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ISSUES AND CHALLENGES OF ARTIFICIAL INTELLIGENCE IN COPYRIGHT LAWS

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I. ABSTRACT

Artificial intelligence is increasingly playing a vital role in numerous areas of our daily lives, such as medical research, industry, transportation, aviation, space exploration, education, entertainment (including games, movies, music, and art), and more. Intellectual property rights cannot be viewed as a special case in this matter. One of the most controversial subjects in our generation is Artificial Intelligence. Several issues have emerged including job loss, privacy infringements, security threats, responsibility, etc. Alongside these challenges, copyright problems have also been brought to light.

This research delves into the complexities and subtleties that emerge when copyright law encounters AI-generated content like texts, images, music, and code produced by AI algorithms. Due to advancing technology, traditional ideas about authorship and ownership are at risk as AI's role in creation complicates determining ownership and authorship. Because traditional copyright law is based on human creativity, it is uncertain if AI-generated works should be covered under copyright protection. Despite the fact that Artificial Intelligence authors were denied copyright protection for their content by the copyright office.

The issue revolves not only around defining the "author" or determining who qualifies but also about identifying the owner of the intellectual property in these creations. Moreover, there is a thorough examination taking place on the innovation and distinctiveness of content produced by artificial intelligence. AI systems often utilize extensive collections of past publications to generate results that imitate or replicate specific aspects of these datasets. This questions the fundamental ideas of uniqueness and innovation that copyright legislation seeks to protect. The unclear borders

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between originality and plagiarism lead to legal uncertainty and prompt debates on the uniqueness and quality of AI-created material.

II. KEYWORDS

Artificial intelligence, Copyright, Authorship, Human Creativity.

III. INTRODUCTION

This paper explores the difficulties and intricacies where AI-generated content intersects with copyright law. With the rise of AI algorithms creating text, images, audio, and code, traditional ideas of authorship and ownership are being greatly impacted. Conventional copyright law is based on human innovation, leading to important inquiries about the eligibility of AI-generated works for copyright rights. The concern involves determining the "author" and owner of creative works.

Additionally, AI-generated content's originality and creativity are being closely scrutinized. AI systems frequently depend on extensive collections of existing content, which can lead to the generation of outputs resembling or duplicating components of those collections, ultimately questioning the fundamental concepts of originality and creativity that copyright legislation aims to safeguard. This blending of creation and imitation blurs legal boundaries, sparking discussions on whether AI-generated works are truly unique or innovative.

IV. AUTHORSHIP AND OWNERSHIP OF COPYRIGHT IN INDIA

Authorship refers to the person who creates a piece of work by writing, gathering, composing, or illustrating it, regardless of who initially proposed the concept. The author is the individual who brings the work to life in a tangible form, thereby qualifying for copyright protection. The concept of authorship is critical because the person who first conceived the idea or concept does not automatically hold the copyright unless they are also the one who materializes the idea into a form of expression.

According to the Copyright Act of 1957², authorship is a key determinant for claiming copyright ownership, and nationality or citizenship is not a factor in deciding an author's entitlement to copyright. The law protects the work's creator as long as it is expressed in a tangible form.

Ownership, on the other hand, refers to the person who holds the rights to the work once it has been created. Copyright ownership is separate from ownership of the physical material in which the work is embodied. For instance, owning a physical book does not mean owning the copyright to the content inside it. In most cases, the original copyright owner is the author of the work.

However, the law provides certain exceptions where ownership of the copyright may be transferred to another party. One of the key exceptions is when a painting, picture, or portrait is created at someone else's request for valuable consideration (payment). In such cases, the person who commissioned the work becomes the initial owner of the copyright, not the author or creator of the work.

This distinction between authorship and ownership is crucial in understanding copyright law in India. While authorship focuses on the creative process and the individual responsible for bringing a work into existence, ownership determines who holds the legal rights to control, distribute, or profit from that work. The law ensures that the author retains copyright unless specific exceptions apply, transferring ownership to another party under particular circumstances.

