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Artificial Intelligence and the Challenges of Copyright Protection Systems – in Search of Common Norms

Dr. Saliltorn Thongmeensuk[α], Pitchapon Jirawongsapan[σ] & Noppasin Camapaso[ρ]

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I. INTRODUCTION

Copyright law protects original works of authorship, including literary, musical, artistic, and other creative works. In recent years, Artificial intelligence (AI) has been increasingly used to generate these various forms of expression generally protected by copyrights, leading to questions about authorship. AI can generally be described as the capacity of a digital computer or a robot controlled by a computer to execute activities typically linked with intelligent entities.[1] The use of AI in creative works raises legal challenges that can only be addressed by an understanding of the interplay between copyright law and technological advancements.

The use of artificial intelligence to create works of art has significant implications for copyright law. In the past, computer-generated works were not typically questioned in terms of copyright ownership, as the program was seen as a tool that facilitated the creative process, much like paper and canvas. For a work to be eligible for copyright protection, it generally needs to be original and have a human author. Many countries, such as Spain and Germany, have laws that stipulate that only work created by humans are protected by copyright. However, with the latest forms of artificial intelligence, the computer program is no longer simply a tool, as it now makes many of the creative decisions without human intervention. This creates a new challenge for copyright law. This part analyses the concept of authorship and originality in different countries and suggests how this concept should be developed to ensure that the incentives for creation can still thrive in digital age.

One of the primary legal challenges in AI-generated art is determining the author of the work. When sophisticated AI technology is employed in creating a piece of art, it frequently becomes challenging to pinpoint specific human

[1] B.J. Copeland, 'Artificial intelligence', *Encyclopedia Britannica*<www.britannica.com/technology/artificial-intelligence> accessed 20 December 2023

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authors who contributed to the expression or compilation of parts of the work, or to determine the exact portion they created or compiled.[2]

At the heart of this issue is the concept of originality. Copyright protection is traditionally predicated on the originality of the work, which implies a human author's creative expression. Yet, AI-generated works complicate this notion, as they are often the result of algorithms processing and recombining vast datasets of existing content. This raises the question of whether such works can be considered 'original' in the copyright sense and, if so, who or what should be credited as the author—the AI algorithm, its programmer, the user who initiated the creative process, or the entity owning the AI system?

Moreover, the legal and ethical implications of AI in creative domains extend beyond the bounds of authorship and originality. They encompass broader concerns regarding the impact of AI on the creative industries, the potential for AI to disrupt traditional copyright enforcement mechanisms, and the ethical considerations of recognizing non-human entities as authors or rights holders. As AI continues to transform the landscape of creative work, these considerations become increasingly pertinent, challenging copyright scholars, practitioners, and policymakers to forge new paths in copyright law that honor the dual imperatives of promoting innovation and protecting human creativity.

This paper seeks to navigate these complex waters by offering a comprehensive analysis of the current state of copyright law in the context of AI-generated works. It explores various jurisdictions' approaches to defining authorship and originality, examines potential legal frameworks for accommodating AI's role in creative processes, and proposes principles for a balanced copyright regime that recognizes the contributions of both human and artificial creators. Through this exploration, the paper aims to contribute to the ongoing dialogue on copyright law's future in an increasingly digitized and AI-driven world.

II. THE CHARACTERISTICS OF THE AI-GENERATED ARTS AND THE IMPACTS ON ART MARKET

To understand the impact of artificial Intelligence on the art market and copyrights, it is essential to take a glance at its characteristics, how it works, how it produces art, who is involved in its development, and what the impact would be on the artist and market. At the end of this section, this study will attempt to answer the controversial question of whether AI could produce work as an author without human intervention and whether that work could be considered art.

Artificial Intelligence has been integrated into several sectors, i.e. transportation, energy, healthcare, and so on, and its role is chiefly about improving productivity and social welfare – e.g. to promote 'efficiency' [3]. AI has been adopted into the creative industry, and several AI art generators – Midjourney, Dell-E, and so on – have been introduced to the market. AI art generators use sophisticated models like Graph Neural Network (GNN) to generate arts, which require extensive image data as a vital resource. To acquire the data, AI developers often scrape image data from Pinterest or Fine Art America, the third-party platforms where artists pose their works for PR purposes.[4] [5] However, Artificial Intelligence cannot understand the art on its own. Thus, AI developers must assign human agents to label the image based on their perceptions and

[2] Jani McCutcheon, 'The Vanishing Author in Computer Generated Works: A Critical Analysis of Australian Case Law' (2012) 36 Melbourne University Law Review 915, 918.

[3] Lodewijk Heylen, 'Art and Automation: The Role of the Artist in an Automated Future' (2019) <https://iscma.scm.cityu.edu.hk/openconf/modules/request.php?module=oc_program&action=view.php&id=69&file=1/69.pdf>

[4] Melissa Heikkiläarchive, 'This Artist Is Dominating AI-Generated Art. and He's Not Happy About It' (*MIT Technology Review*, 16 September 2022) <www.technologyreview.com/2022/09/16/1059598/this-artist-is-dominating-ai-generated-art-and-hes-not-happy-about-it/> accessed 20 August 2023.

[5] Andy Baio, 'Exploring 12 Million of the 2.3 Billion Images Used to Train Stable Diffusion's Image Generator' (*Waxy*, 30 August 2022) <https://waxy.org/2022/08/exploring-12-million-of-the-images-used-to-train-stable-diffusions-image-generator/> accessed 20 August 2023.

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opinions. [6]. Thus, generative AI tools such as Dall-E 3 or Stable Diffusion often put a tag or label on the image, and most of the time, these tags are the artist's name[7]; the user will use the tag to command AI to generate an image based on the prompt, e.g. the user can command the AI to generate an image of an orange with Picasso style. The algorithm will search for the image that matches the prompt and produce work based on the data, which makes the technology lack originality and could harm the original artists by hindering their sales or damaging their reputation.[8]

One of the harms the AI might pose to the artists is the threat to their sales and profitability. For example, a Polish illustrator, Greg Rutkowski, is one of the artists affected by the AI art generator tool. He was initially optimistic about the technology since it might help him reach new consumers, but he later found several works of art with his name tag created by AI. He is concerned that if this tool becomes more widespread, he might not be able to find his original work with internet search engines, which might hinder his sales[9]. Furthermore, as AI art generators become extensively used in the market, they might create a considerable displacement effect as the technology replaces human artists [10]. This phenomenon is called 'excessive automation,' where the excessive use of technology might undermine labor productivity[11]. However, this might not be the case as the characteristics of the creative industry are unique.

The creative industry is different from other industries, primarily in value creation. The value of art is related to intangible components, which are often heterogeneous among individuals, like culture, emotion, moral knowledge, or human behavior.[12] These components will determine how individuals are willing to pay for the art piece based on their perceived value, e.g. one might favor painting over video, thus, willing to pay much more than the painting. However, this does not mean that painting is better than the video.[13] Moreover, the individually perceived value is dynamic; it changes according to how society defines 'art' The definition of art in the present revolves around Anthropocentrism. Anthropocentrism is the notion that humans are the only entity possessing intrinsic value; thus, only humans can create art.[14] Various experiments confirm the prevalence of Anthropocentrism; Fortuna et al.'s (2021) findings suggest that consumers value AI arts lower than human-created arts[15]. One possible reason was depicted in the literature where the authors experimented to observe how consumers value a work of art; they found that consumers often value painting based on the time and effort spent in the production process[16]. Moreover, a Work of Art tends to be highly rated if the creators are known [17] and there is a story behind it[18]. These are

[6] Carloalberto Treccani, 'How Machines See the World: Understanding Image Labelling' (2019) <www.academia.edu/44900825/How_machines_see_the_world_understanding_image_labelling>

[7] Laurie Clarke, 'When AI can make art – what does it mean for creativity?' *The Guardian* (12 November 2022). <www.theguardian.com/technology/2022/nov/12/when-ai-can-make-art-what-does-it-mean-for-creativity-dall-e-midjourney> accessed 10 September 2023.

