Creativity and Innovation in the Age of Artificial Intelligence:
A Copyright Dilemma

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Abstract

The advent of artificial intelligence marks a significant shift in creative domains traditionally dominated by human efforts, such as writing and painting. Artificial Intelligence challenges the intellectual property system with fundamental issues, including authorship and ownership. This paper explores the utilitarian dilemma related to the copyrightability of AI-generated content and re-evaluates the basis of natural rights, thereby questioning established copyright premises. It examines the manifestation of creativity in AI-based literary and artistic works, highlighting the current and changing aspects of copyright consideration. Additionally, the paper provides an exhaustive overview of the legal protections applicable to AI-generated works, specifically focusing on the legal context in India. It also explores the feasibility and suitability of establishing sui generis rights designed specifically to safeguard AI-generated content. The conclusions presented offer a detailed perspective on the complexities of aligning copyright laws with the dynamic nature of AI-enhanced creativity.

Keywords: artificial intelligence, authorship, copyright.

A. Introduction

Artificial intelligence (AI) is a broad term that has been used for decades. The concept of AI involves the idea that computer programs can perform tasks commonly associated with human intelligence.[1] AI research and development have spanned more than half a century. John McCarthy coined the term in 1956, stating: "AI is enigmatic in its clear meaning, but in today's world, it universally pertains to

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[1]   Kalin Hristov, "Artificial Intelligence and Copyright Survey," *Journal of Science Policy & Governance* 16, no. 1 (2020): 18, http://dx.doi.org/10.2139/ssrn.3490458.

machines that can go beyond their explicit programming by making decisions that reflect human cognition."[2] In his early work, Alan Turing debated the subject, "Can Machines Think?" in 1950. He proposed a test that was conducted to investigate the extent to which a machine can emulate people or perform cognition like humans.[3]

The reliance on AI is greater than what people are aware of.[4] As increasingly complex software becomes part of AI, its influence is growing exponentially.[5] AI has progressed from simple calculation to the creation of poetry, painting, and other more complicated creative works.[6] As AI gets faster and more capable, it will undoubtedly take the stage in the creative process, becoming the primary driver of creativity and invention.[7] AI is responsible for creating unique works of varying complexity, distinct from previous art. These works may result from a joint effort between AI software and a human or from autonomous AI.[8] In both cases, AI contributes significantly to innovation. As AI is used more frequently and algorithms improve, such works are becoming more common. To date, AI has authored books, songs, visual art, etc.[9] AI creates large, dramatic, vivid paintings which are on display in exhibitions around the world.[10] It writes a prize-winning novel[11] and creates music such as a 90-second piano tune[12] and musicals that will be unveiled in London.[13] "It can make movies, poems, and stand-up comedy."[14] AI, in fact, is also capable of generating software code.[15]

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[2]   Chris Smith, Brian McGuire, Ting Huang and Gary Yang, "The History of Artificial Intelligence," accessed on July 13, 2023, https://courses.cs.washington.edu/courses/csep590/06au/projects/history-ai.pdf.

[3]   A. M. Turing, "Computing Machinery and Intelligence," *Mind* 59, no. 236 (1950): 441-442, https://doi.org/10.1093/mind/LIX.236.433.

[4]   Corinne Cath (et.al.), "Artificial Intelligence and the 'Good Society': The US, EU, and UK Approach," *Science and Engineering Ethics* 24 (2018): 512-513, https://doi.org/10.1007/s11948-017-9901-7.

[5]   Francois Chollet, *Deep Learning with Python* (New York: Manning Publication, 2017), 112.

[6]   Stephen Thaler, "The Creativity Machine Paradigm," in Elias G. Carayannis (ed.) *Encyclopaedia of Creativity, Invention, Innovation, and Entrepreneurship* (New York: Springer, 2013) 451.

[7]   Larry A. DiMatteo, Cristina Poncibo and Michel Cannarsa (ed.) *The Cambridge Handbook of Artificial Intelligence* (Cambridge: Cambridge University Press, 2022), 296.

[8]   A. M. Turning, "Computing Machinery and Intelligence," 25.

[9]   IBM, "The Quest for AI Creativity," accessed on July 14, 2023, https://www.ibm.com/watson/advantage-reports/future-of-artificial-intelligence/ai-creativity.html.

[10] Jane Wakefield, "Intelligent Machines: AI Art is Taking On the Experts," accessed on July 13, 2023, https://www.bbc.com/news/technology-33677271.

[11] Chloe Olewitz, "A Japanese AI Program Just Wrote a Short Novel, and It Almost Won a Literary Prize," accessed July on 13, 2023, https://www.digitaltrends.com/cool-tech/japanese-ai-writes-novel-passes-first-round-nationanl-literary-prize/.

[12] Russel Brandom, "Google's Art Machine Just Wrote Its First Song," accessed on July 14, 2023, https://www.theverge.com/2016/6/1/11829678/google-magenta-melody-art-generative-artificial-intelligence.

[13] Mark Brown, "World's First Computer-generated Musical to Debut in London," accessed on July 14, 2023, https://www.theguardian.com/stage/2015/dec/01/beyond-the-fence-computer-generated-musical-greenham-common.

[14] Robert David Hart, "If an AI Creates a Work of Art, Who Owns the Rights to It?" accessed on July 14, 2023, https://qz.com/1054039/google-deepdream-art-if-an-ai-creates-a-work-of-art-who-owns-the-rights-to-it/.

[15] Jade Boyd-Rice, "New A.I. Application Can Write Its Own Code," accessed on July 14, 2023, https://www.futurity.org/artificial-intelligence-bayou-coding-1740702/.