V. AUTHORSHIP AND OWNERSHIP OF AI-GENERATED CONTENT

With the rapid advancement of technology, Artificial Intelligence (AI) has become increasingly capable of generating content, including music, images, and written works. AI generates these outputs based on specific inputs provided by users, utilizing algorithms to produce results that are often creative and unique. This raises significant questions about who holds authorship and ownership of AI-generated content. Should the individual who provides the input to the AI be considered the

² The Copyright Act, 1957 (Act No. 14 of 1957)

author and owner of the content, or should these rights belong to the owner or developer of the AI system itself?

Authorship traditionally refers to the person who creates a work by expressing an original idea or concept in a tangible form. However, when AI is involved, the process becomes more complex. The outcome generated by AI is typically based on input parameters provided by a human user, but the actual process of creating the content is carried out by the AI algorithm.³ Since AI systems rely on large datasets and predefined algorithms, there is a question of whether the output can be considered original in the same way that a human-created work would be.

One argument is that the person providing the input should be considered the author because they play a crucial role in shaping the AI's output. Without their input, the content would not be generated. This view suggests that the human user is exercising creative control over the content, even though the AI is responsible for executing the technical aspects of creation. According to this perspective, the individual who directs the AI should be recognized as both the author and the owner of the resulting content.

On the other hand, some argue that the owner or developer of the AI should hold both authorship and ownership of the generated content. This viewpoint is based on the fact that the AI system is the tool that directly produces the content, and the person who created or owns the AI has played a significant role in enabling its creative capabilities.⁴ The AI owner has invested in developing the technology, training it on vast amounts of data, and refining its algorithms to create outputs.

Therefore, from this perspective, the AI owner or developer might claim authorship and ownership of the work, as they are responsible for the system's capabilities that ultimately lead to the creation of the content.

³ Bonadio, Enrico and Dinev, Plamen and McDonagh, Luke, Can Artificial Intelligence Infringe Copyright? Some Reflections (2022). Bonadio, Enrico; Dinev, Plamen and McDonagh, Luke. 2022. "Can Artificial Intelligence Infringe Copyright? Some Reflections", in Ryan Abbott, ed. Research Handbook on Intellectual Property and Artificial Intelligence. Cheltenham: Edward Elgar. ISBN 9781800881891 , Available at SSRN: <https://ssrn.com/abstract=4315222> or <http://dx.doi.org/10.2139/ssrn.4315222>

⁴ Mishra, A. (2024). AI-generated creative works: Challenges & opportunities in the copyright domain. *Global Patent Filing*. Retrieved from <https://www.globalpatentfiling.com/blog/AI-Generated-Creative-Works-Challenges-Opportunities-in-Copyright-Domain>

Another important aspect to consider is the role of databases and past content in AI-generated works. AI systems typically draw on existing datasets to generate new content. However, just because AI refers to or uses past data does not mean the output is simply a copy of previous works. Much like how new research papers or articles are based on past research, AI can generate novel content that builds on existing knowledge without directly copying it. In many cases, the AI combines different elements of past data in ways that produce something entirely new. This challenges the traditional notion of originality, as the creative process is not entirely human but is still capable of producing unique results.

In several legal cases, the question of authorship and ownership of non-human-generated content has been debated. For example, the "Monkey Selfie" case raised questions about whether an animal could hold copyright over a photograph. The courts ruled that copyright could not be granted because there was no human author involved. Similarly, in the cases of **SURYAST** and **RAGHAV**, authorship and ownership were denied because of the lack of a human element.⁵ These cases highlight a key principle in copyright law: the necessity of a human element in order to claim authorship and ownership of a work.

In conclusion, while AI-generated content raises complex questions about authorship and ownership, it is clear that current legal frameworks emphasize the importance of human involvement in the creative process. To be recognized as an author or owner, a human element is typically required. Whether that human is the individual providing input to the AI or the owner of the AI itself remains a subject of ongoing debate. As AI continues to evolve, it will be crucial for legal systems to adapt and address these new challenges.

⁵ Ajunwo-Choko, A. L. F.-B., & Adeoye, K. (2024). Determining intellectual property ownership in AI-generated work: Unravelling the rights stemming from individual inputs.