[8] Harry H Jiang and others, 'AI Art and Its Impact on Artists', *Proceedings of the 2023 AAAI/ACM Conference on AI, Ethics, and Society* (ACM 2023) <https://dl.acm.org/doi/10.1145/3600211.3604681> accessed 3 January 2024.

[9] ibid.

[10] ibid 6.

[11] Daron Acemoglu and Pascual Restrepo, 'Artificial Intelligence, Automation, and Work' (2019) The Economics of Artificial Intelligence: An Agenda 197

[12] Antonio Daniele and Yi-Zhe Song, 'AI + Art = Human' (the 2019 AAAI/ACM Conference on AI, Ethics, and Society (AIES '19), Association for Computing Machinery, New York, NY, USA, January 2019)

[13] Bruno Frey, 'Art: The Economic Point of View' in Alan Peacock and Ilde Rizzo (eds), *Cultural Economics And Cultural Policies* (Springer, Dordrecht 1994)

[14] Michael Straeubig, 'Do Machines Produce Art? No. (A Systems-Theoretic Answer.)' (Art Machines: International Symposium on Computational Media Art, January 2019) < https://doi.org/10.13140/RG.2.2.32258.50885>

[15] Paweł Fortuna and Artur Modliński, 'A(I)Rtist or Counterfeiter? Artificial Intelligence as (d)Evaluating Factor on the Art Market' (2021) 51(3) The Journal of Arts Management, Law, and Society 188 <https://doi.org/10.1080/10632921.2021.1887032> accessed 10 September 2023.

[16] Justin Kruger, Derrick Wirtz, Leaf Van Boven, *et al.* 'The Effort Heuristic' (2004) 40(1) Journal of Experimental Social Psychology 91 <https://doi.org/10.1016/s0022-1031(03)00065-9> accessed 8 December 2023.

[17] ibid.

[18] Leslie Snapper, Cansu Oranç, Angelina Hawley-Dolan, *et al.* 'Your Kid Could Not Have Done That: Even Untutored

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consistent with Tubadji et al.'s (2021) argument that consumers' willingness to pay for art does not only depend on objective economic value but also cultural economic value, e.g. the time the human producer spends on the product, the feeling they feel at that time and so on[19]. For these reasons, excessive automation by AI in the creative industry does not seem to be the case, as consumers still favor human work over robots. However, it could replace lower-productivity jobs. Moreover, as artificial Intelligence becomes more prominent in the creative industries, it will create new jobs, markets, and opportunities.

Artificial Intelligence is a concept that has been introduced for a while in the art market. Harold Cohen has been working with algorithmic art since 1968,[20] and several artists and programmers have used the technology to create art for some time[21]. However, these artists were scarce as the technology was in an infant state; the technology only possessed a limited degree of autonomy as it required humans to instruct them. However, AI now requires only minuscule human intervention; a few only require humans to intervene in development. Consequently, as automation sometimes can work independently, the new question arises about who would be the author of the work created by AI. Christie took a bold step regarding this question, as it introduces a painting that claimed the art was created solely by AI without human intervention at all.[22] This action creates an uproar in the art world both among traditional artists and the group of artists working 'with' AI (AI artist hereafter) [23]. Traditional artists believe that the machine does not have intrinsic value; it lacks experience, emotion, and cultural understanding. Thus, if AI is allowed to be an author of the work, it might deteriorate the value of the art market.[24] On the other hand, AI artists who use AI as a vital 'tool' or 'assistant' of their work, agree with the traditional artists that artwork cannot be created solely by AI since a certain degree of intervention would be extremely necessary.[25] [26] Thus, the critical question is not about whether the AI can be the author, but whether the artist using AI could be considered artists as the tool lacks originality.

AI art generators are often criticized for their development process; as discussed above, generative AI art like Dell-E and Midjourney lacks originality since its output is close to the original artists; sometimes, the service providers even provide the users to target search with an artist name. Scoping down the artist's style by name plummeted the originality of the generative AI art further.[27] Moreover, the lack of originality in AI art resulted from its architecture, especially Generative Adversarial Networks (GAN) a model that can generate art by minimax game between generative and discriminate networks[28] [29], Creative Adversarial Networks (CAN) which is a special type of GAN that allows the AI to creative art by itself without or minimal human intervention [30]. While these two types of artificial Intelligence are almost entirely automated, there is still room for human artists' creativity to play;

Observers Can Discern Intentionality and Structure in Abstract Expressionist Art' (2015) 137 Cognition 154 <https://doi.org/10.1016/j.cognition.2014.12.009> accessed 10 September 2023.

[19] Annie Tubadji, Haoran Huang, and Don J Webber, 'Cultural proximity bias in AI-acceptability: The importance of being human' (2021) 173 Technological Forecasting and Social Change 121100 < https://doi.org/10.1016/ j.techfore. 2021.121100>

[20] Sofian Audry and Jon Ippolito, 'Can Artificial Intelligence Make Art without Artists? Ask the Viewer' (2019) 8(1) Arts 35<https://doi.org/10.3390/arts8010035>

[21] Marian Mazzone and Ahmed Elgammal, 'Art, Creativity, and the Potential of Artificial Intelligence' (2019) 8 Arts 26 <https://www.mdpi.com/2076-0752/8/1/26> accessed 1 November 2024.

[22] ibid 12.

[23] Kieran Browne, 'Who (or What) Is an AI Artist?' (2022) 55 (2) Leonardo 130 <https://doi.org/10.1162/leon_a_ 02092>

[24] ibid 8.

[25] ibid 12.

[26] ibid 23.

[27] ibid 12.

[28] Chris Donahue, Julian McAuley, and Miller Puckette, 'Adversarial Audio Synthesis' (the 7th ICLR, New Orleans, LA, USA, May 2019)

[29] Ian Goodfellow, Jean Pouget-Abadie, Mehdi Mirza, *et al.* 'Generative adversarial nets' (2014) 27 Advances in Neural Information Processing Systems 2672 <https://proceedings.neurips.cc/paper_files/paper/2014/file/5ca3e9b122f61f8f06494c97b1afccf3-Paper.pdf>

[30] Ahmed Elgammal, Bingchen Liu, and Mohamed Elhoseiny, 'CAN: Creative Adversarial Networks, Generating "Art" by Learning About Styles and Deviating from Style Norms' (2017) <https://doi.org/10.48550/arXiv.1706.07068>

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for example, they can choose the training data or teach how AI interprets texts or commands.[31]

As discussed above, AI art generators are often designed to be able to create creative work without human intervention at all. Thus, everyone can make the art without any expertise in the field. However, it is quite misleading to call this user an artist, but the AI artists are the experts who work with AI, a tool severely lacking originality, and could make it revolutionary by using their creativity to design and train AI.

III. CHALLENGES OF AUTHORSHIP AND ORIGINALITY

A fundamental aspect of copyright law is originality, a concept that has been challenging to define statutorily but remains crucial. This is because only works exhibiting a basic degree of this characteristic are eligible for protection.[32] None of the significant international copyright treaties provide a clear definition of originality or specify the degree of originality needed to obtain copyright protection.[33] Article 2(1) of the 'Berne Convention' focuses on 'protected works' and offers a representative, though not all-inclusive, list of works covered under this wide definition. The concept of 'original' is addressed in Article 2(3) and also in Article 14-bis, which pertains to cinematographic works. Additionally, Article 2 (5) introduces a pertinent aspect of originality, stating that works should be 'intellectual creations'. This raises the question of whether an 'intellectual creation' implies something produced by a human.