Technology such as AI can potentially disrupt the intellectual property system by raising fundamental issues concerning authorship, ownership and infringement.[16] Intellectual property has always been closely related to the new technological developments, and the legislation has had to adapt to keep up with cultural and technological changes.[17]

The primary objective of this study is to demonstrate how AI is used in innovative technologies and how it relates to current copyright legislation. It will also further examine the multifaceted interplay between creativity, innovation, and copyright within the dynamic landscape of AI. Through an in-depth exploration of the theoretical foundations, this study aims to uncover the practical obstacles related to the copyright protection of AI-generated creations while also reassessing the conventional justification based on natural rights. The main area of interest revolves around comprehending the copyright implications of AI's creations, exploring the reasons behind protecting "AI-assisted" and "AI-generated" works, and critically assessing the standards of creativity applied to AI-based literary and artistic expressions.

In addition, this study seeks to thoroughly examine the international legal frameworks that safeguard AI-generated works under copyright, with a particular focus on India's position. This study also highlights the pressing need to determine the most effective legal method to safeguard AI-based creations and make important considerations by drawing the best suitable practice for India.

B. Theoretical Underpinnings of AI and Copyright Norms

Scholars have frequently noted that copyright law has lagged behind technological advancement. The Word Intellectual Property Organization's Technology Trends Report, 2019, examines the past, present, and future of AI; and provides unique insights into developing patterns in many countries and businesses utilizing AI for innovation.[18] Piovesan in Jerome observed that law and policy are incessantly one step abaft innovation, seemingly by design.[19] Copyright law has not yet matured to address the complex issues raised by creative AI. Recently, in 2019, the World Intellectual Property Organization (WIPO) held "the First Conversation on IP and

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[16]   Hayleigh Bosher (et.al.), "WIPO Impact of Artificial Intelligence on IP Policy Response from Brunel University London, Law School & Centre for Artificial Intelligence," accessed on July 14, 2023, https://www.wipo.int/export/sites/www/aboutip/en/artificial_intelligence/call_for_comments/pdf/org_brunel.pdf.

[17]   W Cornish, D Llewelyn and T Pain, *Intellectual Property - Patents, Copyright, Trade Marks and Allied Rights* (India: Sweet and Maxwell Publication 2016), 29.

[18]   WIPO, "WIPO Technology Trends 2019 Artificial Intelligence," accessed on July 14, 2023, https://www.wipo.int/edocs/pubdocs/en/wipo_pub_1055.pdf.

[19]   Amanda Jerome, "Artificial Intelligence 'Game Changer' for IP Law," accessed on July 14, 2023, https://www.thelawyersdaily.ca/articles/5955/artificial-intelligence-game-changer-for-ip-law-legalexperts-say.

AI"[20] to which Brunel University, in its response paper, posed a myriad of issues about authorship and ownership, as well as infringements and exceptions in Copyright laws.[21]

Yanisky-Ravid acknowledges that AI systems are artistic, capricious, self-sufficient, and may have autonomy. Conventional copyright laws are insufficient to deal with the new creative technology because earlier computers were merely tools in human creation. A version of a 'work-for-hire' system may be an alternative based on the view that AI serves the public good.[22] Guadamuz highlights the uncertainty surrounding authorship despite the apparent clarity of the law. Using the example of Microsoft Word, which is coded by Microsoft but does not grant the company copyright over works created using it, Guadamuz claims that either the user or the developer has authorship rights, as the law does not specify which.[23] The existence of computer authorship is dismissed by Grimmelmann, who points out that the central issues with granting authorship to AI-generated works are more evident than actual and that they are not unique among human-created works.[24]

The Parliamentary Standing Committee on Commerce, in its 161st report on "Intellectual Property Rights Regime in India," observes that in today's world, cutting-edge technologies such as AI will become increasingly relevant and useful, particularly amidst the Covid-19 pandemic, where digital tools are playing a critical role in crisis response. The committee acknowledges AI's potential benefits for India's economy and revenue generation, and its impact on technical innovation, advocating for safe expansion. The Committee recommends establishing a new category of rights for AI and AI-related ideas and solutions for Intellectual Property Rights (IPR) protection. It also suggests examining existing regulations and incorporating emerging AI technology and AI-related inventions.[25] Ahuja recommends protecting AI-generated works outside the copyright system through a *sui generis* system, which could offer shorter-term protection.[26] This literature

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[20] WIPO, "WIPO Conversation on Intellectual Property (IP) and Artifical Intelligence (AI)," accessed on July 14, 2023, https://www.wipo.int/edocs/mdocs/globalinfra/en/wipo_ip_ai_ge_19/wipo_ip_ai_ge_19_inf2.pdf.

[21] Hayleigh Bosher (et.al.), "WIPO Impact of Artificial Intelligence on IP Policy Response from Brunel University London, Law School & Centre for Artificial Intelligence," accessed on July 14, 2023, https://www.wipo.int/export/sites/www/aboutip/en/artificial_intelligence/call_for_comments/pdf/org_brunel.pdf.

[22] Shlomit Yanisky-Ravid, "Generating Rembrandt: Artificial Intelligence, Copyright, and Accountability in the 3A Era: The Human-like Authors Are Already Here: A New Model," *Michigan State Law Review* 2017, no. 4 (2017): 662.

[23] Andres Guadamuz, "Do Androids Dream of Electric Copyright? Comparative Analysis of Originality in Artificial Intelligence Generated Works," *Intellectual Property Quarterly* 2, no. 1 (2017): 112, https://doi.org/10.1093/oso/9780198870944.003.0008.

[24] James Grimmelmann, "There's No Such Thing as a Computer-Authored Work–And It's a Good Thing, Too," *Columbia Journal of Law and the Arts* 39, no. 3 (2016): 409, https://doi.org/10.7916/jla.v39i3.2079.

