Research Article

Generative AI in Academia: Navigating Copyright and Intellectual Property Challenges

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"The AI does not compete with the human mind, it complements it."
— Ginni Rometty

Abstract

Generative artificial intelligence has emerged as a powerful asset in academic research, enabling the independent creation of diverse types of content. These technologies have significantly transformed the methodologies employed in academic inquiry; however, their integration into the educational sphere raises intricate intellectual property (IP) and copyright challenges. This paper investigates the potential issues of managing intellectual property and copyright concerns of generative AI research in academic contexts. It further explores the intricacies of licensing contracts, datasets, ownership, derivative works, fair use, and the enigma raised by AI-generated content.

However, several studies have demonstrated that end users of generative AI can issue commands that, when followed, result in works that closely mimic copyright-protected content. Lucchi (2023) raised concerns about AI's prospects and new applications in various sectors, including replicating human conduct affecting society and law. The paper also delves into appropriate legal implications of ownership of AI-generated content and analyses the risk of copyright infringement of AI-generated content.

Keywords: Generative AI; Copyright; Intellectual Property Challenges; Academia

Introdution

Generative AI embraces the rise of innovations and transformation in academia, especially striking features like text generators, data lakes, and question snippets to recover relationships and patterns. The construction of billions of parameters in software processing

escalates the risk of infringement of intellectual property proliferated by the capabilities of writing essays and poems, mimicking and imitating human behaviour with diffusion models. However, with these advancements come significant challenges, particularly in copyright and intellectual property (IP). As generative AI content has a substantial and prevalent impact in the educational sector, many questions relate to inherent risks in managing generative AI content and new skills and capabilities to address the considerable thresholds associated with new driving features. McKinsey and Company, in a report, states the accelerating impact of AI and economic potential by contributing $15.7 trillion to GDP by 2030. The report noted that most stakes are from creative industries, media, entertainment, and design, with a high growth rate (CAGR) of 20-30 per cent in the coming years.

Another debatable discussion relates to copyright protection for AI-generated works. Centre for Strategic and International Studies (CSIS), in one of its reports, raised concerns about the ownership of generative AI content in relation to the "right to input and the rights to outputs". Section 17 of the copyright act foresters the concept of human authorship and ownership concerning intellectual property rights; section 17 of the copyright act specifically states only persons can be the author ('persons' includes individuals and entities like companies can be assigned copyright) that means the human-centric approach is prerequisite for a creation to be under copyrights preview nonetheless, Section 17 of the Copyright Act of 1957 also states that the author is the first owner of copyright work. In the case of Andersen V. Stability, AI is considered to set a precedent about copyright laws applicable to generative AI models without permission to train. The case focuses on various questions about how copyright law applies to AI technologies, whether the use of copyrighted works to train AI constitutes infringement, and whether AI-generated outputs violate the rights of the original creators.

Review of Literature

The academic community is urged to contemplate alluring perspectives of the intersection between AI-generated content, laws, and regulations and to explore the expanding scope of copyright protection in the AI world.

Grimmelmann (2020) explores various legal issues relating to authorship in AI and further finds the urgent need to strengthen the present framework for AI. Abbott (2018) explores the prospects of acknowledging authorship of artificial intelligence and AI algorithms within previewing copyright laws. McCarthy (2021) and Elkin-Koren and Gal (2022) investigate the legal consequences of copyright infringement to train AI without authorisation; the author also discusses the implacability of such publications under fair use and ethical issues in educational contexts. Both Bailey (2022) and Fischer (2021) highlighted the potential threats and risks of plagiarism and redundant publications in academic writings due to the application of AI tools for content generation. Do these inclusions raise concerns about abuse of technology, or can they ensure fairness in research outcomes and academic standards? Technological developments have encircled a diverse range of creators' rights in the intellectual property landscape. Khan and Vaishnav (2024) address the issues of the intersection of technology and law in the realm of IPR, including patents, copyrights, and trademarks. The author comprehensively analysed the global impact of the growth of AI and IP rights, especially criminal liability of AI-generated content, and highlighted the progressions and evaluation in various aspects, including ethical implications and legal reforms. The universal acceptance of AI has triggered an intense legal debate over the ownership of AI-generated content, with many countries addressing the issues regarding the legal entity of AI. Aziz (2023) advocates the copyright protection of AI-generated work based on originality output, novelty, and distinct from training data. The author argues that AI-generated content is not only reproduction but also assimilates unique creations based on a set of rules and patterns, a prerequisite to being eligible for copyright. The article recommends the urgent need for legislative changes to address ownership issues of AI-produced work. WIPO report (2022) highlights that policymakers should drive balance in innovations and IP protection while developing comprehensive policies; also, in various

WIPO conversations, WIPO mentioned the increasing growth and importance of AI with training data and high-power computing in intellectual creations. The literature on generative AI in academia highlights the evolving landscape of IA and the revolving significant issues and challenges related to copyright and intellectual property.

