Intellectual Property Rights and the Protection of Creations by Artificial Intelligence: A Study

Muskaan Arora*[1] Neetu[2]

[1] GD Goenka University, Gurugram, Haryana, India
aroramuskaan44@gmail.com

[2] GD Goenka University, Gurugram, Haryana, India
neetu.sol@gdgu.org

ABSTRACT

Artificial intelligence has become a transformative technology and this technology helps in changing the modern world but with the emerging technology the question was whether the AI generated works are capable of copyright protection or not. The intersection between intellectual property and law raised numerous challenges. The problem was determining copyright ownership when AI plays a significant role in content creation. Several countries have acknowledged that AI is still reliant on human input. So the Significant input test was believed to find a balance between innovation and human ingenuity. This technique was considered in order to recognize the creative processes while considering concepts of uniqueness and human authorship. The framework is required that consider the AI generated work within the existing copyright laws to consider AI innovation.

Keywords- *Artificial intelligence, Copyright, technology, originality, Intellectual property, authorship*

1. INTRODUCTION

Nowadays, internet and artificial intelligence are combined to produce a number of different gadgets, with AI acting as the system's controller. As a result, technology advances rapidly and makes it possible for a variety of internet-connected devices to gather and interpret data. Other gadgets are also starting to appear and provide data learning so they can

T. Teena et al. (eds.), *Proceedings of the National Seminar on Enhancing Privacy Protection in the Digital Age: Legal Challenges & Innovations (NSEPPDA 2025)*, Advances in Social Science, Education and Humanities Research 936,
https://doi.org/10.2991/978-2-38476-426-6_15

conduct tasks intelligently. AI is regarded as a science that draws inspiration from, but generally functions somewhat differently from, how humans sense, learn, reason, and act using their own neural systems It is the science and engineering of developing intelligent machines, specifically intelligent computer programs according to John McCarthy. Generally speaking, artificial intelligence is always connected to robotics or anything futuristic. With the goal of making robots mimic human behaviour. Artificial intelligence (AI) enables machines to think intelligently even beyond human capacities. AI is a replica of human natural intelligence that is designed to think and behave like a human. Because of its intelligence, it can create new processes that are problematic for people. Artificial intelligence is capable of creativity and ingenuity.

2. DEFINITION OF AI

Machines with artificial intelligence are self-sufficient, creative, logical, capable of learning, and have the ability to gather information. Artificial intelligence is capable of producing creative works on its own, just like humans. The term artificial intelligence was given by John Mc Carthy as he defined AI as the science and engineer of constructing intelligent machines. The most crucial idea, however, is to comprehend how to tell if a machine is artificial intelligence (AI). If a human could not distinguish a machine from another human during a conversation, the machine may be considered intelligent. Simply put, artificial intelligence (AI) is the capacity of a machine or computer to mimic intelligent human behavior.AI is a wide phrase that encompasses many different technologies. like machine learning, machine reasoning, and natural language processing. Only because human creations have been used as training material can generative AI systems replicate human ingenuity. Existing literary and creative works are used as input material by machine learning algorithms to identify trends and parallels. It is claimed that a generative AI system learns how to create original literary and artistic works

by mimicking the style of human works thanks to the deductive method. Based on the computer analysis of the human works used as training material, the machine learning algorithm allows the AI system to produce literary and artistic content independently. The advancements in technology, information, and communication have gone beyond human aspirations. Data digitization is the goal of the internet-supported digital era. As a result, AI and the internet are now ubiquitous in daily life.The complex situation that arises from the junction of AI and copyright law raises a number of ethical and legal questions. Many AI systems need a lot of data in order to properly train their algorithms. AI systems cannot function effectively without this data, which serves as their fuel. There may be issues about copyright infringement because the used data contains copyrighted content including text, music, and photographs. Existing copyright works can be replicated using AI technologies. They are able to create and analyze content that closely protects works, which raised concerns about the data's ethical and legal ramifications. Additionally, as AI technology develops, it brings up issues regarding authorship, originality, and copyright restrictions.

3. METHODS OF ARTIFICIAL INTELLIGENCE

Different approaches to artificial intelligence exist. These consist of:

3.1. Machine Learning: This is an AI application in which machines learn and get better with experience rather than being programmed to execute. A branch of machine learning called "deep learning" uses neural networks to analyze data.