[25] Department Related Parliamentary Standing Committee on Commerce, "One Hundred and Sixty First Report," (Review of the Intellectual Property Rights in India by Parliament of India, Rajya Sabha, 2021), 108.

[26] V. K. Ahuja, "Artificial Intelligence and Copyright: Issues and Challenges," *ILI Law Review* (2020): 275.

clearly indicates that current copyright legislation is inadequate for addressing the issues of AI authorship and ownership in works created by artificial intelligence.

1. Utilitarian Conundrum over AI and Copyrightability

The Utilitarian theory is widely regarded as the fundamental basis for safeguarding intellectual property. To encourage the production of artistic or utilitarian creations that contribute to the betterment of society, the theory conceptualizes copyright as a utilitarian mechanism. The promotion of artistic or utilitarian works encompasses the encouragement of innovation that is inherent in utilitarian theory. Scholarly works of the Former state that in the absence of such a catalyst for innovation, the utilitarian theory posits that authors may be disinclined to allocate the necessary resources, including time, effort, and financial investment, towards the creation of these literary works.[27]

The application of utilitarian theory to artistic works generated by Artificial Intelligence (AI) is primarily grounded in the premise that AI systems do not require external motivation to produce artwork.[28] AI systems are not susceptible to short-term memory loss, information overload, sleep deprivation, or distractions, which typically affect humans and require external support for mitigation.[29] Therefore, when considering whether AI should fall under the scope of copyright protection, the motivational argument put forth by the utilitarian theory becomes redundant. However, it is important to note that even in cases where an AI system is utilized, human involvement remains essential in the creation of work. Initially, AI systems are developed by individuals, typically working collaboratively in teams. In addition, the involvement of human agency is imperative in the generation of outputs by the current artificial intelligence system. The user, as an individual, has the option to either provide input data or, at the very least, initiate the AI system in order to commence the process of generating work.

In the case of *Telstra Corporation Ltd. v. Phone Directories Company Pty Ltd,*[30] the applicant argued that it is important to consider the contributions made by human authors throughout the entire production process rather than solely focusing on their involvement at the final stage of materialization. The aforementioned line of reasoning can be effectively employed in the context of AI literature. Although the ultimate point of materialization of a work created by AI cannot be precisely attributed to human intervention, the presence of human involvement is readily discernible at earlier stages of the production process. Humans play a pivotal role in developing and implementing AI systems, as they are responsible for designing and

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27 Christopher Buccafusco, "A Theory of Copyright Authorship," *Virginia Law Review* 102, no. 5 (2016): 1232.

28 Shlomit Yanisky-Ravid, "Generating Rembrandt: Artificial Intelligence, Copyright, and Accountability in the 3A Era: The Human-like Authors Are Already Here: A New Model," 659-668.

29 Roberto Garza Barbosa, "The Philosophical Approaches to Intellectual Property and Legal Transplants - The Mexican Supreme Court and NAFTA Article 1705," *Houston Journal of International Law* 31, no. 3 (2009): 518.

30 *Telstra Corporation Ltd v. Phone Directories Company Pty Ltd. (2010) 194 FCR 142*.

programming the underlying code that enables AI to learn, make decisions, and effectively utilize the AI system. Although there is no designated individual responsible for physically writing, there are individuals who can be recognized as contributors to the development of AI in its initial stages and may be accountable for the subsequent arrangements higher up in the production process.[31]

Therefore, one could argue that individuals who contribute to the creation of AI-generated works should have the opportunity to acknowledge their involvement in these contributions. If individuals are not properly incentivized or rewarded for their efforts, and if they do not benefit from developing AI systems or prompting them to produce work, they may be less inclined to contribute meaningfully. Consequently, the global community may experience a decline in AI-generated creations or potentially none at all.[32]

2. Re-interpreting Natural Rights Rationale and Copyright Justification

The theory of natural rights offers an additional justification for the establishment of copyright protection in works generated by AI. In essence, the natural rights theory pertains to the concept of fundamental rights that are inherently inviolable. The philosopher John Locke acknowledges property as an inherent and essential natural right, positing that individuals have the entitlement to possess both the fruits of their own labor and the products of their exertions.[33] Considering the contextual development of this theory is crucial, as it emerged during a time when intellectual property laws were not in place. Consequently, the theory only pertains to tangible property if it is strictly interpreted. Despite the abstract nature of intellectual property, scholars have consistently employed the framework of natural rights theory when analyzing and discussing intellectual property.

Subsequently, some individuals have considered that intellectual property rights, particularly copyright, should be regarded on par with property rights concerning various forms of assets. Therefore, it can be argued that an author possesses the inherent right to copyright protection, as it serves to safeguard the intellectual products resulting from their diligent efforts.[34]

There is a question whether the principle of natural rights can be used to justify the granting of copyright protection for works created by AI. The situation is complex, as highlighted by the incentive theory. The attribution of copyright to AI systems cannot be justified by natural rights principles, as these principles exclusively pertain to human beings rather than machines. It is imperative to consider whether

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[31]   Jani McCutcheon, "The Vanishing Author in Computer-Generated Works: A Critical Analysis of Recent Australian Case Law," *Melbourne University Law Review* 36, no. 3 (2013): 929.

[32]   Annemarie Bridy, "Coding Creativity: Copyright and the Artificially Intelligent Author," *Stanford Technology Law Review* 2012 (2012): 15.

[33]   Adam D. Moore, "A Lockean Theory of Intellectual Property," *Hamline Law Review* 21, no. 1 (1997): 75.