While discussing the ambiguity among legal provisions in the current copyright laws, Kumar and Dhingra (2025) argue that the use of copyrighted content to train Generative Artificial Intelligence models have raised questions about ownership and rights, complicating the legal landscape for creators and developers of the contents. They further feel that the content generated by Artificial Intelligence shall blur the lights of the creativity of the human resources, which will contradict with the legal provisions of exciting intellectual property laws. Hanif et.al (2025) submit their concerns about the academic integrity and plagiarism, may arise due to use of generative Artificial Intelligence.

Objective of the Study

The rise of generative AI in academia has sparked debate on copyright and intellectual property (IP) rights. As AI technologies become increasingly capable of generating text, images, music, and other creative content, several challenges and considerations have emerged.

1. To analyse the legal ramifications of authorship and ownership of AI-generated content within the academic context.
2. To analyse the Challenges in Determining Ownership of AI-produced Content.
3. To explore copyright infringement and fair use implications for AI-generated works
4. To explore the ethical challenges associated with the use of generative AI in academia.
5. This paper highlights areas where further research is needed to understand the long-term impact of generative AI on academia, particularly legal, ethical, and Policy developments.

Research Methodology

A questionnaire was designed to gather detailed perspectives on the management and perception of generative AI in academia, particularly regarding copyright and intellectual property challenges, among LLB, LLM, and PhD students at National Law University, Delhi with a sample size of 200, approximately 80 percent of the students responded to the survey. The study employed various evaluative techniques, including percentage analysis, cross-tabulation, and other statistical methods, to interpret the data and derive meaningful conclusions.

The Legal Landscape: Challenges and Interpretations

Traditional Copyright Law

Copyright law has historically been based on the premise that the creator of a work is a human being who invests creativity, labour, and originality into producing something new. This framework grants the author exclusive rights to control and benefit from their creation. However, AI-generated works do not aptly fit into this paradigm. When an AI system produces a novel piece of art, writes a poem, or composes music with little human intervention, the question arises: "Can AI be considered an author, or should the rights belong to the human who owns or operates the AI?" Yet the answer is complex and depends on legal, ethical, and

philosophical considerations. Legally, most jurisdictions currently do not recognise AI as an author. Copyright law traditionally attributes authorship to human creators, meaning that the rights typically belong to the person or entity that controls and directs the AI's output, often the human operator or owner (Grimmelmann, 2020). However, debates continue to find a clear view and correct perspective on the proper ownership of AI scholarships and the role of the humans behind the machine, which could be resolved by implementing clear laws and regulations. (Aggarwal and Sircar, 2022)

Jurisdictional Approaches

Different jurisdictions have taken varied stances on the issue of AI authorship. The U.S. Copyright Office registers only those works that are original and created by human beings; it explicitly states that copyright protection is provided to those created by human authors, which means human intervention is an essential criterion to be registered and protected under U.S. copyright laws. In the European Union, the notion of authorship is not mentioned in EU legislation or the Court of Justice of the European Union (CJEU). The idea of "authorial creativity" clearly focuses on human involvement in European copyright law, which states that AI-generated without significant human input is not recognised under copyright protection. Conversely, the UK Copyright, Designs, and Patents Act of 1988 (CDPA) states that computer-created artistic work can be protected under copyright. The UK laws separate the notion of authorship and creativity, where section 179 of CDPA states that in computer-generated work, the author makes necessary arrangements to create the work so the copyright is automatically provided. That indicates the human or person providing initial inputs is considered the work's author. These differing approaches highlight the lack of a global consensus on AI-generated works, leading to potential conflicts in international intellectual property management.