3.2. Natural Language Processing: This is the method by which computers and language interact. Machine learning is a reliable approach of extracting meaning from human languages using natural language processing. However, because the rules required for transmitting information in natural language are difficult for computers to comprehend, the

nature of human languages makes natural language processing complex.

3.3. Machine Vision Machines can capture visual information and then analyse it. In machine vision two aspects are there which are sensitivity, which is the ability of the machine to perceive impulses that are weak and resolution the range to which the machine can distinguish the objects.

3.4. Neural Networks Neural networks are biological systems consisting of connected network neurons organized in layers. Neural networks are given a set of input and output examples. A learning method would then be used to change the weights in the network so that it could produce the desired results.

3.5. Knowledge Based System - A knowledge-based system is a computer system that may provide guidance in a specific topic using knowledge provided by human experts. The essential feature of a knowledge system is the separation of knowledge, which can be performed in a variety of methods, including rules, frames, and cases.

4. AUTHORSHIP OF AI

According to Section 2(d) of the Copyright Act, the author is defined as the individual who causes the work to be generated by a computer, hence excluding the possibility of machines obtaining authorship of the work without human intervention. This implies that the inventor would not be able to safeguard any of the other parties.

4.1 AI As A Distinct Entity

It appears that the solution to every issue is to view AI as a distinct entity. The lack of agency in contractual matters makes it difficult to give the AI identification and ownership. In the case of AI-generated works, it might be challenging to uphold the moral rights granted to writers under section 57 of the act, such as the right to integrity and paternity. Since AI is unable to claim or calculate royalties under current regulations, the act's required demand that authors accept payments becomes challenging. Therefore, even if acknowledging AI as the author

could expand the scope of copyright law, many legal obstacles need to be removed to guarantee its application.

4.2 Who Owns The Copyright For AI Generated Content?

Microsoft developed the word computer program but it does not own all the material created with it. The user who created the piece using the application has the rights. The primary goal of intellectual property is to protect the rights of people who produce it. Determining ownership or authorship of a human-created work is possible, however this is not the case with AI-generated content.

To safeguard AI-created creations :

- The countries may deny any copyright protection completely.
- Countries can assign authorship to works developed by artificial intelligence.
- Countries may assign authorship to works made by artificial intelligence to the creator.

The copyright works have been produced using computer programs. At first, there were no issues with copyright ownership with the generated works. Section 17 of the Copyright Act stipulates that the person asserting copyright must be a real person, hence AI cannot be regarded as the author of the content it creates. According to Section 17, the original copyright to the work will always belong to the individual, unless an agreement indicates otherwise. The subject matter of creative works is governed by the copyright statute. The AI-generated act is excluded. Anyone who considers the work to be done whether they are natural or legal person,is considered an author under section 2(d) of the act. The idea states that artificial intelligence systems are not authors.

5. IMPACT

Since AI models benefit from having access to a variety of data, copyright laws, fair use theory, and data restrictions may affect how well AI models can be trained.

Reverse engineering and transparency concerns may arise from AI systems that use machine learning, although reverse engineering may be justified for reasons like transparency by using copyright fair use and doctrine.

Since human artists are allowed copyright, defining authorship and ownership of AI-generated work is a difficult and complicated problem.

AI generates content without human involvement, yet copyright protection demands originality and creativity, which are characteristics of human activity. This poses difficulties for AI-generated content. Given that AI is advancing in all domains and that machines may be creative, this begs the question of what of copyright.

Because AI models need a lot of data, it is possible for copyrighted material to be used without the required license, which could result in copyright infringement.

AI development frequently involves entities working together. In order to specify the extent of use, ownership, and payment for content produced by AI, licensing agreements become crucial.

Copyright holders can restrict access to their works by implementing technological protection measures. The relationship between AI and DRM calls into question how to strike a compromise between upholding rationality and copyright protection.