VI. EXPLORING THE COMPLEXITY OF AI-GENERATED CONTENT: AUTHORSHIP AND OWNERSHIP IN THE CONTEXT OF INDIAN COPYRIGHT LAW

Artificial Intelligence (AI) has transformed several creative fields, including literature, visual art, and music, by enabling the generation of content that would traditionally require human creativity. AI-generated content refers to creative works—such as writings, images, music, and artworks—produced by AI systems using algorithms designed to process input data and create output based on patterns and learned information. As AI-generated content becomes more widespread, it raises complex moral and legal questions regarding authorship and ownership.

The core issue revolves around whether the human who provides input to the AI, the developer or owner of the AI system, or the AI itself should be credited as the author or owner of the work. Traditionally, copyright laws require a human creator to claim authorship and ownership of creative works. However, with AI taking an active role in the creative process, the boundaries of what constitutes authorship are becoming blurred.⁶

Some argue that the person who provides the input to the AI should be considered the author, as they play a crucial role in guiding the AI's creative output. Others believe that the owner or developer of the AI system should be recognized as the rightful author and owner, as the AI's abilities are a result of their investment in developing the technology.⁷

Current copyright laws generally do not recognize AI as an independent creator, and a human element is required for authorship to be claimed. This creates a legal grey area where determining the rightful owner and author of AI-generated works remains

⁶ Chhabra, H., & Pandey, K. G. (2023). Balancing Indian copyright law with AI-generated content: The 'significant human input' approach. *Indian Journal of Law and Technology*, 19(1), 1-20.

⁷ Anand, P. (n.d.). Who owns AI-generated works? Here's what the laws say on copyright issues.

unresolved, highlighting the need for legal frameworks to evolve alongside advancements in AI technology.⁸

VII. THE BASIS OF AI-GENERATED CONTENT AND ITS IMPLICATIONS FOR COPYRIGHT

To fully understand the challenges associated with AI-generated content, it is essential to grasp how these systems function. AI algorithms, particularly machine learning models, are trained on vast datasets that may include text, images, music, and other forms of content. These models use patterns and statistical correlations found in the data to produce outputs based on user-provided input. When a user inputs specific parameters, the AI processes this information through its algorithmic framework and generates content that reflects a blend of both the user's directions and the data it has been trained on.

This process presents unique challenges for copyright law, especially concerning authorship and ownership. Traditional copyright law is built on the notion of a human author who exercises creativity, originality, and intellectual effort to create a work. The author is typically recognized as the owner of the copyright, which grants exclusive rights to reproduce, distribute, and modify the work. However, in the context of AI-generated content, there is no conventional human creator. Instead, the AI system – acting on pre-trained data and user input – produces the content.⁹

This lack of direct human involvement in the creative process complicates the application of existing copyright laws. The question arises: Can an AI, that lacks consciousness or intent, be considered the author of a work? Current legal frameworks generally do not recognize non-human entities, such as AI systems, as creators. Therefore, authorship and ownership typically remain with the human user who

⁸ **Corpbiz.** (n.d.). *Ownership and authorship of copyright in India*. Retrieved from <https://corpbiz.io/learning/ownership-and-authorship-of-copyright-in-india/>

⁹ **Sahni, A.** (2024). The divergence in copyright recognition for AI-generated works: An in-depth analysis of Ankit Sahni's case in the US and India. *King Stubb & Kasiva*. Retrieved from <https://ksandk.com/intellectual-property/divergent-copyright-recognition-ai-generated-works-sahnis-case-us-vs-india/>

provided the input or the developer/owner of the AI system, depending on the circumstances.

VIII. DETERMINING AUTHORSHIP: IS IT THE USER OR THE AI OWNER?

One of the most pressing issues in AI-generated content is determining who should be credited as the creator. Should it be the individual who provides the input to the AI system, or should it be the person or entity that developed the AI and its underlying algorithms? This question lies at the heart of debates over authorship and ownership of AI-generated works, raising complex considerations for legal frameworks, especially those rooted in traditional copyright principles.