Table-1: Comparative Global Approaches on AI Generative Work

Jurisdiction	AI as Author	Human Intervention Required	Ownership of AI-Generated Works	Copyright Protection
United States	AI cannot be the author; human authorship is required.	Human input is required to qualify for copyright.	Copyright belongs to human creators who significantly contribute.	Pure AI-generated works are not protected under copyright law (e.g., U.S. Copyright Office guidance).
European Union	AI is not recognised as an author.	Substantial human involvement is required.	Ownership vasts in the human creator or entities involved in AI's output.	Copyright applies only to human-generated works.
United Kingdom	AI cannot be the author, but the person arranging the work may own it.	Requires minimal human involvement to claim ownership.	Copyright belongs to the individual who sets the AI process in motion.	Copyright is granted to the user/operator who arranges the AI process.

Australia	AI is not an author under copyright law.	Human input is necessary for copyright.	The copyright holder is the human who guided the AI.	Copyright protection extends to works with sufficient human contribution.
China	AI cannot be the author, but courts may protect some AI-generated works.	A human role is essential for legal protection.	Ownership is generally granted to the human or organization using AI.	Courts have granted limited protection to AI-assisted works.
Japan	AI is not recognised as an author.	Human input is mandatory to claim authorship.	Rights are vested in the human developer/operator of the AI.	AI-generated works with significant human input may be protected.
India	AI cannot be the author; human creativity is required.	Significant human intervention is essential for copyright.	The person using AI or making final creative decisions holds the copyright.	AI-generated content without human intervention may not qualify for copyright.

Table 1 visualises a comparison of copyright laws based on the several parameters. None of the copyright laws of various jurisdiction now considers AI as an author.

Ownership of AI-Generated Works

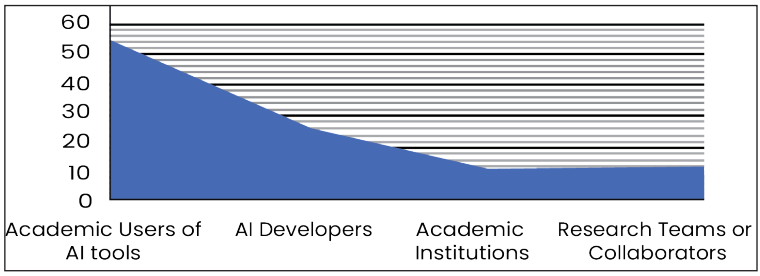
One of the most pressing questions, "Who owns the rights to content generated by AI?" is haunting the halls of academia. Traditionally, copyright is granted to human creators. However, with AI, the role of the human is restricted to a facilitator or operator rather than a direct creator. Determining whether the creator, the AI, or the institution that owns the AI has the rights to the generated content is complex. Legal frameworks are still evolving to address these scenarios. However, artificial intelligence's rapid advancement has dramatically altered various industries, including art, literature, music, and software development. AI's ability to autonomously generate content that mimics or even surpasses human creativity has sparked significant debate over the ownership of such works. Traditional copyright laws designed for human authorship are increasingly challenged by AI-generated content, raising complex legal and ethical questions about whom, if anyone, should own the rights to these creations. Over the past five years, the U.S. Copyright Office has seen a 15 per cent rise in inquiries and disputes related to AI-generated works. This trend highlights the legal uncertainties surrounding authorship and ownership of AI-created content. As of 2023, only a handful of countries, such as the United Kingdom and Japan, have introduced specific legal frameworks addressing the ownership of AI-generated works. However, 72 per cent of intellectual property professionals expect that more countries will adopt such measures within the next five years as the need for

international harmonisation becomes more pressing to answer certain evolving aspects like ownership claims, legal precedents of AI-generated works, jurisdictional differences, contractual agreements between AI developers and users.

Perspective on the Allocation of Ownership Rights

To explore respondents' perspectives on the appropriate allocation of ownership rights, a question was asked: "How should ownership of AI-generated content be attributed among various stakeholders in academic research?" Figure 1 illustrates how ownership should be attributed in academic research according to respondents' opinions; the highest 55 percent was attributed to academic users of AI tools, reflecting the belief that those who directly use the AI should hold primary ownership. This is followed by AI developers' 25 percent, who received a significantly lower share of ownership. Academic institutions and research teams or collaborators were attributed equal percentages of 10 percent each, indicating a shared recognition of their roles in the research process