In this regard, many scholars argue that copyright should focus on safeguarding the 'results of human authorship' rather than being influenced by commercial factors.[34] This view is held because of worries that the essence of copyright might be overshadowed, diminishing the humanistic spirit of the 'Berne Convention'.[35] Ricketson asserts that acknowledging authorship is a basic human right for the creator of a work.[36] Limiting the notion of authorship to humans not only reinforces essential human values but also serves as a 'welcome reminder of human individuality and distinctiveness'.[37]

Nevertheless, some scholars argue that granting copyright protection to AI does not entirely eliminate its humanistic element but rather widens the gap between the created work and the author who developed the algorithm enabling the work (the programmer), effectively shifting the author's position in the creative process of the work.[38] Thus, the humanistic essence of the 'Berne Convention' continues to be protected, albeit in a less direct manner.[39]

Under the existing copyright protection systems, no country imposes an explicit prohibition on granting copyright to works created by artificial intelligence. However, it appears that many countries' laws do not permit non-human

[31] Zachary C. Lipton, 'The Mythos of Model Interpretability: In machine learning, the concept of interpretability is both important and slippery' (2018) 16(3) Queue 31 <https://doi.org/10.1145/3236386.3241340>

[32] Sam Ricketson and Jane C. Ginsburg, *International Copyright and Neighbouring Rights: The Berne Convention and Beyond* (Oxford University Press 2022); Lionel Bently et al., *Intellectual Property Law* (Oxford University Press 2022); W. R. Cornish, David Llewelyn, and Tanya Frances Aplin, *Intellectual Property: Patents, Copyrights, Trade Marks and Allied Rights* (Sweet & Maxwell 2023).

[33] Thomas Margoni, 'The Harmonisation of EU Copyright Law: The Originality Standard' (2016) SSRN Electronic Journal <https://doi.org/10.2139/ssrn.2802327>

[34] Jane C. Ginsburg, 'People Not Machines: Authorship and What It Means in the Berne Convention' (2018) 49(2) IIC - International Review of Intellectual Property and Competition Law 131; Sam Ricketson, 'The 1992 Horace S. Manges Lecture - People or Machines: The Bern Convention and the Changing Concept of Authorship' (1991).16(1) Columbia-VLA Journal of Law & the Arts 1

[35] Jane C. Ginsburg, 'People not Machines: Authorship and What it Means in the Berne Convention' (2018) 49 IIC 131 <https://doi.org/10.1007/s40319-018-0670-x>

[36] A. Michel, 'AI-Generated Creations: Challenging the Traditional Concept of Copyright, A Research into the Question of Works that are created by an Artificial Intelligence Program Have Copyright Protection in the Netherlands and the European Union' (Tilburg University 2018).

[37] ibid.

[38] Jesus Manuel Zatarain, 'The Role of Automated Technology in the Creation of Copyright Works: The Challenges of Artificial Intelligence' (2017) 31(1) International Review of Law, Computers & Technology 91

[39] Michel (n 36).

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copyright. Majority of the scholars view that machines do not possess autonomy, and as a result, they are incapable of independently exercising their ownership rights based on their own free will.[40] Therefore, AI machinery is unable to assert its rights by initiating infringement lawsuits in a legal court.[41]

In the United States, for instance, the concept of originality requires human authorship.[42] This position is based on legal precedent, which establishes that copyright law protects only works that are the result of intellectual labor based on the creative abilities of the mind.[43] Moreover, the U.S. Copyright Office maintains a policy that they will not grant registration for works that are created solely by a machine or mechanical process that functions randomly or automatically, without any creative input or involvement from a human author.[44] Likewise, a recent case in Australia ruled that a work produced with the involvement of a computer cannot be protected by copyright because it was not created by a human.[45] In Europe, the Court of Justice of the European Union has also determined, particularly in its influential *Infopaq International v. Danske Dagblades Forening decision*[46] and *Football Dataco v Yahoo! UK decision*[47], that copyright only applies to original works that reflect the author's own intellectual creation. This is commonly interpreted to mean that an original work must reflect the author's individuality, which clearly implies that a human author is necessary for a work to be eligible for copyright protection. Under this view, a simple sketch of a stick figure drawn by a human hand holds more value in terms of copyright protection than the Next Rembrandt,[48] the artwork created by AI.[49]

If AI cannot be regarded as an author, it prompts the question of whether the ownership or creation of the AI should entitle the individual who developed it to be recognized as the author. It is undeniable that significant investment is needed to create AI, and ensuring that the creator has the chance to recover this investment is crucial. In reality, the majority of computer-generated artworks are significantly influenced by the creativity of the programmer. Therefore, a small number of countries, including Hong Kong (SAR), India, Ireland, New Zealand, and the UK, attribute authorship to the programmer.[50] In the UK High Court's ruling in *Nova Productions Ltd v Mazooma Games Ltd (Nova Productions),* the court assigned the rights to the programmer, as he was accountable for coding the program that allowed the computer to generate the different visuals in the frames that were under copyright protection.[51]In addition, the UK's copyright law, specifically section 9(3) of the Copyright, Designs and Patents Act (CDPA), embodies this approach. The CDPA stipulates that for a literary, dramatic, musical, or artistic work that is computer-generated, the UK law specifies that the person who made the necessary arrangements for creating the work is considered the author.[52] Dickenson suggests that determining who made the essential arrangements should involve identifying the individual who applied their skill,

[40] Petar Hristov Manolakev, 'Works Generated by AI – How Artificial Intelligence Challenges Our Perceptions of Authorship' (Master's Thesis, Tilburg University 2017) 38

[41] Kanchana Kariyawasam, 'Artificial Intelligence and Challenges for Copyright Law' (2020) 28(4) International Journal of Law and Information Technology 279

[42] Daniel J. Gervais, 'The Machine as Author' (2019) 105 IOWA L. REV. 2053

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

[44] Maria Strong, 'Comments of the United States Copyright Office to the World Intellectual Property Organization: Impact of Artificial Intelligence on IP Policy: Call for Comments' *U.S. Copyright Office* (Washington, DC, 14 February 2020) <www.wipo.int/export/sites/www/about-ip/en/artificial_intelligence/call_for_comments/pdf/ms_usa_usco.pdf>

[45] *Acohs Pty Ltd v Ucorp Pty Ltd* [2012] FCAFC 16.

[46] *Infopaq International v. Danske Dagblades Forening* [2009] ECR 16 (Case C-5/08)

[47] *Football Dataco Ltd and others v. Yahoo! UK Ltd* and others [2012] EWCA Civ 1696 (Case C-604/10)

[48] In 2016, a collection of museums and scholars in the Netherlands revealed a painting named The Next Rembrandt, which was a novel artwork produced by an AI that had analyzed numerous pieces by Rembrandt Harmenszoon van Rijn, a Dutch artist from the 17th century.

[49] Daryl Lim, 'AI & IP Innovation & Creativity in an Age of Accelerated Change' (2018) 52 *AKRON L. REV.* 813

[50] Andres Guadamuz, 'Artificial Intelligence and Copyright' (*WIPO Magazine*, 2017) <www.wipo.int/wipo_ magazine/en/2017/05/article_0003.html>

[51] *Nova Productions Ltd v Mazooma Games Ltd & Ors* [2007] EWCA Civ 219, [2007] EMLR 427, [2007] RPC 25, [2007] BusLR 1032, [2007] 30(5) IPD 30032

[52] Copyright, Designs and Patents Act 1988, s 178.

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labor, and judgment in making those arrangements.[53] It seems logical to consider that the term 'necessary arrangements' might pertain to the initial efforts involved in creating and developing the program.[54]

However, there may be scenarios where distinguishing between works created by humans and those generated by computers without human involvement becomes difficult. For instance, contemporary AI might possess the ability or autonomy to make independent choices, leading to minimal human input in the AI tool's results. In essence, despite a programmer typically being responsible for any algorithm used in AI, there are modern computers programmed without strict guidelines, enabling the machines to self-program.[55] When the role of the programmer diminishes, one might argue that the term 'arrangements' mentioned in section 9(3) of the CDPA encompasses both the act of programming and the investments made for it. Therefore, in cases of AI works independent of the programmer's involvement, the rights holder is deemed to be the entity that has made the financial investment.[56] This means that the term 'the person by whom the arrangements necessary for the creation of the work are undertaken' should be broad enough to include anyone intending to create AI-generated work.[57] This approach would initially focus on the main individual, the programmer, and in cases where the AI-generated work is fully autonomous, extend beyond the programmer's expertise to include the person who conceived the idea of creating such work.[58] In other words, when AI is entirely autonomous and able to produce work surpassing the programmer's understanding, some scholars suggest that for AI creations detached from the programmer's contribution, the rights may belong to the entity responsible for the financial investment.[59]