6. ARTIFICIAL INTELLIGENCE AND COPYRIGHT

Since the 1970s, computer programs have been widely employed to create copyrighted works. In terms of copyright ownership, computer-generated works raised few concerns. The idea was that human interaction was required for the creation of art, and computer programs were considered as only tools to aid creative efforts. With AI in place, computer programs are no longer just tools; they have the ability to produce art on their own through their own decisions. Artificial intelligence (AI) has the ability to produce a large amount of work in a very short period of time while incurring minimal costs.AI-generated works may be eligible for copyright protection in all jurisdictions for being original.

Since the AI genuinely gathers and produces the work, it may be said that the condition of using "skill and judgement" in originality has been met. There is human involvement in AI-assisted projects. Consequently, the individual who employed artificial intelligence to create the work may claim credit for it, but this is not the case when AI generated the piece without human involvement. Regarding the authorship, there are three main possibilities. (i) AI authorship should be recognized by the copyright system; (ii) AI-generated works should be considered "public domain" and not be subject to authorship; and (iii) sui generis legislation should be used instead of copyright law to protect such works.

The author is encouraged to use his abilities, labor, and judgment to create more imaginative works by the copyright protection. "Human creativity" and "machine creativity" would be on equal footing if AI were acknowledged as an author and its creations were protected by copyright laws. On the other hand, it would follow that human creation is valued above machine creativity if AI-generated creations were not

subject to copyright restrictions. In the long term, valuing machine innovation is likely to kill human creativity. more highly than human ingenuity or if both are placed on the same pedestal. Considering AI to be the creator of the AI-generated work could lead to a number of problems. AI-generated work might not be flawless.

Because the AI has not been recognized as a person, determining its legal and criminal liability in this case will be difficult. Such work may, at most, be erased, and in the worst-case scenario, AI software may be forbidden; however, by then, it may be too late, and the damage may be irrevocable. AI-generated work that is "substantially similar" to a copyrighted work may not be able to transfer ownership if considered the author.

Computer programs have been widely created using copyrighted works since the 1970s. At first, there were no major copyright ownership issues with the produced works. This was due to the fact that computer programs were seen as instruments to aid in artistic endeavors, whereas genuine work creation required human involvement. With the integration of AI, computer programs are no longer mere tools; they now possess the capability to independently generate works by autonomously making decisions. Because AI outputs are inherently unique, they might qualify for copyright protection in a number of jurisdictions. The requirement of exhibiting "skill and judgment" in creating uniqueness could be considered fulfilled by the programming and parameters upon which the AI compiles and develops the work.. When it comes to AI assisted projects, human participation exists.

When no human involvement is used and the job is entirely produced by AI. The issue of authorship in these situations has presented a problem on a worldwide scale. Attributing authorship to AI for AI-generated works could lead to numerous issues. The use of AI in the production of literary, artistic, and musical works presents complex copyright legal

questions. Determining authorship, ownership, and originality for works produced by algorithms is a hurdle. Furthermore, it can be challenging to enforce copyright when separating AI-generated content from human-made works. In order to address these problems and safeguard creators' rights while avoiding abuse, creative technology and legal adaptation are required. The interaction between AI and copyright protection is a complicated and developing area at the nexus of ethics, technology, and law as AI continues to transform the creative landscape.

Within the field of copyright law, AI-generated work presents a number of legal complications. These complexities include issues of copyright ownership and whether AI-generated works qualify for copyright protection. According to copyright law, for a creative work to be protected, it must be both unique and permanent in a material form. This raises questions about the uniqueness of content produced only by algorithms as well as the algorithm's standing as a material form of expression.

7. STATUS OF ARTIFICAL INTELLIGENCE AND COPYRIGHT

Differing legal countries may have differing copyright protections for works produced by AI. The field of artificial intelligence and its uses is still growing. The Copyright Act of 1957 is the main law controlling copyright in India. This law gives authors the sole right to their original works for as long as they live and for an extra 60 years. The Copyright Act of 1957 in India stipulates that a work must be original and preserved in a tangible medium in order to qualify for copyright protection. Legal precedents and court interpretations serve as a guide for determining originality, taking into account elements including the use of appropriate judgment, skill, and labor in the work's development.

