service Co., Inc.*, 499 U.S. 340 (1991).

[87] *Burrow-Giles Lithographic Co. v Sarony*, 111, U.S. 53 (1884).

[88] Zhe DAI and Banggui JIN, "The copyright protection of AI-generated works under Chinese law" (2023) 13 Juridical Tribune 241.

[89] According to the arguments of German philosophers Kant and Hegel specifically in 1875, the idea of copyright ownership is based on the personal theory, which goes on to say that property is an expression of human personality. Hegel notes that will, freedom, and the person are the most important parts of every personality. See Christopher YOO, "Rethinking Copyright and Personhood" (2019) 2019 University of Illinois Law Review 1,049.

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works.[90] In the context of AI-generated works, the application of a purely subjective perspective may seem unclear and ambiguous. As AI systems autonomously produce works without direct human intervention, the traditional criteria for originality based on the author's personality become less applicable. This raises concerns about whether AI-generated works can meet the requirements for copyright protection under a strictly individualistic approach.[91] In conclusion, the search for an effective test of originality in the realm of AI-generated works requires a nuanced understanding. Jurisdictions are moving towards a balanced approach that acknowledges authorship while considering the specific challenges posed by AI-generated works. The challenges surrounding originality in the context of AI-generated works have prompted French courts to transition from a rigid standard of personality to a more adaptable and flexible approach. To determine how an author expresses their personality through a work, the courts have focused on the question of what actions the author has taken to showcase their individuality. A prevailing response has emerged through judicial practice, highlighting that creative choices play a pivotal role in demonstrating the author's personality.[92]

V. The Threshold of Originality in International Copyright Law

Exploring the concept at an international level is essential before delving into the analysis of originality as a requirement in AI-generated works. The Berne Convention serves as a relevant reference point, addressing the protection of works and the rights of their authors. While the term "originality" is not explicitly mentioned, it can be inferred from Article 2(3), which states that translations, adaptations, musical arrangements, and other alterations of a literary or artistic work shall be protected as original works.[93] This provision suggests that these derivative works are entitled to independent copyright protection, implying an underlying requirement of originality. The concept can also be inferred from Article 2(5), which addresses collections of literary or artistic works, such as encyclopedias and anthologies. It states that these collections, by virtue of the selection and arrangement of their contents, qualify as intellectual creations. Article 2 (5) recognizes that the compilation and arrangement require intellectual creativity and effort, granting them protection separate from the copyrights of the individual works they comprise.[94] In conclusion, the Berne Convention underscores the importance of copyright protection for works that embody intellectual creation, emphasizing eligibility as long as they demonstrate their originator's intellectual creativity and originality. The convention affirms the eligibility of collections for copyright protection, acknowledging the compilation itself as an original creation resulting from the intellectual choices and efforts of the compiler or editor.

Article 2(1) of the Berne Convention is a relevant reference point to determine whether AI-generated works meet the requirement of originality. This provision states that literary and artistic works encompass all creations in the literary, scientific, and artistic domain, regardless of their mode or form of expression.[95] Consequently, while the Berne

[90] K. I. ADAM and I. A. YUSUF, "Originality in Copyright and the Debate on Protection of Traditional Knowledge: A View on Nigerian Law", (2017) 3 KIU Journal of Social Sciences 293, at 297.

[91] *Ibid.*

[92] *Ibid.*

[93] *Berne Convention*, *supra* note 24, Art. 2(3).

[94] *Ibid.*, Art. 2(5).

[95] Examples provided under Article 2(1) of the Berne Convention include "books, pamphlets and other writings; lectures, addresses, sermons and other works of the same nature; dramatic or dramatic-musical works; choreographic works and entertainments in dumb show; musical compositions with or without words; cinematographic works to which are assimilated works expressed by a process analogous to cinematography; works of

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Convention emphasizes the importance of originality for copyright protection, it does not specifically address the eligibility of AI-generated outputs; such works were not contemplated at the time of its drafting. However, it is important to note that the convention allows for flexibility by permitting national laws to prescribe certain conditions for protection. Specifically, national laws may require works, in general or within specified categories, to be fixed in a tangible or material form to be eligible for copyright protection. This provision ensures that works, including AI-generated works, are appropriately safeguarded once they are manifested in a tangible medium.[96] Therefore, the specific threshold of originality required for copyright protection in AI-generated works ultimately depends on the laws and regulations of each jurisdiction. Since the Berne Convention grants member countries flexibility to determine the originality level necessary, the degree of originality required may vary from jurisdiction to jurisdiction.