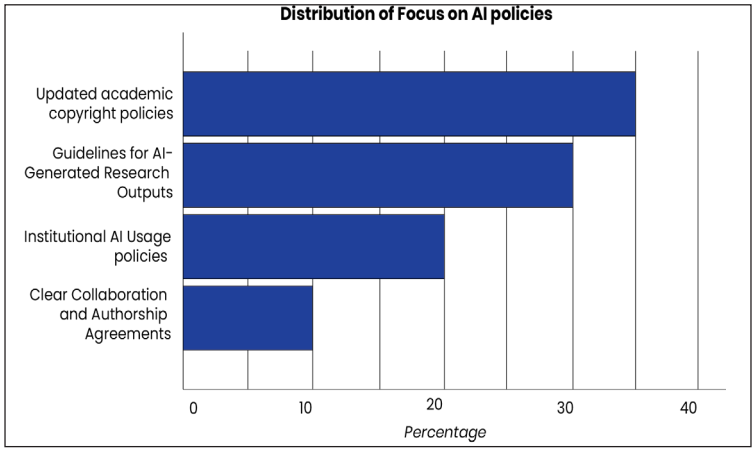
Figure-1: Perspectives on the Appropriate Allocation of Ownership Rights



Specific Academic Guidelines on ownership of AI-generated works

There has been increasing use of AI tools in academic research and content creation; another question was asked with the respondents about other dimensions of ownership: "What specific guidelines or policies do you believe are necessary to address the ownership and authorship of AI-generated works?" Figure 2 shows the distribution of focus areas related to guidelines on the use of AI in academia. As copyright policies are the foundation of assigning ownership of intellectual property, 35 per cent of respondents believe there is an urgent need for clear and updated guidelines for academic copyright policies concerning AI tools for universities, research institutions, and publishers. 30 per cent mentioned that there is utmost need to adhere to standardised guidelines addressing how AI-generated research output may be treated under intellectual property to clarify the ownership under which category AI has the right to act as author or co-author. 20 per cent mentioned that institutions should mention AI usage policies to clarify ownership retention over AI-research-assisted output. 10 per cent suggested apparent collaboration and authorship, especially in collaborative projects, to define how ownership and authorship shall be credited to handle ownership disputes if they arise. These percentages represent the relative emphasis or importance given to each area in the context of academic and AI-related policy development.

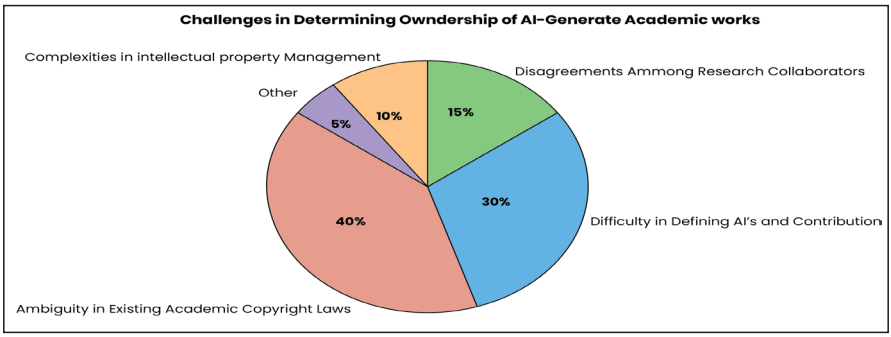
Figure-2: Distribution of focus areas related to guidelines on the use of AI in academia



Challenges in Determining Ownership

Researchers often face significant challenges when defining the specific contributions made by AI, mainly when AI assists with tasks like data analysis, literature review, or content creation. A common difficulty is determining how much credit should be given to the researcher versus the AI. In the survey, students were asked about the challenges they face or anticipate in assessing the ownership of AI-generated academic papers, which revealed the following insights: 40 per cent of students acknowledged the ambiguity in existing academic copyright laws as their most significant challenge. 30 per cent of students highlighted the difficulty in defining AI's role and contribution as an essential concern. 15 per cent of students reported disagreements among research collaborators when determining the ownership of AI-generated academic works. 10 per cent of students mentioned the complexities of intellectual property management as a key issue. This data underscores the growing need for clear guidelines and legal frameworks to address the complexities surrounding AI's role in academic work.