According to, the original owner of the work, who is also the author or creator, is the first person to be granted automatic

copyright protection [1] . India has ratified the Berne Convention, which states that registration is not required and that copyright is established as soon as a work is created. Nonetheless, choosing to register is usually advised. AI's results are still unpredictable due to its constant self-improvement. We can nevertheless express the intended goal or purpose of AI despite this unpredictability. To put it another way, AI's results don't always match its original purpose. An AI framework created by a software engineer converts input into the intended output.

As the AI learns, its fundamental framework doesn't change. It is important to remember that existing narrow AI does not have legal personality. The law and its relationship with generative AI get more intriguing at this point. The copyright laws was modified to take into consideration circumstances in which a machine may produce artistic works. By introducing a new provision to the Act, the modification clarified that the person who created computer-generated works is the rightful proprietor of those works. We propose the "Significant Human Input" criteria to strike a balance between the opposing goals of recognizing the copyrightability of AI-generated content and protecting human involvement in creative works. This simple test tries to identify the level of human involvement in creative works that result in the creation of a "original" product. To clarify, we do not propose a whole new methodology to determine copyrightability rather this test operates within the existing framework of the “Skill and Judgement” but with an additional query attached which evaluates whether the “original” product in question would exist in the same tangible form without human intervention (these standards will be explained in the upcoming section).If the product in question fulfills the test's "Significant Input" requirement, it can be granted copyright protection. The test has two components –

[1] Section 17 Copyright Act of 1957

a) Determining whether the AI-generated product is “original” and b) whether the extent of human involvement in the process is significant enough.

First nation to acknowledge AI as a co-author is India. By fusing a photograph by Mr. Ankit Sahni with Vincient van Gosh's painting "Starry Night," the painting app Raghav produced "Suryast" on its own. Two applications for the registration of the work "Suryast" were received by the Copyright Office. The Copyright Office rejected the initial application's assertion that Raghav, the AI painting app, was the only proprietor. In the second application, Raghav and the painting's owner, Ankit Sahni, were listed as co-authors. AI was acknowledged as a co-author of the second application once it was approved by the Copyright Office. Sec-23 of the Copyright Act of 1957 safeguards an artistic creation for the author’s lifetime.

In the event of a joint authorship, the author who passes away last will be taken into account for calculating the sixty-year term, which is computed from beginning of the calendar year that following the author’s death. The Indian Copyright Office made a groundbreaking judgment by acknowledging AI as a co-author, but it still appears to have been made on the spur of the moment. When AI is regarded as a co-author, it would be crucial to discuss how the length of protection would be determined. Since AI is immortal, unlike humans, the works would never be in the public domain, according to the literal interpretation and plain reading of Section 23. If this clause is unchanged, then AI could enjoy copyright perpetually.

The original work retains its copyright whether or not it is registered. Before a court of law, the registration certificate simply serves as preliminary evidence; it is not conclusive. The AI-generated painting "Suryast," created by Raghav, has been granted a copyright registration certificate by the Copyright Office. It is assumed that the resulting works produced by the AI are automatically protected under the Act by virtue of this registration. Even with registration, the aforementioned issues

persist, and it is implausible to consider AI-generated works under the current copyright legal framework. Because copyright is based on the fundamental idea that "anything that is worth copying is worth protecting," AI-generated works cannot be released into the public domain. The works produced by the AI on its own are unique. However, given the aforementioned difficulties, it is challenging to use the Act to protect AI-generated works that do not involve human creativity.

8. LAW RELATING TO AI GENERATED WORKS IN DIFFERENT COUNTRIES

International copyright and artificial intelligence (AI) law is a complicated and developing field of law. Different nations handle this problem in different ways. For example, the Copyright Office in the United

States has declared that works produced by AI and other non-human agents are not protected by copyright. The legal structure in the European Union is more complex, acknowledging that human involvement and creative choices in AI-generated works may give rise to copyright. The adaptation of copyright laws to the digital age and the growing role of artificial intelligence in content creation is a topic of continuing international discussions. Legal regimes must find a balance between rewarding creativity and innovation and making sure that human creators receive just recompense and proper regulation of AI-generated content.

As a result, the legal status of AI and copyright is shifting, mirroring the swiftly evolving global landscape of technology and artistic expression. One international agreement that is pertinent to copyright law and AIgenerated content is the Berne Convention for the Protection of Literary and Artistic Works. This convention provides minimal requirements for copyright protection in member countries and contains provisions pertaining to copyright ownership, length, and enforcement.