VI. The Expansive Interpretation of Originality By the Court of Justice of The European Union (Cjeu) and The Eu's Approach to the Question of Originality in Copyright

It is essential to recognize that the principle of originality forms the foundation of copyright protection in national legal systems across Europe. In fact, the absence of this criterion would render a work ineligible for copyright protection. Consequently, originality has consistently been employed as a benchmark to determine whether a work should be granted protection[97] or deemed non-protected. Despite its fundamental importance, the European Directives[98] define originality solely for computer programs, databases, and photographs, describing it as "the author's own intellectual creation".

It is important to note that EU law does not universally prescribe the criterion of originality as a prerequisite for legal protection, except in specific cases of computer programs, databases, and photographs. Consequently, originality cannot be regarded as a general rule for determining the eligibility for protection under EU copyright law. However, the European Court of Justice (ECJ) has played a crucial role in shaping the notion of originality and adapting it to address the challenges posed by AI-generated outputs.[99]

As discussed earlier in this document, the notion of the author's own intellectual creation has traditionally been limited to certain categories of works. However, the CJEU has played a pivotal role in broadening the application of this standard to encompass a wide range of works, including those generated by AI. In the case of *Infopaq International A/S v Danske Dagblades Forening*,[100] the CJEU established the requirement of originality as the author's own intellectual creation. The court emphasized that a work must exhibit creativity expressed through the author's choice, sequence, and combination of words.

drawing, painting, architecture, sculpture, engraving and lithography; photographic works to which are assimilated works expressed by a process analogous to photography; works of applied art, illustrations, maps, plans, sketches and three-dimensional works relative to geography, topography, architecture or science". See *supra* note 24.

[96] *Berne Convention*, *supra* note 24, Art. 2(2).

[97] Thomas MARGONI, "The Harmonisation of EU Copyright Law: The Originality Standard", (30 June 2016) online: Social Science Research Network https://ssrn.com/abstract=2802327.

[98] See, Directive 91/250/EEC (Software Directive); Directive 2009/24/EC, Directive 96/9/EC (Database); Directive 2006/116/EC (Copyright Term Directive, with regard to photographs) and Directive 2001/29/EC (Directive on the harmonisation of certain aspects of copyright and related rights in the information society).

[99] Hugenholtz and Quintais, *supra* note 23 at 1,193–4.

[100] Case C-5/08, *Infopaq International v Danske Dagblades Forening Infopaq International* [2009] ECR I-6569.

https://doi.org/10.1017/S2044251323000735 Published online by Cambridge University Press

The author can achieve an original expression through these creative elements, resulting in an intellectual creation.[101]

Infopaq International A/S v Danske Dagblades Forening is a significant case that sheds light on the complex intersection of copyright infringement and the new technology in emerging business models, particularly those involving content aggregation.[102] Furthermore, it is worth noting that the European standard of originality, which centres around the author's intellectual creativity, is not confined solely to the specific categories outlined in legislation, such as software, images, and databases. Instead, this metric is applicable to all types of works falling within the scope of the Berne Convention within the European Union.[103]

In the case of *Levola Hengelo BV v Smilde Foods BV*,[104] the CJEU addressed the issue of copyright protection under Directive 2001/29. The CJEU clarified that for a work to be eligible for copyright protection, two cumulative conditions must be satisfied. First, the subject matter in question must be original, meaning that it must be the result of the author's own intellectual creation[105]. Second, in accordance with the ruling in *Levola Hengelo BV v Smilde Foods BV*, the CJEU clarified that for subject matter to be classified as a "work" within the meaning of Directive 2001/29, it must be the expression of the author's own intellectual creation.[106]