It is important to recognize that with more advanced AI programs capable of learning and adapting independently, this interpretation of 'necessary arrangements' might be pushing the concept in a broad manner and it is likely that UK courts would interpret the provision in a broad manner to fulfill its intended purpose.[60] It should be noted, however, that, given that AIs employ deep-learning algorithms, the gap between the creator who implemented the initial 'necessary arrangements' and the ultimate output becomes even greater.[61]

Furthermore, the CDPA defines a computer-generated work as one that is generated by a computer in circumstances where there is no human author involved.[62] The protection period for such works is 50 years from the date of creation.[63] The goal of this provision is to make an exception to the requirement for human authorship by acknowledging the effort involved in developing a program that is capable of producing works, even though the machine undertakes the creative process.[64] The way the UK law designates a human as the author of an AI-generated work separates authorship from creativity, which contradicts the modern approach to originality in copyright law where authorship and creativity are linked.[65] In addition, the Intellectual Property of the UK further clarifies that the concept of 'joint authorship' does not apply to works co-created by humans and AI systems because computer-generated works have

[53] Julia Dickenson, Alex Morgan, and Birgit Clark, 'Creative Machines: Ownership of Copyright in Content Created by Artificial Intelligence Applications' (2017) 39(8) *E.I.P.R.* 457
[54] Michel (n 36).
[55] Elsa Sayagh, 'Can Artificial Intelligence Be More Creative than Humans?' (*Welcome to the Jungle*, 02 April 2019) <www.welcometothejungle.com/en/articles/en-can-artificial-intelligence-be-more-creative-than-humans> accessed 27 January 2024.
[56] Madeleine De Cock Bunning, 'Buning Artificial Intelligence and The Creative Industry: New Challenges For The EU Paradigm For Art And Technology By Autonomous Creation' in *Research Handbook on The Law of Artificial Intelligence* (Edward Elgar Publishing 2018) 511–35
[57] Kariyawasam (n 41).
[58] ibid.
[59] ibid.
[60] Dickenson, Morgan, and Clark, (n 53).
[61] Michel (n 36).
[62] ibid.
[63] CDPA, s 12(7).
[64] Intellectual Property Office, 'Artificial Intelligence Call for Views: Copyright and Related Rights' (*GOV.UK*, 23 March 2021)https://www.gov.uk/government/consultations/artificial-intelligence-and-intellectual-property-call-for-views/artificial-intelligence-call-for-views-copyright-and-related-rights> accessed 26 February 2023.
[65] ibid.

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no human author.[66] This creates ambiguity regarding the status of AI-assisted works, so there is a need for clarification of these provisions. While it was anticipated that other nations would also offer comparable legal protection for works created by artificial intelligence, at present, only a few countries, aside from the UK, take the same approach.

Another different viewpoint is that AI could be the holder of copyright for creative works produced solely by AI, considering AI as a corporate entity. According to Shawn Bayern's suggestion, assigning a computer system to manage a limited liability corporation (LLC) may give artificial intelligence the status of a legal person capable of owning property.[67] Acevedo argues that corporations have organizational structures that include human directors who are empowered to make decisions on behalf of the organization.[68] In contrast, artificial intelligence does not have these conventional features. However, it could be argued that the individual who programmed the AI acts as the director, and the AI itself functions as the Chief Executive Officer (CEO).[69] In doing so, Acevedo suggests the U.S. copyright office apply the structure of the work made for hire concept or to treat AI as a joint author with programmer according to the joint work concept.[70]

In 2019, the International Association for the Protection of Intellectual Property (AIPPI) conducted a survey among its members to determine if works generated by artificial intelligence should be protected. The responses received revealed a range of opinions on the matter that, while the UK Group proposed a new 25-year right to protect AI-generated works and acknowledge the investment of AI developers, other respondents believed that copyright protection should be reserved only for works that result from human creativity.[71] The resulting AIPPI Resolution, however, still emphasizes the importance of human intervention and originality in the copyright protection of works.[72]

IV. INCENTIVES FOR CREATION IN THE DIGITAL AGE

Originality, although an important concept when considering granting copyright protection to AI-generated works, does not serve the purpose to organize the difficult debate on the topic. Aiming to derive a solution by using the concept of originality leads to further discussion on whether AI art itself is a form of art, or as put by Coeckelbergh, 'can machines create art?'[73] Studies that frame the issue in this way usually attempt to consider the definition of art itself then relate back to theoretical concepts of copyright.[74] The key argument usually asserts that AI is not creative, or more specifically, not creative in the way humans are[75], thus not worthy of copyright protection.[76]

Meanwhile, another side of the ongoing debates focus on the shift of human contribution and its value. This usually concerns the changing degree, more precisely the reducing effort and control of humans[77], perhaps a reflection of determination to

[66] ibid.
[67] Roman V. Yampolskiy, 'Could an artificial intelligence be considered a person under the law?' (*The Conversation*, 5 October 2018) <https://theconversation.com/could- an-artificial-intelligence-beconsidered-a-person-under-the-law-102865>
[68] Veronica Acevedo, 'Original Works of "Authorship": Artificial Intelligence as Authors of Copyright' (Student Works, Seton Hall University 2022)
[69] ibid.
[70] ibid.
[71] Intellectual Property Office (n 64).
[72] Jan Bernd Nordemann, 'AIPPI: No Copyright Protection for AI Works without Human Input, but Related Rights Remain' (*Kluwer Copyright Blog*, 21 November 2019) <https://copyrightblog.kluweriplaw.com/2019/11/21/aippi-no-copyright-protection-for-ai-works-without-human-input-but-related-rights-remain/>
[73] Mark Coeckelbergh, 'Can Machines Create Art?' (2017) 30 Philosophy & Technology 285 <http://link.springer.com/10.1007/s13347-016-0231-5> accessed 7 November 2024.
[74] Jiang and others (n 8).
[75] Ujué Agudo and others, 'Assessing Emotion and Sensitivity of AI Artwork' (2022) 13 Frontiers in Psychology 879088 <https://www.frontiersin.org/articles/10.3389/fpsyg.2022.879088/full> accessed 7 November 2024.
[76] Samuel Scholz, 'A Siri-Ous Societal Issue: Should Autonomous Artificial Intelligence Receive Patent or Copyright Protection?' (2020) 11 Cybaris® <https://open.mitchellhamline.edu/cybaris/vol11/iss1/3>.
[77] Uwe Messer, 'Co-Creating Art with Generative Artificial Intelligence: Implications for Artworks and Artists' (2024) 2 Computers in Human Behavior: Artificial Humans 100056

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carefully create works as what would be imagined for other forms of works. Such concerns are linked with anxiousness that generative AI devalues the value of labor and skills of human artists[78], while the more hopeful side proposes that AI-generated arts may in fact induce the public to value the works of human artists more, if only they know which are purely created by humans and which not.[79]

Above are examples of how recent scholarship rightly raises several concerns, yet still struggles to arrive at solutions as the topic is framed as a 'problem' where generative AI disrupts and changes the creative world as we know. However, it is important to note that creativity and the act of creation itself are not the same thing. This section therefore attempts an analysis that acknowledges generative-AI-involved creations are not to be viewed merely at the level of the resulting work, but rather at the level of creative process.[80] Here, therefore, the goal is to extract the roles of several actors who have their ways and degrees of contribution, and carefully restart from the starting point of incentive to create[81]

The complexity of creation with generative AI is not only that machines are an integral part of the creative process, but also that several human actors are involved, each with some level of contribution that may be interpreted as putting effort or deserving rewards. Creation with generative AI involves contribution from several author-like actors, including (1) the programmer (the one who created the generative AI), (2) the investor[82] (the person or entity that supports the operation through funding and/or infrastructure such as server), (3) the AI system, (4) the curator[83] (the human who trains the generative AI to create the most desired or marketable style of work), and (5) the creator (the human who inputs the command for the AI to generate). In some cases, the human(s) involved can fulfill multiple roles in a creative process. For example, a programmer can also be a curator.

