

A Study of Analyzing the Challenges and Prospects of Artificial Intelligence Development and its Impact on Copyright Law in the Digital Age

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Abstract

Artificial Intelligence (AI) advancements stir the copyright world, especially when only people are considered creative enough for copyright. This study looks at how AI impacts copyright law - positive and negative. As AI gets better at making original work, knowing who owns it or created it gets tricky. Assigning copyright to AI made work creates big roadblocks and affects artists, content users, and copyright owners. Furthermore, the idea of 'human creativity', a basic in copyright law, may need to change. While there are hurdles, there are also pluses. AI could help in copyright law by creating systems that properly identify and give permission for content use. This paper looks at the mix of AI and copyright law, ending with suggestions for policymakers, lawmakers, and legal pros to wade through changing copyright rules in our fast paced world.

Keyword : Artificial Intelligence, Copyright, Intellectual Property Rights, Challenges, Digital age

1. Introduction

In the dynamic and ever-changing digital environment, copyright has experienced substantial changes. In the digital era, it is essential to comprehend the difficulties and opportunities that occur as technology influences how to create, distribute, and consume content. Copyright, a legal system providing authors exclusive rights, is crucial in safeguarding their creative creations. This article examines the complexities of copyright in the digital era, investigating the difficulties encountered, the influence of digital rights management (DRM), the role of technology including Artificial Intelligence (AI) in safeguarding copyright, and the possibilities for educating others.

The rapid advancements in technology and digital communication that characterize the contemporary era have presented notable challenges and opportunities in copyright law. Digital platforms have revolutionized creating, sharing, and consuming intellectual content. As a result, businesses and copyright

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holders must constantly adapt to avoid the dangers of infringement and ensure compliance with ever-changing legislation.

The widespread adoption of AI in content generation has introduced new and unique difficulties for copyright legislation [1][2]. Copyright law has historically been based on safeguarding human creativity and giving writers rights for their unique creations [2]. AI has become a significant game-changer in the tech field, expanding at an unprecedented pace globally. This special development has opened doors for plenty of applications, dramatically changing our engagement with technology and our surroundings [3]. Artificial intelligence, as a non-human entity, threatens this paradigm. Certain legal systems, such as that of the United States, do not acknowledge the authorship of non-human entities, resulting in a legal ambiguity for works created by artificial intelligence [4]. In contrast, countries such as the UK have regulations in place for computer-generated works, where the human ‘operator’ is recognized as the creator [5].

Digital technology is growing rapidly, and AI is no exception. AI can make new, really unique things [6]. AI originated from human smart thinking, but now AI can make completely new things on its own. It is like having a virtual artist who can be as good as human artists [7]. There is a big question about who should get money and credit for what AI makes.

Currently, the legal framework in most countries affirms that only people can create and own copyrights. However, AI can make things, too, which puzzles legal experts [8]. They ask, “What rules apply when robots use someone else's work to make something new?” That “some-one else” could be another person or even another AI. The World Intellectual Property Organization, or WIPO, is trying to figure that out. Countries in WIPO want to manage intellectual property protection related to AI and its evolution [9].

Creating a new law that controls AI and copyright means thinking about a few things. It is necessary to protect the rights of writers, recognize the importance of AI progress, and encourage the growth of AI technology that helps society improve. This could mean making flexible rules that change as AI technology gets better. That way, it can be done to balance protecting ideas with promoting their progress.

This demand also proposes the need for legal protections for AI developers. These safeguards would come into play when someone else misuses another's AI technology to craft artistic pieces and pretends to own the rights. Such fraudulent behaviors could lead to significant financial loss and emotional distress for the original AI creator.

2. Literature Review

Artificial intelligence, sometimes known as AI, functions by combining large-scale data sets, fast and iterative processing, and intelligent algorithms. This integration allows the software to independently absorb knowledge from observable patterns or unique features found in the data [10].

AI is a broad field of study that encompasses several theories, approaches, and technologies, as well as numerous major subfields:

- 1) Machine learning automates the creation of analytical models. Artificial intelligence employs neural network algorithms, statistical analysis, operations research, and physics principles to uncover concealed insights within data without explicit instructions or assumptions.
- 2) A neural network is a form of machine learning with interconnected units that exchange information by responding to external data and transmitting information between units. This procedure requires several data inputs to identify connections and derive meaning from data that lacks explicit significance.
- 3) Natural language processing (NLP) refers to the ability of a machine to comprehend and communicate in human language. The subsequent stage in natural language processing (NLP) is natural language interaction, enabling individuals to do tasks with computers using ordinary, everyday language.

2.1 Background of Copyright Law

The notion of copyright originated throughout the 18th century. The British Statute of Anne is widely acknowledged as the inaugural copyright law primarily emphasizing author rights. It bestows writers with exclusive rights to their works for a finite duration, after which they become part of the public domain [11].