[34]   Joseph Savirimuthu, "John Locke, Natural Rights, and Intellectual Property: The Legacy of an Idea," *Journal of Intellectual Property Law & Practice* 8, no. 11 (2013): 892, https://doi.org/10.1093/jiplp/jpt168.

individuals who contribute to works generated by artificial intelligence can exercise property rights over said works as a result of their labor. Nevertheless, whether or not the labor can be executed by human individuals consistently be deemed adequate and sufficiently connected to the ultimate outcome, enabling them to assert ownership over the creations generated by artificial intelligence.

In certain scenarios, human AI developers may consider the potential performance outcomes that an AI system could produce. In the case of the Meandering River,[35] the individuals responsible for programming an AI system to collect and integrate satellite images in a real-time application likely possessed a broad understanding of the anticipated outcomes that AI would generate. In a scenario where programmers fully understand the resulting output, it would be justifiable to assign copyright ownership of the artwork generated by AI to the individuals responsible for developing the AI system initially. Similarly, in specific jurisdictions, the courts have acknowledged the distinct protection of the Graphical User Interface (GUI) apart from the underlying software.[36]

Based on the preceding discussion, it can be inferred that the provision of exclusive rights to AI-generated works may be deemed appropriate in certain instances. This is particularly applicable when the individual's contribution to the creation of the work is substantial and when the contribution is closely connected to the final output. If the output generated by the AI system deviates significantly from the input provided by human individuals, the theory of natural rights would not necessitate the allocation of property rights for that output. This particular form of labor would subsequently be categorized as part of the public domain and thus could be utilized.[37]

C. Creation of AI as Subject Matter of Copyright
1. Practical Justifications for Protecting "AI-Assisted" and "AI-Generated" Works

In a recent paper published in 2020 by the World Intellectual Property Office, titled "Revised Issues Paper on Intellectual Property Policy and Artificial Intelligence," a very precise distinction between AI-assisted and AI-generated outputs has been made.[38] The terms AI-generated output and AI-assisted output both refer to works that are produced with some degree of material human interaction and/or guidance. It would be important to specify where the boundary between outputs produced by AI and those helped by AI is. The fact that there is a spectrum of human interference may make this distinction problematic. For example, generally, algorithms require

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[35]   Onformative, "Work Meandering River," accessed on July 14, 2023, https://onformative.com/artworks.
[36]   *Bezpecnostni Softwarova Asociace - Svaz Softwarove Ochrany v. Ministerstvo Kultury (C-393/09) [2011] E.C.D.R. 3.*
[37]   Kalin Hristov, "Artificial Intelligence and the Copyright Dilemma," *IDEA: The Journal of the Franklin Pierce Center for Intellectual Property* 57, no. 3 (2017): 437.
[38]   "WIPO Conversation on Intellectual Property (IP) and Artificial Intelligence (AI), Second Session, Revised Issues Paper on Intellectual Property Policy and Artificial Intelligence," accessed on July 14, 2023, https://www.wipo.int/edocs/mdocs/mdocs/en/wipo_ip_ai_2_ge_20/wipo_ip_ai_2_ge_20_1_rev.pdf.

human aid to train, but once the system matures to a certain level, the quantity of human involvement may become unimportant. As a result, the degree of help as the concept of autonomy changes with time.[39]

However, independence needs to be understood in a different light while discussing copyright. Whether or not the person employing an AI system predicted the end creation is a good indicator of whether or not the result was AI-generated or AI-aided. Because of this, we must attribute to the algorithm all acts of originality that cannot be causally linked to a human being; therefore, it may be that the autonomy of an AI system begins precisely where the intellectual production of a human being ends. In such situations, the "foreseeability" disconnects the process's output from the human who initiated it. No credit can be given to the AI for inspiration if it is used to realize an already-formed idea.[40] Therefore, it should be considered AI-assisted production.

Therefore, any work produced by an AI system without sufficient foreseeably creative input from a human author would be deemed to be a product of an autonomous AI system. The only time an AI wouldn't be called autonomous is if it were being steered by a human in a way that would allow it to surpass the human-conceivable limit on its intellectual development. As a general rule, copyright cannot be used to protect an idea. Even though the teacher selected the readings, the subject, and the writing strategies, the teacher cannot be held responsible for the student's final product. In this paper, AI-assisted output is defined as works that accurately represent the author's original intellectual invention, for which the AI system served as a tool. Like a camera is just a tool for taking pictures and a computer is for penning novels, so too is this an instrument for achieving an end.[41]

2. Test of Creativity: AI-Based Literary and Artistic Works

The commonly accepted notion of creativity is that it is the ability to generate new, creative, and useful ideas in unexpected or unconventional ways. These important ideas might have a variety of interpretations. A notion can be a hypothesis, concept, or product, such as a painting, music, architecture, or tool. It is not a fictional entity directed at a specific romantic class. It is a feature of human ingenuity.[42] This notion of creativity has been challenged by cutting-edge developments in AI. Even though human creativity is undeniably the driving factor for some of the most successful works known to man, non-human creators, such as animals as well as AI, have also

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[39]   Woodrow Barfield and Ugo Pagallo, *Advanced Introduction to Law and Artificial Intelligence* (United Kingdom: Edward Elgar Publishing Ltd., 2021), 78.

[40]   Purvi Pokhariyal, Amit K. Kashyap and Arun B. Prasad, *Artificial Intelligence: Law and Policy Implications* (India: Eastern Book Company, 2020), 26.

[41]   Aviv H. Gaon, *The Future of Copyright in the Age of Artificial Intelligence* (United Kingdom: Edward Elgar Publishing Ltd, 2021), 112-113.