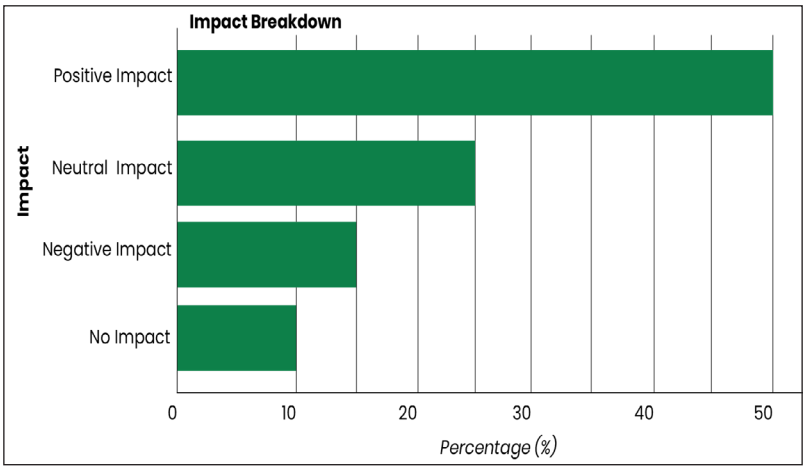
Figure-3: Challenges in Determining Ownership of AI-Generated Academic Works



Future Impact of AI on Ownership Rights

The future impact of AI on ownership rights is expected to be profound, particularly in intellectual property (IP) and content development. Students were asked *whether advancements in AI technology will impact ownership rights in academic research*. 50 percent of students reported a good influence, 25 percent a neutral impact, 15 percent a negative impact, and 10 percent no impact.

Figure- 4: Future Impact of AI on Ownership Rights



Copyright Infringement and Fair Use Implications for AI-Generated Works

The prevalence of generative AI content in academia pushes toward a new set of infringements and issues about ownership, authorship, and fair use under copyright laws. Machine learning algorithms generate new content based on patterns and relationships in extensive data sets inspired or similar to existing data. These algorithms do not possess any content-creating intent but result from complex mathematical models. These raise new debates on legal adjustment and acknowledging AI as co-authorship where the contributors are both AI and human for a single work (Vishnu, 2024).

Copyright Infringement in the Context of AI

Copyright infringement deals with using copyrighted works without authorisation and permission. The protection subsets literature, music, and software. Copyright exclusively provides the right to distribute, reproduce, perform, and display copyright-protected work.

Aspect	Description
Reproduction	Copying or reproducing the work in any form.
Distribution	Selling or distributing copies of the work.
Performance	Performing the work publicly, such as in music or theatre.
Display	Showing the work publicly, such as in visual arts.

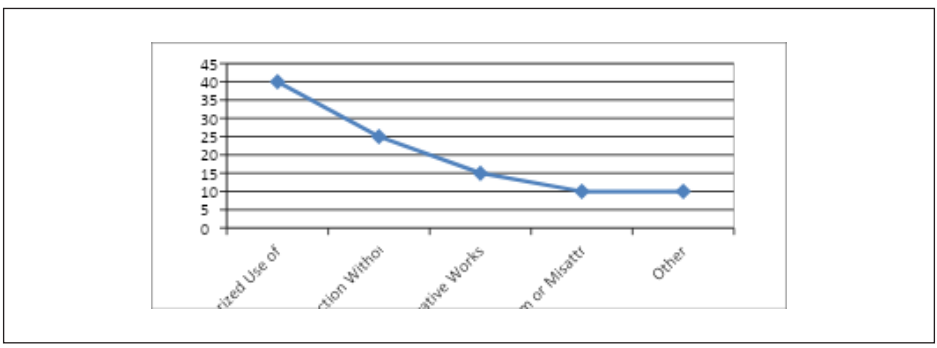
AI systems often use existing works as training data to generate new content, and AI models may be trained on large datasets that include copyrighted works. If the AI system's output closely resembles the original works, it may lead to infringement claims. If an AI generates content similar to or derivative of a copyrighted work, the original copyright holder may argue that the AI's output infringes on their rights. In Authors Guild v. Google, Inc., the court ruled that Google's project to digitise books and make them searchable did not infringe on copyright because it was considered transformative fair

use. Although not directly related to AI, this case is relevant for understanding how derivative use of copyrighted works is assessed. The case, Thaler v. Vidal, involved discussions on whether the AI's output could be considered a copyrightable work and who would hold the rights.