Similarly, the principle established in *Eva-Maria Painer v Standard Verlags GmbH and Others*[107] aligns with the approach taken in *Levola Hengelo BV v Smilde Foods BV*. The CJEU was tasked with determining whether a photograph used as a template for a photofit could be considered an original work resulting from the intellectual creation of the applicant. The notion of "original work resulting from the intellectual creation" is not explicitly defined in Directive 93/98 or Directive 2006/116; it is a Union law concept requiring autonomous interpretation. To interpret this notion, reference was made to the relevant recitals in the preamble of Directive 93/98 and Directive 2006/116, which make reference to the Revised Berne Convention. According to the 17th Recital in the Preamble to Directive 93/98 and the 16th Recital in the Preamble to Directive 2006/116, an original photographic work exists if it reflects the author's own intellectual creation and personality. Furthermore, the first sentence of Article 6 of both Directive 93/98 and Directive 2006/116[108] establishes that only human creations are eligible for protection, even if technical aids such as cameras are employed in the creative process. This means that works resulting from the application of human creativity, even with the assistance of technical tools, can be protected under copyright law.[109] Another relevant case that supports the aforementioned approach is *Cofemel v G-Star*. In this case, the CJEU further clarified the concept of originality. It stated that, for a subject matter to be considered original, it is both necessary and sufficient that it reflects the personality of its author, representing their free and creative choices. In other words, the subject matter must be the result of the author's own intellectual creation.[110]

Based on the analysis of the cited cases, it is important to note that originality is intrinsically linked to the author's intellectual contribution. However, there is ongoing

[101] *Ibid.*, para. 45.
[102] *Ibid.*, para. 36.
[103] *Ibid.*, paras. 35–6.
[104] Case C-310/17, *Levola Hengelo BV v Smilde Foods BV* [2018] ECLI:EU:C:2018:899.
[105] See also, C 403/08 and C 429/08, EU:C:2011:631, *Football Association Premier League and Others*, para. 97.
[106] *Levola*, paras. 34–7.
[107] C-145/10 *Eva-Maria Painer v Standard Verlags GmbH and Others* (Third Chamber) [2011] ECR I-12533.
[108] *Ibid.*, para. 120.
[109] *Ibid.*, para. 121.
[110] (C-683/17) ECLI: EU:C: 2019:721, *Cofemel v G-Star Raw* [*Cofemel*], para. 31.

https://doi.org/10.1017/S2044251323000735 Published online by Cambridge University Press

debate and disagreement regarding the extent of human intervention required to establish originality.[111]

VII. Copyright Protection for AI-Generated Output in the European Union

The ECJ has firmly established that originality is a fundamental criterion for the protection of all types of literary and artistic works under EU law, irrespective of their mode or form of creation. This emphasis on originality highlights its pivotal role in determining the eligibility for copyright protection. However, a closer examination of the ECJ's case law reveals that this interpretation does not apply universally to all AI-generated works. A notable case that sheds light on the application of originality to AI-generated works is *Football Dataco Ltd v Yahoo! UK Ltd*.[112] In this case, the court acknowledged that a work can be considered an intellectual creation if it reflects the personality of its author. This reflection of personality arises when the author is able to exercise free and creative choices in the production of the work. However, the court also emphasized that if the features of a work are predetermined by its technical function, the necessary level of originality may be absent.[113]

Another case that further clarifies the concept of originality in the context of AI-generated works is *Cofemel v G-Star*. In this case, the court emphasized that a subject matter cannot be considered original if its realization has been solely dictated by technical considerations, rules, or other constraints that leave no room for creative freedom. The court highlighted that the presence of creative freedom is essential for a subject matter to meet the required level of originality and qualify as a protected work.[114]

In the case of *Brompton Bicycle Ltd v Chedech/Get2Get,*[115] the court reiterated the principle that the realization of a subject matter must not be solely driven by technical considerations, rules, or constraints that leave no room for creative freedom. The court emphasized that if a subject matter lacks the necessary creative freedom due to such constraints, it cannot be considered as possessing the level of originality required to be recognized as a protected work[116].

Based on the cited cases, it may initially seem that the judicial practice tends to deny protection for AI-generated works. However, this interpretation is misleading. In reality, the determination of whether AI-generated works are eligible for copyright protection is not solely based on whether technical considerations dictated their realization. Instead, the crucial factor is whether the works satisfy the condition of originality and reflect the author's personality through free and creative choices despite any technical constraints.[117]

The examples provided highlight that originality is not fulfilled when the subject matter is solely generated by AI applications or predetermined by rules and restrictions without room for human creativity. In such cases, fully automated works do not meet the

[111] In *Football Dataco Ltd and Others v Yahoo! UK Ltd and Others*, according to the Opinion of Advocate General Mengozzi: "Clearly, it is not possible to define, once and for all and in general terms, what constitutes an 'intellectual creation.' That depends on an assessment which, as I have said, is not necessary in the present case. In any event, if ever that assessment is required, it is for the national courts to undertake it on the basis of the circumstances of each individual case." See the Opinion of Advocate General Mengozzi, delivered on 15 December 2011, para.38. ECLI: EU: C: 2011:848.