[42]   Deniz E. Kurt, "Artistic Creativity in Artificial Intelligence" (Masters of Arts Dissertation, Radbound University, Nijmegan Netherlands, 2018), 111.

been attributed with the invention of works with economic and aesthetic usefulness.[43] The issue of works produced by autonomous computer systems with little or no participation by humans is a source of contention among IP experts in technology and policy around the globe.[44]

The 'Next Rembrandt' is a joint initiative of scholars, art historians, researchers, computer scientists, and technologists who used machine learning's deep learning approach to develop a fresh portrait in the artist's distinctive style, utilizing hundreds of paintings by Dutch artist Rembrandt.[45] The project's computer program took into account practically every minute detail in Rembrandt's complete collection: biological sex, age group, face orientation, and facial hair on the subject in the artist's pieces of art were all taken into account when defining the ultimate picture of the work produced by AI.[46] In 2018, a portrait dubbed Edmond de Belamy, an AI, was created by Obvious, a Paris-based art company. The AI trained a machine learning computer program to create a unique portrait using a database of tens of thousands of portraits created between the 1300s and 1900s.[47]

Another example of AI's work is a computer program DeepDream, which algorithmically enriches photos using standard neural networks with the goal of producing unique mystical visual art or psychedelic images that often bear little resemblance to the original artwork.[48] A human developer first fine-tunes this approach, which normally goes through several repetitions. The algorithm's approach is most closely related to "pareidolia", in which the human mind is presented with a visual stimulus; it responds by recognizing a familiar or previously acquired pattern that does not exist.[49] Furthermore, Aiva (AI virtual artist), an AI electronic composer instructed on hundreds of classical compositions, has made albums whose compositions have been used in video games and films. Aiva has already issued the first ever successful album "Genesis," and claims copyrights to its work through the representation of Aiva Technologies.[50] Google's AI, "NSynth," has

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[43]   Gabe Cohn, "AI Art at Christie's Sells for $432,500," accessed on July 15, 2023, https://www.nytimes.com/2018/10/25/arts/design/ai-art-sold-christies.html.

[44]   Jyh-An Lee, Reto Hilty and Kung-Chung Liu, *Artificial Intelligence And Intellectual Property* (England: Oxford University Press, 2021), 92.

[45]   Shlomit Yanisky-Ravid, "Generating Rembrandt: Artificial Intelligence, Copyright, and Accountability in the 3A Era: The Human-like Authors Are Already Here: A New Model," 660.

[46]   Microsoft Reporter, "The Next Rembrandt: Recreating the Work of a Master with AI," accessed on July 15, 2023, https://news.microsoft.com/europe/features/next-rembrandt/.

[47]   Joaquin Francis Arias, "Now That AI is Creating Art, What are the Consequences on Copyright Law," accessed on July 14, https://www.iposgoode.ca/2020/07/now-that-ai-is-creating-art-what-are-the-consequences-on-copyright-law/.

[48]   David Auerbach, "Do Androids Dream of Electric Bananas? Google's DeepDream is Dazzling, Druggy, and Creepy. It's Also the Future of A.I.," accessed on July 14, 2023, https://slate.com/technology/2015/07/google-deepdream-its-dazzling-creepy-and-tells-us-a-lot-about-the-future-of-a-i.html.

[49]   Kim Ann Zimmerman, "Pareidolia: Seeing Faces in Unusual Places," accessed on July 14, 2023, https://www.livescience.com/25448-pareidolia.html.

[50]   Bartu Kaleagasi, "A New AI Can Write Music as Well as a Human Composer," accessed on July 14, 2023, https://futurism.com/a-new-ai-can-write-music-as-well-as-a-human-composer.

used mathematics to create new musical tools to create music that humans have never heard before.[51]

AI has also produced notable literary masterpieces. The novella "The Day a Computer Writes a Novel" was produced by an AI, which was created by academicians from Future University in Hakodate, Japan.[52] Similarly, Sunspring claims to be the first AI-generated script, although it still required a human to construct the software as well as collect and enter the hundreds of screenplays used as the dataset.[53] Additionally, it has recently made news for its capacity to outperform human programmers in software writing. Scholars at Google Brain's AI division created an AI-based software that evaluates language processing tools by enabling a machine-learning algorithm.[54] Furthermore, experts at the non-profit OpenAI, the University of Berkley, MIT, California, as well as Google's "DeepMind" have all created AI learning software that generates new computer programs with varying degrees of success.[55] It is pertinent to note that the copyright office in India, for the first time, has acknowledged an AI tool Raghav which is a Painting App – as a co-author of a copyrighted artistic creation.[56]

Computer programs have been frequently employed in producing copyrighted works since the 1970s. Creations made on computers did not lead to numerous disputes about who should control the copyright. This was due to the misconception that computer programs can only be used as static tools to facilitate human creativity.[57] AI can now produce voluminous amounts of work in a short amount of time with minimum input.[58] No matter how fascinated we are with the budding technological innovations, these advances offer challenges to current intellectual property laws, and the main issue develops when creativity becomes unhuman.

D. Overview of Legal Protection Available to the Works Created by AI under the Copyright Regime

Copyright is a legal right granted to the author of "original" work, allowing him or her to use and distribute the work exclusively.[59] The rationale for this is John Locke's

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[51]   Cade Metz, "Google's AI Invents Sounds Humans Have Never Heard Before," accessed on July 15, 2023, https://www.wired.com/2017/05/google-uses-ai-create-1000s-new-musical-instruments/.

[52]   Chloe Olewitz, "A Japanese AI Program Just Wrote a Short Novel, and It Almost Won a Literary Prize."

[53]   Annalaee Newitz, "*Movie Written by Algorithm Turns Out to be Hilarious and Intense,*" accessed on July 14, 2023, https://arstechnica.com/gaming/2021/05/an-ai-wrote-this-movie-and-its-strangely-moving/.

[54]   Tom Simonite, "AI Software Learns to Make AI Software," accessed on July 14, 2023, https://www.technologyreview.com/2017/01/18/154516/ai-software-learns-to-make-ai-software/.