The Berne Convention does not specifically address AI-generated content, even though it offers a framework for protecting writers' and copyright holders' rights regardless of the creation process.

9. CONCLUSION

AI will play an increasingly significant part in every aspect of our daily life. Its use must be governed by legislation. AI will continue to be an important component of intellectual property rights, especially copyright. The world community has been compelled to consider and come up with a workable answer for all nations due to the copyright law concerns around authorship and ownership of AI-generated works. All nations should preserve works created by AI on their own. The degree and scope of protection that should be given to AI-generated works have not yet been established by an international agreement. According to national regulations, AI-generated works are protected in each of the countries.

REFERENCES

1. Abbott, R. (2020). Artificial intelligence, big data and intellectual property: Protecting computer generated works in the United States. Journal of Intellectual Property Law & Practice, 15(9)712-724. https://doi.org/10.1093/jiplp/jpaa120 /10.1093/jiplp/jpaa120

2. Baruffaldi, S. H., Landoni, P., & Rosenkranz, N. A. (2020). The impact of the America Invents Act on small businesses. Journal of Technology Transfer, 45(3), 750-767. https://doi.org/10.1007/s10961-019-09741-0

3. Brynjolfsson, E., & McAfee, A. (2014). The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies. W. W. Norton & Company.

4. European Commission. (2020). A European approach to artificial intelligence. European Commission. https://ec.europa.eu/digital-strategy/our-policies/european-approach-artificial-intelligence_en

5. Fisher, T. (2018). AI and IP: The economic implications. Journal of Economic Perspectives, 32(3), 23-42. https://doi.org/10.1257/jep.32.3.23

6. Fisher, T. (2020). The Impact of Artificial Intelligence on Intellectual Property Law. Journal of Intellectual Property Law & Practice, 15(4), 253-260. https://doi.org/10.1093/jiplp/jpaa019

7. Floridi, L., & Cowls, J. (2019). A unified framework of five principles for AI in society. Harvard Data Science Review, 1(1). https://doi.org/10.1162/99608f92.8cd550d1

8. Gervais, D. (2012). Intellectual Property, Trade and Development: Strategies to Optimize Economic Development in a TRIPS Plus Era. Oxford University Press. https://doi.org/10.1093/acprof:oso/9780199754385.001.0001

9. Gervais, D. (2020). The regulation of artificial intelligence: A global perspective. Journal of World Trade, 54(2), 285-307. https://doi.org/10.54648/TRAD2020016

10. Grimmelmann, J. (2015). The structure of search engine law. Iowa Law Review, 99(1), 1-63.

11. https://ilr.law.uiowa.edu/print/volume-99/the-structure-of-search-engine-law

12. Hassan, R. (2020). The Information Society: Cyber Dreams and Digital Nightmares. John Wiley & Sons.ICC. (2021).

13. The Economic Impact of Counterfeiting and Piracy. International Chamber of Commerce. https://iccwbo.org/publication/economic-impact-counterfeiting-piracy-report/ INPI. (2021).

14. Annual Report 2020. Brazilian National Institute of Industrial Property. https://www.inpi.gov.br/publicacoes/relatorio-anual-2020

15. JPO. (2021). Annual Report 2020. Japan Patent Office. https://www.jpo.go.jp/e/resources/report/nenji/2020/document/index/2020.pdf

16. Kur, A., & Senftleben, M. (2017). European Trade Mark Law: A Commentary. Oxford University Press. https://doi.org/10.1093/acprof:oso/9780198797796.001.0001

17. Leiter, B. (2015). Legal Realism and Legal Doctrine. University of Pennsylvania Law Review, 163(7), 1975-1989. https://doi.org/10.2139/ssrn.2710249

18. Lerner, J. (2014). The Impact of Patent Protection on Innovation in Developing Countries. World Development, 46, 53-66. https://doi.org/10.1016/j.worlddev.2013.11.003

19. Machlup, F., & Penrose, E. (2015). The Patent Controversy in the Nineteenth Century. Journal of Economic History, 10(1), 1-29. https://doi.org/10.1017/S0022050700100285