When examining the role of the person providing input to the AI, their involvement is typically as a prompt or guide. They define the parameters of the desired output—whether it's a specific type of music, art, or text—giving the AI system directions to follow. However, once the input is given, the creative process is almost entirely handled by the AI. The AI processes the input, draws from its extensive training data, and produces the final work. In this sense, the human user's role is indirect and could be viewed as limited, raising the question of whether they have contributed enough to be considered the author of the work.¹⁰

On the other hand, the developer or owner of the AI system is responsible for creating the algorithms, architectures, and technologies that make AI-driven content creation possible¹¹. These individuals or organizations build complex systems that process user input and generate creative outputs. However, despite their foundational role in enabling the AI's functioning, they do not engage in the creative process directly. Their work is in designing and refining the tools that produce the content, rather than contributing to the content itself. This brings up a parallel with traditional tools of

¹⁰ Rao, S. (2024). The legal landscape of AI-generated content: Ownership and copyright issues explored. Juris Centre. Retrieved from <https://juriscentre.com/2024/08/26/the-legal-landscape-of-ai-generated-content-ownership-and-copyright-issues-explored/>

¹¹ Yoon, B. (2022). A comparative study of the copyright laws for artificial intelligence in the UK and Korea. *Comparative Law Review*, 28(1), 281–314. Retrieved from <https://apcz.umk.pl/CLR/article/view/37729>

creativity, such as a paintbrush or a camera, where the toolmaker is not credited as the author of the final product¹².

This distinction between facilitating and actively participating in the creative process is central to the debate. Neither the user providing the input nor the developer of the AI system fits neatly into the traditional definition of an author. As AI-generated content becomes more prevalent, the issue of authorship will require re-evaluation, with new legal frameworks needed to balance the roles of input providers, AI developers, and the AI systems themselves.¹³.

IX. THE ROLE OF HUMAN CREATIVITY AND COPYRIGHT LAW

Copyright law requires that a work must contain a minimum level of human creativity and intellectual effort in order to be eligible for protection. This condition serves as the foundation of conventional copyright systems, which aim to safeguard the rights of human creators. Yet, the traditional concepts of authorship and originality are being questioned by the emergence of AI-generated content, exemplified by famous legal disputes like the "Monkey Selfie" and "SURYAST and RAGHAV" cases.

In the well-known "Monkey Selfie" incident, a monkey captured a photo with a camera that was unattended by a photographer. The photographer later asserted his copyright ownership of the image. Nonetheless, the court decided that as the photo was captured by a non-human entity (the monkey), it was ineligible for copyright protection. According to the court ruling, for copyright protection, a human creator must demonstrate a certain amount of intellectual effort, which was lacking in this instance. Since the photograph was created by an animal's behavior, it did not fulfill this criterion.¹⁴.

¹² Naithani, P. (2022). Issues of authorship and ownership in work created by artificial intelligence: Indian copyright law perspective. *NTUT Journal of Intellectual Property Law and Management*, 11(1), 1–12. Retrieved from <https://pure.jgu.edu.in/4479/1/Issues%20of%20Authorship%20and%20Ownership%20in%20Work%20created%20by%20Artificial%20Intelligence.pdf>

¹³ Ahuja, V. (2020). Artificial intelligence and copyright: Issues and challenges. *ILI Law Review*, Winter Issue, 270–285. Retrieved from <https://ili.ac.in/vka.pdf>

¹⁴ Anirudh, S. M. (2024, September 18). Intersection of intellectual property rights and AI-generated works: Part I. *Bar & Bench*. Retrieved from <https://www.barandbench.com/law-firms/view-point/intersection-intellectual-property-rights-ai-generated-works-part-i>

Likewise, the situation of "SURYAST and RAGHAV" also centered around a work of art generated by a computer program. The court ruled that as a machine created the artwork, it lacked human authorship and thus did not qualify for copyright protection.¹⁵ This situation exemplified the legal obstacles presented by AI-generated works, showing that copyright protection is not applicable when there is no human contribution to the creative process.

These instances highlight how lacking human involvement in the creation process can prevent copyright protection. In copyright law, the need for human creativity and intellectual labor is deeply rooted, which presents obstacles in granting protection to creations produced by non-human beings like animals or machines. With the progression of AI technology, a reevaluation of these legal issues is necessary.¹⁶

X. THE QUESTION OF OWNERSHIP IN AI-GENERATED CONTENT

Determining ownership of AI-generated content is a challenging matter, as it brings up the issue of whether content without a traditional author can still have ownership rights. Would AI-created works be without a human creator also imply they lack a legal owner? This uncertainty could have major consequences for people, companies, and institutions depending on AI for creating original material.