[55]   Tom Simonite, "AI Software Learns to Make AI Software."

[56]   Sukanya Sarkar, "India Recognizes AI as Co-Author of Copyrighted Artwork," accessed on July 14, 2023, https://www.managingip.com/article/b1t0hfz2bytx44/exclusive-india-recognises-ai-as-co-author-of-copyrighted-artwork.

[57]   V. K. Ahuja, "Artificial Intelligence and Copyright: Issues and Challenges," 285.

[58]   Deniz E. Kurt, "Artistic Creativity in Artificial Intelligence."

[59]   Swapnil Tripathi and Chandni Ghatak, "Artificial Intelligence and Intellectual Property Law," *Christ University Law Journal* 7 (2018): 86, https://doi.org/10.12728/culj.12.5.

economic theory of possessive individualism combined with the assumption that the originator is the author.[60] For the grant of copyright protection, compliance with two fundamental elements is required. First, the work should be 'tangible', and second, it should be 'original'.[61] Copyright is granted to literary and creative works, but because one of the most recent areas of AI application is literature, art, etc., the interpretation of copyright in light of AIs becomes material.[62] The programming and parameters on which such AI actually compiles and develops the work may be deemed to satisfy the criteria of skill and judgement in originality.[63] In terms of originality, an author is a person who creates original things. To define authorship in this way is to reverse-engineer the entire concept by addressing it through authorship's output.[64]

1. A Global Response to Protection of AI Output under Copyright Laws

Creative input by the author is essential for granting copyright to a work. From a global outlook, the Berne Convention states that under Article 2.6 that copyright protection will work in the author's favor, but the convention does not define "author".[65] In copyright law of the European Union (EU), the term author is not defined, but the ruling in the case of *Eva-Maria Painer v Standard Verlags GmbH 1* by the European Union Court of Justice it was decided that only human creations would be preserved.[66] This concept is represented in the national legislation of civil law countries such as Spain,[67] France,[68] and Germany,[69] where the author's personality's imprint is a requirement in works created.[70]

Authorship, on the other hand, is beyond AI's capabilities since AI systems lack a personality that they could impose on what they create. In common law nations like Australia, New Zealand, the United Kingdom, Canada and so on, copyright law is based on the principle of utility it asserts that as part of social wellness, rewards and incentives for the development of works are provided in exchange for open access

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[60] Diane Leenheer Zimmerman, "It's an Orginal: In Pursuit of Copyright's Elusive Essence," *Columbia Journal of Law & the Arts* 28, no. 2 (2005): 196.

[61] *Bleistein v. Donaldson Lithographing Co. 188 U.S. 239 (1903)*.

[62] Swapnil Tripathi and Chandni Ghatak, 90.

[63] Lucy Rana and Meril Mathew Joy, "India: Artificial Intelligence and Copyright – The Authorship," accessed on July 14, 2023, https://www.mondaq.com/india/copyright/876800/artificial-intelligence-andcopyright-the-authorship.

[64] Tuomas Sorjamaa, "Authorship and Copyright in the Age of Artificial Intelligence," (Ph.D. Dissertation, Department of Accounting and Commercial Law, Hanken School of Economics, 2016), 17.

[65] Berne Convention for the Protection of Literary and Artistic Works (1886).

[66] *Eva-Maria Painer v Standard Verlags GmbH 1[2011] ECR I-2533*.

[67] The Intellectual Property Act, Spain (1996).

[68] Intellectual Property Code, France (1992).

[69] Act on Copyright and Related Rights, Germany (1965).

[70] Ana Ramalho, *Intellectual Property Protection for AI-generated Creations Europe, United States, Australia, and Japan* (England: Routledge, Taylor & Francis Group, 2022), 121.

to the public.[71] According to this viewpoint, personality isn't as vital to the concept of authorship, implying that non-human authors may have a chance.[72] The Macaque Selfie case of 2016 in the United States, on the other hand, concluded that there could be no grant of copyright photographs clicked by a monkey, mainly for the reason that the photographs were clicked without any human intervention.[73] Similarly, the US Copyright Office believes that animal-created works are not eligible for registration.[74] Although countries like Ireland, New Zealand, the United Kingdom, and India do grant copyright to works generated by computer programs.[75]

Whether or not AI-generated works are copyrightable is not explicitly stated in China's current copyright law. However, Chinese courts have taken some preliminary positions on the issue, distinguishing between AI-generated works with and without human involvement and recognizing that AI-generated aspects with human intellect imprints may be protectable under certain circumstances. For example, in the recent case of *Tencent v. Yingxun* (2020),[76] the Nanshan District People's Court in Shenzhen stated that Tencent's "Dreamwriter" program generates articles with some degree of originality, and the method of creation demonstrates the intelligent creativity of Tencent's team; as such, the articles should be secured under the Chinese Copyright Law.[77]

If we are looking at it from a policy viewpoint, this case definitely sends signals to encourage the AI sector. On the other hand, copyright legislation has yet to be constructed to handle the copyrightability of works that are produced by AI without human intervention, such as any works made by algorithms automatically evolved by AI via deep or machine learning.

2. Position of India Towards Protection of AI Creations under Copyright Laws

In the Indian Copyright legislation, according to "Section 2(d) of the Indian Copyright Act, 1957, the term author, "in the case of a literary or dramatic work, the author; in the case of a musical piece, the composer; in the case of a computer-generated literary, dramatic, musical, or artistic work, the person who causes the work to be made,"[78] while specified, in concerns involving autonomously generated computer

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[71]   Brigitte Vezina and Brent Moran, "Artificial Intelligence and Creativity: Why We're Against Copyright Protection for AI-Generated Output," accessed on July 14, 2023, https://creativecommons.org/2020/08/10/no-copyright-protection-for-ai-generated-output/.