[112] *Ibid*., *Football Dataco Ltd*, para. 39.

[113] See the Opinion of Advocate General Mengozzi in *Football Dataco Ltd*, *supra* note 111, para. 35.

[114] C-683/17, EU: C: 2019:721, supra note 110 para. 31.

[115] Case C-833/18, *SI & Brompton Bicycle Ltd. v. Chedech / Get2Get*, para. 24.

[116] *Ibid.*

[117] *Ibid.*, para. 26.

https://doi.org/10.1017/S2044251323000735 Published online by Cambridge University Press

criteria for copyright protection according to the settled case law of the CJEU. However, the situation differs for AI-assisted works, where human input and involvement are present. These works can be considered eligible for copyright protection[118] as long as they bear the imprint of human creativity. The human touch and contribution play a vital role in satisfying the requirement of originality. This conclusion is supported by the rationale behind copyright protection, which aims to incentivize authors to create more original and creative works utilizing their unique human abilities.[119] Contrary to this view, some jurists argue that the definition of "author" has been heavily influenced by the introduction of AI-generated works. They raise important questions about the prevailing definition of the "author" of a computer-generated work, which is often described as "the person by whom the arrangements necessary for the creation of the work are undertaken". These jurists question whether the EU's current approach adequately addresses the unique characteristics and challenges posed by AI-generated works. They suggest that the EU should consider revisiting its approach and adapting it to better align with the evolving nature of creativity and authorship in the context of AI.[120] Such a reassessment would aim to ensure a more comprehensive and effective framework for protecting and incentivizing innovative AI-generated works while balancing the interests of human creators and technological advancements. Accordingly, the proposed standard broadens the concept of authorship to include individuals who contribute a reasonable level of support in the creation of a copyrighted work, going beyond those who are traditionally considered capable of independently creating such works. This expanded scope recognizes the collaborative nature of creative processes, acknowledging that individuals involved in providing significant assistance or input should also be acknowledged and granted rights in the resulting work. By adopting this approach, the aim is to foster a more inclusive and equitable system that rewards and incentivizes collective efforts in the production of copyrighted works.[121]

VIII. Conclusion

The question of copyright protection for AI-generated works and the threshold of originality has sparked significant debate and legal interpretation. The concept of originality holds a crucial role in determining eligibility for copyright protection, with variations across jurisdictions. In the ECJ, originality is established as a fundamental criterion for protecting literary and artistic works under EU law. However, for AI-generated works, the ECJ has clarified that the presence of human creativity and free choices is essential to meet the required level of originality for copyright protection. The controversy surrounding authorship in AI-generated works has created confusion globally, with international legal frameworks struggling to address the uncertainty and indecisiveness surrounding AI authorship. Prompt action is necessary to navigate and resolve AI-related concerns, ensuring that legal systems keep up with technological advancements. Regrettably, many countries' copyright laws have overlooked these developments, failing to address the challenges posed by AI-generated works adequately. It underscores the need for comprehensive and forward-thinking approaches to copyright law in response to evolving technological landscapes.

[118] Nicole MARTINEZ, "Can an AI Machine Hold Copyright Protection Over its Work?" *Artrepreneur Art Law Journal* (1 June 2017), online: Artrepreneur https://alj.artrepreneur.com/ai-machine-copyright/.

[119] Virendra AHUJA, "Artificial Intelligence and Copyright: Issues and Challenges" (11 June 2020) ILI Law Review, online: Social Science Research Network https://ssrn.com/abstract=3864922.

[120] Denicola, *supra* note 75 at 281–2.