Types of Copyright Infringement Concerns

Several copyright infringement concerns include Reproduction Infringement, Distribution Infringement, Public Performance Infringement, Derivative Work Infringement, Public Display Infringement, Software Piracy, Internet Copyright Infringement, and Plagiarism. The question is, "Which is most concerned with the type of copyright infringement about AI-generated works?" Line chart 1 explains the largest category, 40 percent, indicating that most copyright issues are due to using copyrighted material without proper authorisation. This can include using text, images, videos, or other media without obtaining the copyright holder's permission, where, in 25 per cent of instances, copyrighted material is copied or reproduced without the original creator's consent. It's a significant concern, as reproducing someone else's work can lead to copyright violations if the work is used for commercial or personal purposes without permission. 15 per cent shows that a notable portion of copyright issues involve works that modify or build upon existing works, often without proper authorisation. 10 per cent represents plagiarism or misattribution of data.

Figure-5: Types of Copyright Infringement Concerns



Challenges in Managing Copyright and Fair Use

AI can produce a wide range of content, including text, images, and music. The originality of AI-generated content and the determination of copyright ownership will become more complex, challenging traditional concepts of authorship and rights (Ginsburg, 2023). Moreover, current copyright laws are primarily designed for human creators. New legal definitions and frameworks may be required to address ownership issues related to AI-created works (Bently and Sherman, 2022). The students were asked, "How do you foresee the evolution of AI technology impacting copyright and fair use issues in the future?" Ambiguity in copyright laws accounts for 40 percent, whereas 30 percent found difficulty in fair use determination, 18 percent of students mentioned the high complexity of AI's contribution to copyrighted work, and 12 percent stated dispute issues over content rights.

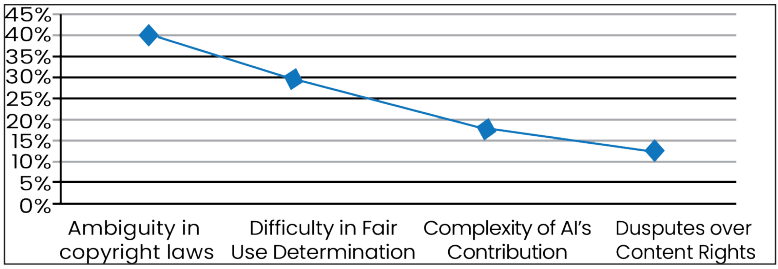


Figure-6: AI technology impacting copyright and fair use issues

Recommendation of the Study

The rise of generative AI in academia has created exciting possibilities, but it also brings challenges around copyright and intellectual property (IP). As AI evolves, future developments must address these complexities to ensure the ethical and legal use of AI-generated content in academic settings. Some recommendations for navigating these challenges are discussed hereunder.

Reforming Copyright Laws

Current copyright laws are often ambiguous regarding AI-generated works. Legal reforms must clearly define guidelines on authorship and ownership of AI-created content. New forms of protection specific to AI-generated outputs that differ from traditional human-created works must be introduced.

Redefining Fair Use

AI-generated content raises questions about fair use, particularly regarding how much human involvement qualifies as original authorship. Clarifying and establishing clear criteria for when AI-generated works qualify under fair use, particularly in education and research contexts, is required. Developing licensing models tailored for AI-produced content, ensuring that creators, AI developers, and users are pretty compensated.

Ownership of AI-Generated Content

The AI used to generate academic content is in high demand and is raising high discourse on intellectual property ownership. The legal framework could be instrumented to have a balanced approach towards human and machine-generated content to recognise the potential of AI in academia.

Ethical and Institutional Policies of AI

AI generates a massive amount of academic content, which poses unique challenges to academia. It is essential to balance innovation and academic integrity; this leads to adopting and creating new ethical standard guidelines to account for academic integrity and evaluate AI-generated research's ethical and legal implications.

Conclusion

Generative AI has profoundly impacted global education as technologies are integral to research and academic content creation. A recent survey (Educause, 2023) found that 83 percent of users stated that, remarkably, higher education within three to five years could be changed by generative AI. The legislative foundation of copyright protection is significantly disrupted by the emergence of AI, which is human authorship. This raises massive confusion about the involvement of human assistance and its significant impact on creative

processes and AI-generated works. Many countries are proactively working towards amending their statutes to accommodate AI-generated content as human interventions (Gaffar and Albarashdi, 2024). There is an urgent need to foster comprehensive policies harmonizing the multifaceted approach to AI, integrating legal and ethical considerations, and ensuring that all benefits of AI are harnessed while protecting intellectual property rights. Proactively addressing these challenges will embrace AI's proposed opportunities while safeguarding all stockholders' rights.

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