[72]   Brigitte Vezina and Brent Moran.

[73]   *Naruto (et.al.) v. David Slater 2018 WL 1902414*.

[74]   Sergio Munoz Sarmiento, "US Copyright Office Says Animal Authors Aren't Protected by Copyright," accessed on July 14, 2023, https://hyperallergic.com/145217/us-copyright-office-says-animals-authors-arent-protected-by-copyright/.

[75]   Copyright, Designs and Patents Act, United Kingdom (1988).

[76]   Simon Chesterman, "Artificial Intelligence and the Limits of Legal Personality," *International and Comparative Law Quarterly* 69, no. 4 (2020): 827, https://doi.org/10.1017/S0020589320000366.

[77]   Simon Chesterman, "Artificial Intelligence and the Limits of Legal Personality," 829.

[78]   The Copyright Act, 1957 (Act 14 of 1957) s. 2(d).

labor, it is left somewhat open-ended. This is apparent from the aforementioned section and is highlighted in many parts that detail the author's kin, lifetime, and death.[79] The application of the law is unassailable where the creators of the AI software are humans because it fits the Copyright law's concept of a person being the original author/creator, but as AI, in their role as mere assistants to humans, becomes more "intelligent" in inventing novel creations and more self-reliant in establishing their own individual products, the Copyright law's concept of a person being the original author/creator becomes less relevant; the law will become more challenging.[80] It is critical to note that sub-clause (vi) of the act distinctly states that the author is the person who produces the computer-generated work. The provision does not appear to consider any computer machine intelligent enough to act like a human; rather, only computers run by humans are considered.[81]

This assumption that computers can only aid human creativity creates a gap in the law on whether an AI is capable of autonomous creativity and has separate ownership rights.[82] Notably, the legislative intent behind the act was to limit copyright law to humans because, according to section 22, any work produced during the author's lifetime is only valid for 60 years, commencing with the first day of the calendar year after the death year.[83] As a result, the author's personality plays a significant role here. But at the same time, it is pertinent to note the loophole here, i.e., the Indian Copyright Act's definition of author does not mention a human and makes no reference to the author's legal personality.[84] Recently, the copyright office in India has granted copyright protection to an AI tool, "Raghav", which is a painting app – as a co-author of artistic work.[85] Because there is no clear clause saying that the author mandatorily has to be a natural person, AI can be identified as a co-author at the very least.[86] Currently, a lack of human-like intellectual capacities, as well as understanding of a specific topic or activity, such as writing novels or creating paintings, will not be adequate to award AI legal personality status. Therefore, even if AI appears to be a likely contender for ownership, issues arise since the copyright definition of author is still vague.

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[79]   The Copyright Act, 1957 (Act 14 of 1957) s. 2(d).
[80]   Woodrow Barfield, "Intellectual Property Rights in Virtual Environments: Considering the Rights of Owners, Programmers and Virtual Avatars," *Akron Law Review* 39, no. 3 (2006): 653.
[81]   Rehan, "Who Owns Computer Generated Works," accessed on July 14, 2023, https://learndigest.blogspot.com/2014/06/who-owns-computer-generated-works.html.
[82]   Vedant Choudhary and S. M. Aamir Ali, "ChatGPT and Copyright Concerns," *Economic and Political Weekly* 58, no. 16 (2023): 4-5.
[83]   The Copyright Act, 1957 (Act 14 of 1957) s. 22.
[84]   Ritvik M. Kulkarni, "Of Artificial Intelligence and Authorship," accessed on July 14, 2023, https://spicyip.com/2016/12/of-artificial-intelligence-and-authorship.html.
[85]   Sukanya Sarkar, "India Recognizes AI as Co-Author of Copyrighted Artwork."
[86]   Elif Kayral and Sinan Erkan, "India Copyright Office Recognizes Co-Authorship of AI for the Copyrighted Work," accessed on July 14, 2023, https://legal.deris.com/en/news/copyright-and-anti-piracy/289-india-copyright-office-recognizes-co-authorship-of-ai-for-the-copyrighted-work.

The medium of expression must also be in tangible form, according to the copyright law, i.e., it can be reproduced, communicated and perceived, which is not necessarily included in actual physical form. In *TCS v. State of Andhra Pradesh,* the court opined that computer programs are to be considered tangible.[87] The apex court in *R.G. Anand v. M/S. Delux Films* ruled that the statute does not recognize property rights in conceptual ideas, nor does an idea become copyright unless it is put into effect and that an idea only becomes copyright if it is put into practice.[88] Hence, AI appears to be eligible to invent work that can be held as tangible.

The requirement of originality of works goes hand in hand with the creativity applied. The apex court in *Eastern Book Company v. D.B. Modak* described the modicum of creativity where the term "original" does not entail that the work must express unique or inventive ideas. Originality is an issue of degree in the case of derivative work, dependent on the amount of skill, judgement, or labor involved in the compilation.[89] Primary work, according to the court, is literary work that is not based on the existing subject matter. Work that is based on the previously published subject matter is classified as secondary or derived work.[90] Although creating a framework which enables AI to select and arrange data needs human assistance, it is actually the computer or AI that makes the pick.[91]

E. Prospects of Implementing A *Sui Generis* Right for Protection of AI-generated Output

It is possible that AI is capable of producing original and creative work material yet lacks legislative acknowledgement. Giving authorship to AI seems logical, where AI is significantly used for a variety of services. Three alternative options emerge from this discussion, i.e., transferring the ownership i) to the developer of AI or ii) Public domain or iii) *sui generis* system.