Discussions on legal options for AI-involved creations are surrounded by making a choice to not grant authorship at all or giving authorship to some actor involved in the creative process. The main obstacle of analysis is leaving the root of criteria for copyright protection unclarified, i.e. as mentioned above, actors in the creative process show some level of contribution. In the digital age, the value chain of creation no longer allows a simple method of identifying a single actor with notable contribution, as it is 'it is often impossible to identify the particular (human) authors responsible for expressing or compiling part of the work.' [84] To what degree must an actor in generative AI process contribute, and when exactly does an actor deserve or *require* authorship?

At the same time, incentive for creation is commonly used as justification and basis of copyright laws.[85, 86] Conventionally, it is viewed that copyright works through granting monopoly over the creator's work[87], and authorship is considered to be the source of creative incentive[88]

<https://linkinghub.elsevier.com/retrieve/pii/S2949882124000161> accessed 15 November 2024.

[78] Jiang and others (n 8).

[79] C Blaine Horton Jr, Michael W White and Sheena S Iyengar, 'Bias against AI Art Can Enhance Perceptions of Human Creativity' (2023) 13 Scientific Reports 19001 <https://www.nature.com/articles/s41598-023-45202-3> accessed 15 November 2024.

[80] Mazzone and Elgammal (n 21).

[81] Kateryna Militsyna, 'Human Creative Contribution to AI-Based Output – One Just Can('t) Get Enough' (2023) 72 GRUR International 939 <https://academic.oup.com/grurint/article/72/10/939/7241907> accessed 3 January 2024.

[82] Kariyawasam (n 41).

[83] Ramya Srinivasan and Kanji Uchino, 'Biases in Generative Art: A Causal Look from the Lens of Art History' (FAccT '21: 2021 ACM Conference on Fairness, Accountability, and Transparency, Virtual Event, Canada, 2021) 41–51 <https://doi.org/10.1145/3442188.3445869>

[84] Jani McCutcheon (n 2) 915–69.

[85] Sara K Stadler, 'Incentive and Expectation in Copyright' (2007) 53 (3) Hastings Law Journal 433

[86] Shyamkrishna Balganesh, 'Foreseeability and Copyright Incentives' (2009) 122 (6) Harvard Law Review 1569

[87] Seana Valentine Shiffrin, 'The Incentives Argument for Intellectual Property Protection' Axel Gosseries, Alain Marciano, and Alain Strowel Zin (ed) *Intellectual Property and Theories of Justice* (London: Palgrave Macmillan, 2008) <https://doi.org/10.1057/978-0-230-58239-2_5>

[88] James Campbell, 'Authorship, Incentives for Creation, and Copyright in the Digital 21st Century' (2007) 43(1) Proc. Am. Soc. Info. Sci. Tech. 1 <https://doi.org/ 10.1002/ meet. 1450430168>; Tim Worstall, 'Copyright Is About Incentives to Innovation, Not Justice: What Incentive Does Naruto Need?' (Forbes, 07 January 2016) <www.forbes.com/sites/timworstall/2016/01/07/copyright-is-about-incentives-

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However, such views are arguably rooted and constrained within only some philosophical bases, namely utilitarian and Lockean theories. In economic perspectives, incentives are necessary for inventions and creative works, and there are other types on incentives than intellectual property protection that one might put contribution into some creation[89]. Hence, in this analysis, the scope of incentives must be broadened, from incentives only granted from copyright itself to other incentive schemes, to truly examine why each actor creates. To derive the fitting solution for actors in creative process with generative AI, it is necessary to revisit philosophical and economic justifications of copyright allocation, and apply them to the actors involved. Fisher[90] and Former[91] provide useful overview and comparisons of the four philosophical grounds for copyright, and intellectual property regimes in general. The four guidelines can be first classified into utilitarian basis and moral rights (non-utilitarian) basis[92], where the moral rights basis is further distinguished into labor and natural rights approach, personality theory, and social planning theory. [93, 94] Here, each philosophical approach is not discussed for their validity or issues, but rather utilized for application to clarify incentives required for creative process.

(a) The utilitarian basis of incentive for creation is famously embodied in the US Constitution, which empowers the Congress '[t]o promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.'[95] Intellectual property protection is justified by maximization of net social welfare[96], where providing incentives to create and innovate would generate artistic and technological progress that benefits the society.

(b) The labor and natural rights approach, prominently known as Lockean theory of intellectual property[97], is derived mainly from the works of Nozick and Locke.[98] Scholars derive grounds for intellectual property protection based on the Lockean idea of property.[99] The approach draws upon Locke's concept of *proviso*[100], which stipulates that any property in the commons, once mixed with labor of a person, that person is legitimized to acquire the property as their own. When applied to copyright, efforts and resources of the creator are compared with labor, concluding that the creator is entitled with the natural rights in their property, the works they created.[101]

(c) The personality theory[102], also known as personhood theory, is derived loosely from the works of Kant and Hegel, which focuses on the moral value of human's 'will' and personhood expressed through creations – that private property rights are crucial for fulfillment of fundamental human needs to express their personality.[103] In this view, 'rights exist to effectuate a person's basic human desires'.[104] This leads to the argument that the creators morally deserve rights in their work, considering the

to-innovation-not-justice-what-incentive-does-naruto-need/ > accessed 19 March 2023.

[89] Nancy Gallini and Suzanne Scotchmer, 'Intellectual Property: When Is It the Best Incentive System?' (2002) 2 Innovation Policy and the Economy 51 <https://doi.org/10.1086/653754>

[90] William Fisher, 'Theories of Intellectual Property' (1987) <https://cyber.harvard.edu/people/tfisher/iptheory.pdf>

[91] Jeanne C. Fromer, 'Expressive Incentives in Intellectual Property (2012) 98(8) Virginia Law Review 1745

[92] ibid.

[93] Fisher (n 90).

[94] Justin Hughes, 'The Philosophy of Intellectual Property' (1988) 77 Geo. L.J. 287 <https://cyber.harvard. edu/ IPCoop/ 88hugh.html>

[95] U.S. CONST., art. I, § 8, cl. 8.

[96] Fisher (n 90).

[97] Adam D. Moore, 'A Lockean Theory of Intellectual Property Revisited' (2012) *SSRN Electronic Journal* <https://doi.org/10.2139/ssrn.2099073>

[98] Fisher (n 90).

[99] Mala Chatterjee, 'Lockean Copyright versus Lockean Property' (2020) 12 Journal of Legal Analysis 136 <https://doi.org/10.1093/jla/laaa002>; Adam D. Moore, 'A Lockean Theory of Intellectual Property Revisited' (2012) 50 San Diego Law Review <https://ssrn.com/abstract=2099073>

[100] John Locke, 'Second Treatise of Government' in Mitchell Cohen (ed) *Princeton Readings in Political Thought: Essential Texts since Plato - Revised and Expanded Edition* (Princeton University Press 2018) <https://doi.org/10.2307/j.ctv19fvzzk>

[101] Fisher (n 90).

[102] Hughes (n 94).

[103] Fisher (n 90).

[104] Hughes (n 94).

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virtue of their works and how their creation reflect their experience, knowledge, personhood[105], and may be extended to skills they have learned and assembled overtime. Intellectual property regime, therefore, exists to 'shield the creators from appropriation or modification of artifacts through which authors and artists have expressed their "wills"', or 'to create social and economic conditions *conducive* to creative intellectual activity.'[106] Some scholars point out overlap between Lockean and personality theories, that application of one's labor is a form of expression.[107] Here, these shall be distinguished, that the personality theory points towards judgment and decisions of the creator, while Lockean property points towards applying skills and labor.

(d) Social planning theory posits that artistic creations and protecting them with property rights are linked to shaping the society, by promoting 'the achievement of a just and attractive culture.'[108] Copyright is linked with preservation and enrichment of artistic tradition, to create 'just and attractive culture'.[109] This theory, although different in the details of functioning of copyright, shares some common grounds with the utilitarian basis.