20. UKIPO. (2021). Annual Report 2020. UK Intellectual Property Office. https://www.gov.uk/government/publications/ukipo-annual-report-and-accounts-2020

21. USPTO. (2020). Performance and Accountability Report. United States Patent and Trademark Office. https://www.uspto.gov/sites/default/files/documents/USPTOFY20PAR.pdf

22. WIPO. (2019). WIPO Technology Trends 2019: Artificial Intelligence. World Intellectual Property Organization. https://www.wipo.int/edocs/pubdocs/en/wipo_pub_1055.pdf

23. WIPO. (2020). World Intellectual Property Indicators 2020. World Intellectual Property Organization. https://www.wipo.int/publications/en/details.jsp?id=4520

24. Yamamoto, H. (2021). Protecting AI-generated trade secrets: Challenges and solutions. Journal of Business Law, 34(2), 165-190. https://doi.org/10.2139/ssrn.3765937

25. Schneble CO, Elger BS, Shaw D, Shaw D. Google's Project Nightingale highlights the necessity of data science ethics review, 2020, 12(3). doi:10.15252/EMMM.202012053.

26. Hsieh TT, Emerson RM, Foster LD, Link BF, Trautman LJ. Intellectual Property In the Era of AI, Blockchain and Web 3.0, 2023. doi:10.2139/ssrn.4392895.

27. Verbandt Y, Vadot E. Non-patent literature search at the European Patent Office, 2018, 54. doi:10.1016/J.WPI.2017.07.001.

28. WIPO: Artificial Intelligence and Intellectual Property Available from: https://www.wipo.int/aboutip/en/frontier_technologies/ai_and_ip.html.

29. Buiten, M., De Streel, A., and Peitz, M. (2023). The law and economics of ai liability. Computer Law & Security Review, 48:105794.

30. Burchardi, K. and Harle, N. (2018). The blockchain will disrupt the music business and beyond. WORLD (Oakland, Calif.).

31. Catalini, C. and Gans, J. S. (2017). Some simple economics of the blockchain (september 21, 2017). Rotman School of Management Working Paper, (2874598):5191–16.

32. Caves, R. E. (2000). Creative industries: Contracts between art and commerce. Number 20. Harvard University Press.

33. Chun, Matthew (2023). How artificial intelligence is revolutionizing drug discovery. Bill of Health, Harvard Law School,https://blog.petrieflom.law.harvard.edu/2023/03/20/howartificial-intelligence-is-revolutionizing-drug-discovery/

34. Cockburn, I. M., Henderson, R., and Stern, S. (2019). The impact of artificial intelligence on innovation: An exploratory analysis. In The economics of artificial intelligence: An agenda, pages 115–146. University of Chicago Press.

35. Crafts, Nicholas (2021), "Artificial intelligence as a general-purpose technology: an historical perspective." Oxford Review of Economic Policy, 37 (3), 521–536.

36. Cuntz, A. (2023). Grand rights and opera reuse today. Oxford Economic Papers, 75(1), 206- 232.

37. Cuntz, A., Muscarnera, A., Oguguo, P. C., and Sahli, M. (2023). IP assets and film finance – a primer on standard practices in the U.S., volume XX. WIPO.

38. Cuntz, A. and Peuckert, J. (2023). From hackers to start-ups: Innovation commons and local entrepreneurial activity. Research Policy, 52(2):104675.

39. Datta, H., Knox, G., and Bronnenberg, B. J. (2018). Changing their tune: How consumer's adoption of online streaming affects music consumption and discovery. Marketing Science, 37(1):5–21.

40. Duch-Brown, N., Martens, B., & Mueller-Langer, F. (2017). The economics of ownership, access and trade in digital data. JRC Digital Economy Working Paper 2017-01.

41. Duffy, John F. (2010). Why Business Method Patents? Stanford Law Review, 63(6): 1247-1288.

42. Farrell, J., Hayes, J., Shapiro, C., Sullivan, T., Ganglmair, B., Froeb, L., Werden, G., Lemley, M., Shapiro, C., and Elhauge, E. (2007). Do patent holdup and royalty stacking lead to systematically excessive royalties? supra, 74(47):603.

43. Galenson, D. W. (2007). And now for something completely different; the versatility of conceptual innovators.