As AI operates autonomously, it is debatable whether it can be considered a tool for human creativity.[92] The developer puts much effort into developing AI. It takes time and money for the developer, and it is argued that giving them a copyright for the products of their creative labor would be a reasonable remuneration, even if the end result isn't exactly what they had in mind.[93] But many scholars argue that the developer cannot be the owner of copyright because of the lack of contribution in generating the output. For example, when Facebook had to shut down its program

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[87]　*Tata Consultancy Services v. State of Andhra Pradesh 137 STC 620*.
[88]　*R.G Anand v. M/S. Delux Films AIR 1978 SC 1613*.
[89]　Jatindra Kumar Das, *Law of Copyright* (Delhi, India: PHI Learning Pvt Ltd., 2021), 377.
[90]　*Eastern Book Company v. D.B. Modak (2008) 1 SCC 1*.
[91]　Brigitte Vezina and Brent Moran, "Artificial Intelligence and Creativity: Why We're Against Copyright Protection for AI-Generated Output."
[92]　Anuttama Ghose and S. M. Aamir Ali, "Amplifying Music with Artificial Intelligence," *Economic and Political Weekly* 58, no.17 (2023): 4-6.
[93]　John Haugeland, *Artificial Intelligence: The Very Idea* (Cambridge: MIT Press, 1995), 287.

after discovering that an AI had created its own unique language that humans couldn't understand and was using it to speak with other AI.[94]

The exception to the basic rule of copyright law is that the product's creator is the product's original owner, is the doctrine of work done under a hire agreement. The doctrine gives ownership rights to the employer who pays for the work's creation rather than the artist who created it.[95] This could be a viable option for settling the present ownership controversy over AI works, but it also comes with many issues, such as the question of liability after the death of the developer of AI. Another idea that emerges from the discussion is that works of art created by artificial intelligence should be designated public domain and have no author. For starters, AI-generated content may be made freely available to the public without any financial investment. Second, AI may generate infinite repetitions of tasks with nil added time, money, or resources. Third, copyright law offers moral and economic rights to the author to motivate him to produce new works. Since AI is not human, it does not need rewards to keep it working.[96] However, if no such protection is given, then there will be no encouragement for AI developers and big companies to invest in AI and its research and development.[97]

However, outside of the copyright system, a *sui generis* method may protect AI-generated works. There may be fewer safeguards in place under such a framework, particularly in regard to the length of time that copyright is in effect. By providing protection for a shorter period of time, the existing model of AI copyright protection will create much less difficulty with the present norms of copyright law.[98]

F. Conclusion

The utilization of AI is becoming increasingly prominent in the daily lives of many individuals. AI is actively creating an alternative reality, irrespective of human involvement. As AI systems assume a creative role, their contribution to intellectual property advancements is becoming more apparent. Consequently, the matter of ownership pertaining to AI assumes paramount importance. The current Intellectual Property regime raises concerns regarding the assignment of intellectual property rights to developers when they are not actively involved in the creation process facilitated by AI.

[94]   Tony Bradley, "Facebook AI Creates Its Own Language in Creepy Preview of Our Potential Future," accessed on July 14, 2023, https://www.forbes.com/sites/tonybradley/2017/07/31/facebook-ai-creates-its-own-language-in-creepy-preview-of-our-potential-future/?sh=3d67049e292c.

[95]   Darin Glasser, "Copyrights in Computer-Generated Works: Whom, If Anyone, Do We Reward?" *Duke Law & Technology* Review 1 (2001): 8.

[96]   Ayush Pokhriyal and Vasu Gupta, "Artificial Intelligence Generated Works under Copyright Law," *National Law University Jodhpur Law Review* 6, no. 2 (2020): 110.

[97]   Pamela Samuelson, "Allocating Ownership Rights in Computer-Generated Works," *University of Pittsburgh Law Review* 47, no. 4 (1986): 1197.

[98]   Andres Guadamuz, "Artificial Intelligence and Copyright," accessed on July 14, 2023*, https://www.wipo.int/wipo_magazine/en/2017/05/article_0003.html#:~:text=Artificial%20intelligence%20is %20already%20being,used%20and%20reused%20by%20anyone.

Such assignments appear unreasonable and are likely to contravene Copyright law. Although the developer is the creator of the AI system, they do not possess any control or influence over the output generated by the AI. Furthermore, attributing sole ownership to artificial intelligence is inconsistent with the legislative purpose. The primary objective of copyright laws is to protect artists and provide them with incentives to produce additional creative works. However, AI does not require such motivation to generate more content.

Despite the significant progress AI has made, it lacks the inherent human experiences and ethical considerations essential for legal personhood. The inherent differences between AI and human thought processes, ethical reasoning, and emotional understanding may make directly applying artificial entities to legal frameworks impractical. This concept has the potential to be misused, disregarding the legal rights of individuals. Our current legal system prioritizes the interests and needs of the people it serves. Ensuring the law's coherence and ability to protect individuals is crucial in preventing AI entities from being recognized as legal or factual persons and hence cannot be considered creators or proprietors of copyrighted content.

There is no universally reliable approach to addressing this issue, and every proposed solution possesses inherent limitations. While the sui generis system may be a more favourable option, it remains necessary to afford AI-generated works a lesser degree of protection, with greater emphasis on prioritizing human creativity over artificially generated content. The current state of copyright law is insufficient in addressing the challenges posed by AI-generated works and the associated concerns. Consequently, it appears that the existing Intellectual Property Law can be retained, albeit with a requirement for contemporary interpretation that fosters progress while upholding the notion that an intellectual creation must be attributed to its closest human originator in order to be recognized. An alternative approach would involve amending the law to encompass artificial authors, such as corporate entities, thereby enabling them to assert their ownership rights. Nevertheless, the most probable resolution would entail the establishment of a *sui generis* framework for the regulation of intellectual property.

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