One view is that the person or organization who created, bought, or possesses the AI system should also be recognized as the owner of the content produced by it. In traditional copyright law, the concept of "work made for hire" states that the employer or client is seen as the creator and proprietor of any work produced during the job or contract, not the employee or contractor. The employer basically assumes control of the creative work in return for paying the creator. Yet, this comparison is not entirely accurate when referring to AI-generated material, since the concept of human

¹⁵ Verma, Apoorva, The Copyright Problem with Emerging Generative AI (August 10, 2023). Available at SSRN: <https://ssrn.com/abstract=4537389> or <http://dx.doi.org/10.2139/ssrn.4537389>

¹⁶ Zhang, J., & Xie, X. (2023). *Research on the copyright protection of artificial intelligence generation in the smart media environment*. In *Proceedings of the 2023 3rd International Conference on Public Management and Intelligent Society (PMIS 2023)* (pp. 655–665). Atlantis Press. https://doi.org/10.2991/978-94-6463-200-2_68

authorship, which is crucial in the "work made for hire" doctrine, is not present in AI-generated content.

Another point to consider is that the individual giving input to the AI system should be seen as the rightful owner of the content because they are directly influencing the AI's output by setting parameters, themes, or prompts. This point of view recognizes the user's influence on directing the AI, yet it also has restrictions as the user's input is indirect, as they are not directly creating the content but simply pushing the AI to generate it.

The different perspectives highlight the importance of having a legal structure that recognizes the distinct characteristics of AI-created material. As AI technology advances, it will be essential to set clear guidelines on ownership.

XI. THE INFLUENCE OF EXISTING DATABASES ON AI OUTPUTS

The role of current databases, which AI systems heavily depend on to learn and create new content, is a critical factor in the AI-generated content debate. These systems are educated on extensive collections of existing materials like text, images, music, and other content, prompting worries about the uniqueness and possible violation of the results they produce. In human creative activities like writing academic papers, composing music, or making derivative art, it is common to draw from past works. However, the line between being inspired by and directly copying becomes more ambiguous with AI-generated content.

Using existing databases to inform AI does not always mean it is just duplicating content.¹⁷ Just like how scientists use existing information to create fresh perspectives, artificial intelligence can merge patterns, structures, and ideas from its training data to generate unique outputs. For example, an AI could examine numerous paintings to

¹⁷ Watiktinnakorn, C., Seesai, J., & Kerdvibulvech, C. (2023). Blurring the lines: How AI is redefining artistic ownership and copyright. *Discover Artificial Intelligence*, 3(37). <https://doi.org/10.1007/s44163-023-00088-y>

create a completely new artwork that is inspired by, but not the same as, the original pieces in its collection.

XII. MOVING FORWARD: THE NEED FOR LEGAL CLARITY AND ADAPTATION

The fast growth of AI-created content poses special difficulties in identifying creators and owners, underscoring the necessity for copyright regulations to adapt to these technological advances. The conventional copyright systems, based on human creativity and authorship, might not be entirely ready to handle the challenges brought by AI. When AI systems generate creative outputs, concerns arise regarding the ownership of the works. Should the responsibility for input be attributed to the individual, the AI algorithm developer, or does public domain status apply given the lack of direct human intervention?

To safeguard creators' rights, foster technological advancement, and offer legal guidance, it is crucial to establish updated copyright frameworks tailored to the distinct characteristics of AI-generated material. A possible option is acknowledging a mutual sense of ownership, granting legal rights to both the user guiding the AI's creativity and the developer creating the AI system. This explains why humans collaboratively interact with AI systems. An alternative method could include creating new forms of safeguarding for works generated by machines, providing restricted rights, or acknowledging them as a unique legal entity separate from human content.

As AI technology progresses and its involvement in creative fields grows, it's important to update copyright laws to keep them current, efficient, and just. Lawmakers can create an environment that encourages innovation and safeguards the intellectual property rights of all parties, including both individual creators and AI developers, by tackling these new challenges. This clear legal guidance will ultimately assist in ensuring a balance between the advancement of AI technology and safeguarding creative rights in the digital era.