[121] *Ibid.*

https://doi.org/10.1017/S2044251323000735 Published online by Cambridge University Press

Within the current copyright legal framework, the protection of AI-generated works raises several important questions. As courts worldwide grapple with the legal uncertainties surrounding authorship in AI-generated works, the issue has garnered attention from organizations such as WIPO, which has actively sought to address the intersection of AI and copyright law. Recognizing the intricate relationship between AI-generated works and human intervention, WIPO has initiated discussions and invited submissions on this crucial matter. However, despite these efforts, a consensus on the complex puzzle presented in this article has yet to be reached. Ongoing discussions and inquiries highlight the need for continued exploration and development of legal approaches to address the challenges posed by AI-generated works within the realm of copyright law.

The CJEU, in a series of cases, has firmly established that AI-generated works do not qualify for copyright protection due to the absence or lack of human creativity. A notable example is *Cofemel – Sociedade de Vestuário SA v G-Star Raw CV*,[122] where it was clarified that if the realization of a subject matter is determined by technical considerations, rules, or constraints that leave no room for creative freedom, it cannot be considered sufficiently original to be recognized as a work. From this standpoint, it can be inferred that EU law generally grants protection to works produced with the assistance of AI when there are substantial human contributions, distinguishing them from works that are predominantly AI-generated without significant human intervention. This approach aligns with the requirement for human creativity to be a key element in the creation of copyright-eligible works.

Certain national jurisdictions, such as the UK, Ireland, New Zealand, Hong Kong, and India, have provisions in their copyright laws that define the author as the person responsible for making the necessary arrangements for the creation of the work. While these provisions were not specifically crafted with Generative AI in mind, they can be relevant in discussions about authorship in AI-generated works. However, this approach falls short when the work is entirely generated by computer algorithms, leaving a lacuna in terms of authorship. By contrast, countries such as the US and Australia have established laws that provide protection, but only when the work is created solely by human beings. These divergent approaches highlight the ongoing challenge of addressing AI-generated works' unique characteristics and complexities within copyright frameworks.

This paper has examined the question of copyright protection for AI-generated works and identified several key findings. First, originality is a crucial criterion for copyright eligibility, requiring works to reflect the author's personality through free and creative choices. While fully automated works may struggle to meet the originality threshold, AI-assisted works with human involvement can qualify for protection. Second, the ECJ has played a significant role in shaping the interpretation of originality, emphasizing the importance of creative freedom and the absence of technical constraints. Third, there is a need for ongoing discussions and potential revisions to address the unique challenges posed by AI-generated works, including issues of attribution, ownership, and the definition of authorship. These findings highlight the need for a balanced and adaptable framework that acknowledges the collaborative nature of AI-generated works and ensures equitable protection for both human creators and technological advancements.

Moving forward, it is recommended that policymakers and researchers focus on several key areas to address the challenges and opportunities presented by AI-generated works. While there is a theoretical argument suggesting that updates to copyright laws might better encompass and protect AI-generated works, it is essential to approach this with caution, given the complexities and potential implications for the copyright system as a whole. Further research and evidence are needed to substantiate such significant

[122] Case (C-683/17) ECLI:EU:C:2019:721, Cofemel - Sociedade de Vestuário SA v G-Star Raw CV.

https://doi.org/10.1017/S2044251323000735 Published online by Cambridge University Press

amendments. This entails clarifying the threshold of originality and considering alternative criteria that account for the unique nature of these works. International collaboration is crucial for establishing consistent standards and guidelines across jurisdictions that foster harmonization, facilitate cross-border recognition, and protect AI-generated works. Ethical considerations should also be at the forefront, with guidelines and frameworks developed to address issues of fairness, bias, and accountability in AI creative processes. Standardized licensing and attribution mechanisms specific to AI-generated works should be developed to facilitate recognition, ownership, and appropriate attribution to human creators and AI systems. Finally, public awareness and education initiatives are essential to increase understanding among creators, users, and the general public about AI-generated works, their implications, and the rights and responsibilities associated with them. By addressing these recommendations, policymakers and researchers can create a supportive and adaptive framework that encourages innovation, protects rights, and fosters responsible use of AI in creative endeavors.

Acknowledgements. The authors would like to thank the reviewers for their comments.

Funding statement. None.

Competing interests. The authors declare none.

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Cite this article: GAFFAR H, ALBARASHDI S (2024). Copyright Protection for AI-Generated Works: Exploring Originality and Ownership in a Digital Landscape. *Asian Journal of International Law* 1–24. https://doi.org/10.1017/S2044251323000735