With the four justifications of copyright clarified above, it is now possible to further examine the nature of incentives as would be viewed by scholars of each theoretical approach. Here, another dimension that allows clearer insight is viewing how incentives drive creators – through creating motivations. They can be categorized into 'intrinsic' and 'extrinsic' motivations.[110, 111, 112] Intrinsic motivations are formed internally, thus we observe examples of creators, for example, as raised by Moglen[113],Mozart composed *The Magic Flute* knowingly he would not be paid. Extrinsic motivations, on the other hand, depend on what system offers to the creators. With these laid out, factors that make creators create can now be clarified for each theoretical approach.

The utilitarian basis provides the clearest and the most prevailing concept of source of incentive – copyright as 'reward'[114], which directly performs as an incentive, in line with economic theories of incentive. The motivation in the utilitarian approach is completely extrinsic. As concisely put by Snow, it is the 'State's intervention to incentivize creativity with subsequent income from excluded right to the works.'[115] The creators can form expectations of their rewards, through exclusive rights on the works and exploitation.[116]

The labor theory, or Lockean property approach, would stipulate that ensured fairness motivates the creators, as they are 'ensured the entitled level of fairness for their labor'[117] through recognition of authorship. There is a slight overlap with utilitarian basis here, as such level of fairness is linked with possible reputation and income as entitled acknowledgement of hard work. This makes motivation based on the Lockean approach a combination of mainly intrinsic, and partially extrinsic motivations.

The remaining two approaches based on moral rights, personality theory and social planning theory involve purely intrinsic motivations. Personality theory implies the fulfillment of will, the fundamental human desires. The motivations are linked to personhood, including self-realization as a social being, self-realization as

[105] Fromer (n 91).
[106] Fisher (n 90).
[107] Hughes (n 94).
[108] Fisher (n 90).
[109] ibid.
[110] Ece Gurler, 'Assessing the Role of Motivational Factors in Facilitating Artists' Personal and Professional Development' (2021) Critical and Creative Thinking Capstones Collection 393 <https://scholarworks.umb.edu/cct_capstone/393>
[111] David M. Kreps, 'Intrinsic Motivation and Extrinsic Incentives' (1997) 87(2) The American Economic Review 359
[112] Gary Charness and Daniela Grieco, 'Creativity and Financial Incentives' (2019) 17(2) Journal of the European Economic Association 454 < https://doi.org/10. 1093/jeea/jvx055>
[113] Eben Moglen, 'Anarchism Triumphant: Free Software and the Death of Copyright' (1999) 4(8) First Monday <https://doi.org/10.5210/fm.v4i8.684>
[114] Ioannis Lianos, 'A Regulatory Theory of IP: Implications for Competition Law' (2008) CLES Working Paper Series 1/2008<https://www.ucl.ac.uk/cles/sites/cles/files/cles-1-2008new.pdf>
[115] Ned Snow, 'Moral Bars to Intellectual Property: Theory & Apologetics' (2021) 28(1) UCLA Entertainment Law Review <https://doi.org/10.5070/LR828153857>
[116] Stadler (n 85).
[117] Snow (n 115).

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an individual, and security and leisure.[118] Social planning theory would posit that the incentive lies in contributing to the society by enriching artistic tradition, and contributing to distributive justice, where creators do their part to contribute to the society, and the society has a just opportunity to enjoy the works.[119]

Beyond motivations derived from incentives based on the four justifications of copyright, three developments in how incentives are understood must be mentioned. Market factors such as prizes, subsidies, and regulation[120], and changing market trends provide incentive schemes other than copyright. Further, 'negative space scholarship' of intellectual property has been proposed in recent years, challenging ways of grasping the necessity of copyright protection as incentive to create.[121] For example, low-cost innovation may not require copyright protection or authorship attribution for the creators to maintain motivations and for the society to benefit, and creativity in the market may be accelerated through creativity-enhancing copying, such as fast fashion industry where it is common for makers to copy each other.[122] Third, specific to creations involving generative AI, creative process increasingly involves lower cost of creation, higher volume of work production, and AI-assisted ideation.[123, 124]

Authorship must be allocated to the actor that requires incentives to create, and without whom the creation process would not occur, i.e. actors whose role is indispensable for the creation process. As summarized in Table 1, actors are listed, and the necessity of copyright as incentives for each actor is proposed by clearly distinguishing the four theoretical frameworks: utilitarian, labor, personality, and social planning. For Lockean (labor) framework, skill and labor are considered as the key representations of the concept, while for personality framework, judgment of the actor is considered as key representation of expression of personal will. It is found that programmers are most likely justified to require copyright by the theoretical frameworks, while the AI systems remain the least likely to be justified, as to be further elaborated below.

4.1 Programmer

The developers of artificial intelligence, require incentive for creation through copyright based on all theoretical frameworks. Programmers put significant effort into creating the working systems, for which they invest their time and workload to produce generative algorithms. They may be considered the 'mastermind'[125] with creative input[126] in the form of programming – without whom no process of generative AI would ever take place. The importance of their role in computer-created work may even be extended that they are the only individual in the creative process who contributes enough intellectual effort to satisfy justification for intellectual property claim.[127]

On a utilitarian basis, a programmer is the key person indispensable for advancement of the creative work market, as noted in the UK court case of *Nova Productions Ltd v Mazooma Games*

[118] Jeremy Waldron, *The Right to Private Property* (Oxford 1990; online edn, Oxford Academic 2011) <https://doi.org/10.1093/acprof:oso/9780198239376.001.0001>

[119] Fisher (n 90).

[120] Peter S. Menell, 'Intellectual Property: General Theories' (1999) 2 Encyclopedia of law and economics 129 <https://core.ac.uk/reader/7280110>

[121] Christopher Jon Sprigman, 'Copyright and Creative Incentives: What Do(n't) We Know? in Rochelle Cooper Dreyfuss and Elizabeth Siew-Kuan Ng (ed), *Framing Intellectual Property Law in the 21st Century* (1st ed, Cambridge University Press 2018) 32–61 <https://doi.org/10.1017/9781316471647.003>

[122] ibid.

[123] Anne Ploin, Rebecca Eynon, and Isis Hjorth *et al.* 'AI and the Arts: How Machine Learning Is Changing Artistic Work' (Report from the Creative Algorithmic Intelligence Research Project, University of Oxford, UK: Oxford Internet Institute, 2022)<https://www.oii.ox.ac.uk/wp-content/uploads/2022/03/040222-AI-and-the-Arts_FINAL.pdf>

[124] Anjan Chatterjee, 'Art in an Age of Artificial Intelligence' (2022) 13 Frontiers in Psychology 1024449<https://doi.org/10.3389/fpsyg.2022.1024449>

[125] Jane C. Ginsburg and Luke Ali Budiardjo, 'Authors and Machines' (2018) SSRN Electronic Journal <https://doi.org/10.2139/ ssrn.3233885>

[126] Andres Guadamuz, 'Artificial Intelligence and Copyright' (WIPO, October 2017) <www.wipo.int/wipo_magazine/en/2017/05/article_0003.html>

[127] Evan H. Farr, 'Copyrightability of Computer-Created Works' (1989) 15(1) Rutgers Computer and Technology Law Journal 63

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Ltd as 'the person by whom the *arrangements necessary for the creation* of the works were undertaken'. [128]. The programmer requires rewards as incentives, which can be provided in form of income – for which the increasing income from copyright protection would then incentivize the programmer to create more for the progress of the society.

With the Lockean framework, developers put in labor and produce progress with a key element of generative AI works - the algorithm. In the US, the Congressional Research Service published an article that recognizes the effort and creative involvement of the programmer is not dismissible, to the extent that the developers might have 'a stronger claim to some form of authorship than the manufacturer of a camera'.[129] Their virtue of works, how their skills and labor create works with high impact, i.e. innovating AI systems that can enable further creations[130] can be acknowledged by copyright.

Meanwhile, two other frameworks, personality and social planning frameworks also support necessity of creative incentives from copyright for programmers. By exercising their significant amount of creative involvement and decisions, the programmers fit into the personality framework of self-expression and self-realization through the systems they develop. In social planning perspective, they must be incentivized to create systems that can enable further creations[131].

4.2 Investors

An investor initiates and/or supports resources for development of generative AI systems. The investors are usually represented by companies or organizations that fund the programmers or operate infrastructure, such as servers and data centers for processing of generative AI systems. If an investor is viewed as the employer of programmers and 'owner' of a generative AI system, an analogy can be made with works made for hire. In the United States, when an artist is hired or commissioned some work, the employer is deemed the author of works made for hire, not the artist.[132] Although currently, in context of generative AI works, work-made-for-hire concept is used mainly as analogy for discussions regarding authorship of creators (end users)[133,134,135,136,137,] this article proposes it should be used as an analogy for investors, which is less considered in creative processes with generative AI systems.

On a utilitarian basis, similar to programmers, investors play a key role in 'making necessary arrangements,' even though they may not be 'masterminds' of the creations themselves. Investors likely seek financial return for investment and operations. This implies possible necessity of income as reward for investors to ensure the progress of the society. However, despite the necessity, allocating authorship to the investors must be considered carefully against allocating authorship to the programmer, as this reflects the works-made-for-hire-concept, which can be found to conflict with moral rights frameworks.[138]

[128] *Nova Productions Ltd* (n 51).

[129] Christopher T. Zirpoli, "Generative Artificial Intelligence and Copyright Law," (CRS Legal Sidebar, 22 February 2023) <https://crsreports.congress.gov/product/pdf/LSB/LSB10922>

[130] Ryan Benjamin Abbott, 'Artificial Intelligence and Intellectual Property: An Introduction' in Edward Elgar (ed), *Research Handbook On Intellectual Property And Artificial Intelligence,* (Ryan Abbott, ed., Forthcoming) (SSRN Electronic Journal, 2022) <https://doi.org/10.2139/ssrn.4065150>

[131] ibid.

[132] Rochelle Cooper Dreyfuss, 'In Praise of an Incentive-Based Theory of Intellectual Property Protection' in Rochelle Cooper Dreyfuss and Elizabeth Siew-Kuan Ng (ed), *Framing Intellectual Property Law in the 21st Century* (1st ed, Cambridge University Press, 2018) 22 <https://doi.org/10.1017/9781316471647.002>

[133] Giorgio Franceschelli and Mirco Musolesi, 'Copyright in Generative Deep Learning' (2022) 4 Data & Policy e17 <https://doi.org/10.1017/dap.2022.10>

[134] ibid.

[135] Gönenç Gürkaynak et al., 'Questions of Intellectual Property in the Artificial Intelligence Realm' (2017) 3(2) The Robotics Law Journal 9 <https://ssrn.com/abstract=3295747>

[136] Helene Margrethe Bøhler, 'EU Copyright Protection of Works Created by Artificial Intelligence Systems' (Master's thesis, The University of Bergen, 2017) <https://hdl.handle.net/1956/16479>

[137] Kalin Hristov, 'Artificial Intelligence and the Copyright Dilemma' (2017) 57(3) IDEA: The IP Law Review <https://ssrn.com/abstract=2976428>

[138] Dreyfuss (n 132).

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With the Lockean property framework and social planning framework, the investors may, in some cases, require incentives from authorship. For example, they may spend business skills and working time to build up organizations and assemble funding for development. They may also aim to contribute to the cultural richness of the society by promoting development of systems that can then create more works. However, these scenarios for incentives of investors using the Lockean property framework and social planning framework themselves indicate that motivations of the investors can vary. In the perspective of personality framework, it is unlikely that the investors exercise creative judgment that affect the creative process, or make any creative decisions that can be considered as expressions of their will or personhood.

4.3 AI

As a machine and algorithm, an artificial intelligence system does not perceive nor require incentives given through copyright as financial rewards (utilitarian approach). It also does not require incentive to perform tasks with labor and skills (Lockean approach), as the system's processing and learning are all operated as part of non-perceiving machine, i.e. AI does not feel exhausted after generating or learning a series of works. In terms of social contribution, AI merely performs the tasks as instructed and does not possess the idea of enriching the society with works it generates (social planning theory). Finally, the machine has no will and personhood as human creators do, and do not endeavor towards self-realization through creation (personality theory), although in the future, if AI is to be somehow granted legal personality[139], and it can be proven that the personhood of the system must be incentivized for expression, it may become possible to argue for justification of copyright as incentive for AI systems.

4.4 Curator

Curators participate in the creative process of works with generative AI by choosing previous works, either with an objective to develop the basic learning of the model itself or to ensure the model is trained towards 'marketable' creations. On a utilitarian basis, they may require income as incentive through copyright, but it is not absolutely necessary, as they may already receive income in form of wage. They improve the quality and/or marketability of the generated works, but they are not essential to the process when compared to programmers, as the person by whom the *arrangements necessary for the creation* of the works were undertaken.[140] With the Lockean property framework, it is similarly uncertain if they necessarily require incentive through copyright to acknowledge their skills and labor. In some cases, the curator may commit a significant amount of time to train the system, yet in many cases they may just be pouring sample works into the system and see what the system spits out eventually. On the other hand, the personhood framework justifies the necessity, as they indeed exercise creative judgment. For example, a curator for a generative AI system for pictures may train the model with certain Renaissance pieces, so that the system can learn to generate Renaissance style works. Even in cases where they only curate works for marketability, they exercise creative judgement on what would be marketable. Finally, with social planning theory, it is difficult to determine justification for curators as their objectives are uncertain – to contribute to cultural richness or to satisfy the creators who plan to use the trained system for their works.

4.5 Creator

Creators are the end users of the generative AI systems, the ones at the end of the creative process where the end product is made. In pre-generative-AI creative processes, creators are viewed as the essential actor that under 'romantic' notions spend immense amounts of time and resources to create.[141] However, with generative AI, the role of creators have changed, and with a variety of their newly defined roles as well. Creators can now 'divide' creative tasks to the AI, ranging from ones who use the generative AI system as an assistance, to ones who type in

[139] Acevedo (n 68).

[140] *Nova Productions Ltd* (n 51).

[141] Campbell (n 88).

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commands and take the generated work as the end product. It is difficult to identify which pieces are made with what extent of AI-assistance, and it is possible that AI will be given more roles in the future[142], effectively reducing the cruciality of creative contribution of the human creators. With the assistance, creators are able to produce a higher volume of work, at a faster pace than ever before.

On a utilitarian basis, the necessity of copyright to bestow incentives upon the creators through income becomes case-by-case basis. In contrary with romantic notions of creation[143], where their intense commitments are used as justification for income, they can now sell their works at lower prices, but with higher volume. This fits economically well for creators as business actors, where they have lower cost and more sales. Meanwhile, with unpredictability of results[144], it is arguable that they are not the ones who make necessary arrangements for creation. If one argues for incentives for their contribution by inserting appropriate commands amidst unpredictability, the incentive should be for expert users of generative AI tools to share their techniques may be beneficial for the society and progress of creative industry[145], rather than to further augment incentives to input commands.

However, as mentioned above, AI involvement can vary in each case, so there may still be cases where they are truly the ones who make necessary arrangements. For example, in a report on machine learning and artistic works, the cover of the report is drawn by a professional illustrator, who in one section of the report reveals that utilizing generative AI was helpful to gain inspiration and to create something new, as artists usually draw on same things and end up finding difficulty to create completely unique pieces.[146] In such a case, where the artist gains inspiration from AI, then further creates their own work, it is possible to still argue for the artist.

In Lockean perspective, it becomes extremely difficult to justify the necessity of authorship to acknowledge their skills and labor. Creators in generative AI processes inevitably make smaller efforts to create and to gain skills which enables production of their work. They likely spend lower financial cost, labor, and time to learn, ideate, and create.

For example, in the history of music, from Bach to Mozart and Haydn, then onto early works of Beethoven, each composer received influence from other admirable composers. All such processes happened in their human brains, for example, Mozart's Great Mass in C Major (K.427) contains Bach and Händel's influence resulting from Mozart's 'intensive studies of Baroque compositions.'[147] If Mozart were alive today, he might not need to study Bach's fugues to compose with inspiration from Bach's works, as he would soon be able to input into a generative AI, perhaps, 'a mass setting in C major lasting about an hour, with techniques of Bach'. After receiving the output, the AI-using Mozart can then choose to either develop the piece further himself or launch a premiere immediately. Although this example seems extreme, this can be now observed where some pieces such as 'Happy Birthday as Mozart would have written' are created and posted on social media by content creators.

It is difficult to determine the extent of AI involvement in such pieces, consequently also the effort and authorship. The artists can therefore forfeit their effort by stating that they were inspired by previous compositions, and with their human brains created the pieces, even though they may have indeed used generative AI in some or almost whole part of the process. Another

[142] Kariyawasam (n 41).
[143] Campbell (n 88).
[144] Gerald Spindler, 'AI and Copyright Law: The European Perspective' in Larry A. Di Matteo, Cristina Poncibò, and Michel Cannarsa (ed), *The Cambridge Handbook of Artificial Intelligence* (1st ed., Cambridge University Press, 2022) 257–70 <https://doi.org/10.1017/9781009072168.025>
[145] Ann Kristin Glenster, *Policy Brief: Generative AI* (Cambridge, UK: Minderoo Centre for Technology and Democracy 2023) <https://doi.org/10.17863/CAM.101918>
[146] Ploin, Eynon, and Hjorth *et al.* (n 123).
[147] Wolfgang Amadeus Mozart, "Preface," in Monika Holl and Karl-Heinz Köhler (ed), *Mozart Mass in C Minor (K.427 / K.417a)* (Baerenreiter Germany 2018) <https://www.barenreiter.co.uk/ prefaces/ 9790006 202232_ Innenansicht .pdf>

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example would be generative AI systems that embed one's voice into a music cover, such as AI Voice, which by just learning the creator's voice, the AI can generate a cover version of any song with that voice, pitching all the correct notes. Having less cost by not having to intensively study the whole techniques of music is, in itself, incentive to create. It enables new pieces to be created more rapidly, and with more volume.

Negative space scholarship provides an example of the fast-fashion industry, which resembles the situation of generative AI arts, in terms of using massive amounts or rapidly created amounts of other works as inspiration. The mechanism of creativity-enhancing copying is items drive creativity for firms and designers to innovate new products that customers can enjoy at greater pace and volume, without requiring creative incentives from authorship and copyright protection.[148]

With a personhood framework, it is still possible to justify the necessity of copyright to provide incentives to create. The creators, even though with less effort, exercise their will with creative judgements to input a certain command. AI used in creative industries as co-creator or a tool help augment human their creativity[149], most likely with what they at least broadly creatively envision to make, with AI as source of inspiration of how to exactly create. Although some reject the concept that inspiration through learning process and experience of conventional artists cannot be considered the same as using generative AI as source of inspiration[150], it is in fact shortening the learning and experiencing steps, and sensible creators still must know what their own (or the society's) preference of 'good' creation is and how they should further develop their works. Similarly, another rejection is the concern that using generative AI as a source of inspiration would mean using only previous works as reference, which would lead humanity to 'an ouroboros where nothing new is truly created, a stale perpetuation of the past…'[151] It is again important to take notice that creators, just like Mozart, learn from their exposure to surroundings and previous creators. This process of 'contemporary generative art' can be considered as bricolage, 'where ideas are developed through playful experimentation with existing tools and techniques', and it is not unique to generative AI age – artists in history, such as Leonardo da Vinci, constantly experiment with ideas, with many not finished as final piece of work.[152]

It may be possible that as the technology and market of AI-generated works mature, society would perceive AI-generated works as a novel field of creative work. The situation would be similar to how photography gradually became perceived as artwork, where cameras are perceived as tools. However, beyond the conventional concept of originality, the key difference between generative AI and cameras at the current stage is 'free choice' [153] of the artists, in other words whether the artists can predict the output of their intended creation. If the day ever comes when creators indeed exercise free choice, in this context their will and personhood, justification with personhood framework would become even stronger. Meanwhile, similarly, in social planning perspective, it depends on the degree the creators can express their will to create, that it would be possible to identify their intentions to contribute to the cultural richness of the society.

V. CONCLUSION

The dilemma of balancing creative incentives with originality is central to the discourse on AI and copyright. On the one hand, copyright law has traditionally functioned as a mechanism to encourage creative endeavors by providing exclusive rights as incentives. This incentive structure is predicated on the notion that creativity needs nurturing through the promise of financial and reputational gain. However, the advent of AI in creative domains complicates this narrative.

[148] Sprigman (n 121) 46.
[149] Daniele and Song (n 12).
[150] Jiang and others (n 8).
[151] ibid.
[152] Dejan Grba, 'Forensics of a Molten Crystal: Challenges of Archiving and Representing Contemporary Generative Art' (2019) 8 ISSUE Annual Art Journal 3, <https://doi.org/10.33671/ISS08GRB>
[153] Spindler (n 144) 261.

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AI's ability to produce works that challenge our notions of originality calls into question the very foundations of copyright law. AI-generated works, while novel and capable of evoking aesthetic responses, often stem from algorithms processing vast datasets of existing human-created content. This raises an important question whether these works can be considered original in the legal sense. Furthermore, if the primary objective of copyright is to incentivize human creativity, where does that leave AI-generated works that do not require the traditional forms of human labor and ingenuity?

A pivotal aspect of adapting copyright law to AI involves redefining legal definitions and examining precedents. Traditional definitions of authorship and originality are grounded in human creativity. However, as AI becomes increasingly capable of autonomous creation, these definitions must evolve. Legal systems around the world are already grappling with this issue, with varying approaches. Some jurisdictions are considering AI as a tool under the control of a human author, while others are exploring more radical reconceptions of authorship and creativity.

As we stand at the intersection of artificial intelligence and copyright law, the journey forward requires not only adaptation but also proactive innovation. The rapid evolution of AI in creative processes presents both challenges and opportunities for the legal system to protect intellectual property while fostering an environment of innovation and creative freedom. The following recommendations offer concrete steps towards achieving a balanced and forward-looking copyright framework:

5.1 Establish Clear Guidelines for AI Authorship

Legal systems worldwide should consider establishing clear guidelines that define the criteria for authorship in the context of AI-generated works. This includes distinguishing between works where AI acts as a tool under human direction and works generated autonomously by AI. By doing so, copyright law can better address issues of originality and creativity, ensuring that human creators are duly recognized and protected.

5.2 Create a Special Category for AI-Generated Works

Consider the creation of a special category within copyright law for AI-generated works. This category could offer a modified form of protection that acknowledges the unique nature of these works, possibly involving a shorter term of copyright or specific rights tailored to encourage sharing and further creative use. This approach would recognize the contributions of AI to the creative process without undermining the incentives for human creators.

5.3 Encourage Transparency and Attribution

Encourage transparency in the use of AI in creative processes by mandating attribution to both the human creator and the AI system used. This would not only provide clarity on the origins of a work but also foster an environment where creators are informed about the contributions of AI to their creative endeavors.

5.4 Foster International Collaboration

Given the global nature of both AI technology and the creative industries, international collaboration is essential. Countries should work towards harmonizing copyright laws to address AI-generated content, ensuring that creators and innovators have a consistent legal framework that supports their work across borders.

5.5 Promote Ethical Use of AI in Creativity

Alongside legal adaptations, there should be a concerted effort to promote the ethical use of AI in creative processes. This includes ensuring that AI systems are trained on diverse and non-infringing datasets and that the use of AI respects the cultural and moral rights of human creators.

5.6 Engage in Ongoing Dialogue with Stakeholders

Finally, the legal community should engage in ongoing dialogue with technologists, creators, and

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policymakers to understand the evolving capabilities of AI and its impact on creativity. This dialogue should inform continuous updates to copyright law, ensuring it remains relevant and responsive to technological advancements.

In conclusion, the path forward for copyright law in the age of artificial intelligence is one of careful consideration and collaborative effort. By taking tangible steps to adapt legal frameworks, we can ensure that copyright law continues to fulfill its fundamental purpose of promoting creativity and innovation, respecting the contributions of both human and artificial creators. As AI continues to shape the landscape of creative expression, our legal systems must evolve in tandem, offering clear, fair, and effective protection for the next generation of creative works.

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