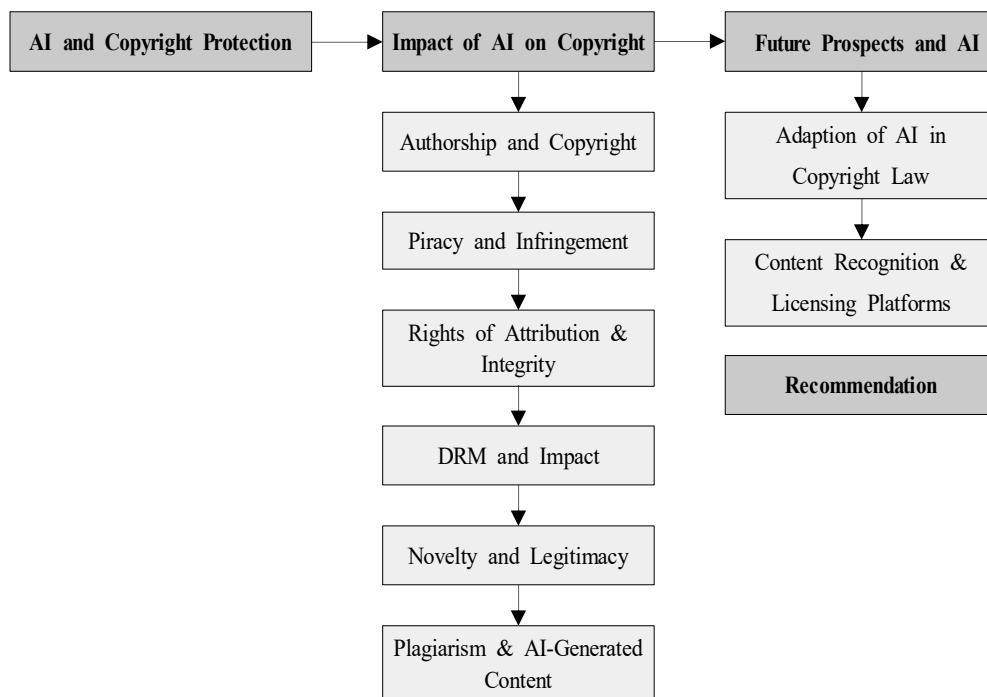
The three principles of the Statute of Anne (1710) became fundamental.

1. Copyright safeguards the manifestation of concepts rather than the concepts themselves.
2. Copyright has a limited duration. This equilibrium guarantees that authors are motivated to create while allowing society to benefit from the unrestricted use of works after their legal protection expires.
3. Copyright holders own exclusive rights, such as reproducing, distributing, and adapting their works.

The Digital Millennium Copyright Act of 1998 (DMCA) in the United States was enacted to tackle the issues arising from the internet, particularly concerning the copying and dissemination of digital content. Despite its development, the fundamental purpose of copyright remains unchanged: to achieve a balance between providing incentives for creators and encouraging public access and innovation.

3. Methodology

This research used a standard legal approach to explore its goals and address the raised issues. The chosen method was very useful for unearthing key findings that match our study's focus and aims. This legal research typically involves an orderly review of library resources or secondary data via legal library exploration. This study aimed to gain theories, concepts, legal rules, and laws relevant to the topic. This research assists in molding legal principles. It guides the understanding of laws and rules. Additionally, it can uncover hidden or obvious legal ideas, as previously discussed.



[Table 1] Research framework

4. Results and Discussion

Copyright holders now need help in the digital age. One of the main obstacles is the ease of duplicating and distributing digital content without the creator's consent. Unlicensed copies of films, music, literature, and other artistic creations are freely exchanged on the Internet, leading to widespread copyright infringement. Another obstacle is the complexity of recognizing and monitoring violations. Given the immense number of users and the constant influx of content, effectively monitoring and enforcing copyright protection is an enormous undertaking. This has resulted in a perpetual battle between copyright holders and infringers, characterized by the emergence of new techniques and AI on both sides.

4.1 AI and Copyright Protection

The emergence of AI has resulted in profound alterations in the copyright landscape. Historically, copyright was bestowed upon the man or programmer responsible for creating the initial work [12]. Nevertheless, as AI capabilities progress, people face the intricate issue of determining the rightful copyright owner of works generated by machines with human-like intelligence. When AI computers can produce unique creations without human input, there is a discussion on whether copyright should be awarded to the programmers who developed the AI or to the machines themselves [13]. The ongoing discussions and rules about copyright protection in the context of AI continue to be a significant aspect of governing intellectual property in the digital era [14].

The concept of copyright is based on the principle that creators require recognition to derive financial benefits from their endeavours, which ultimately contribute to the betterment of society. Regarding the dual aspects of copyright, which encompass moral rights and economic rights, the create asserts that addressing this matter is not pressing as artificial intelligence does not require these elements for its existence [15]. Currently, AI generates a piece of work. In that case, it does not qualify as a creation that may be legally protected under Copyright Law, and AI is not recognized as the work's creator. Nevertheless, users may still be subject to a contractual agreement with the platform manager, which could limit their ability to use AI-generated works. Users may also have certain obligations they must fulfill towards the platform manager.

4.2 The impact of AI on Copyright

Integrating AI into the creative domain presents significant challenges for contemporary copyright law, based on the premise that copyright protection is only granted to human artists. The issue of authorship and the extent to which copyright applies to AI-generated content gets more intricate when AI can create works without direct human involvement [16]. Moreover, the effortless ability of AI to replicate and combine content on a large scale poses significant challenges for law enforcement, potentially necessitating a reevaluation of fair use and the scope of derivative works. An additional concern arises from the need for more consistency among jurisdictions, stemming from the possibility of distinct governments implementing varying regulations for AI and copyright.

The advancement of AI also affects copyright infringement, intellectual property rights violations, and personal data leakage. Hence, it is anticipated that the government will establish stringent regulations to safeguard and enforce the law against infringements related to the utilization of artificial intelligence. Amendments to statutory laws and legal interpretations will accomplish this. These are the primary effects that advancements in AI will have on this field:

4.2.1 Authorship and Copyright

The issue of attributing authorship to works generated by artificial intelligence is a highly intricate facet of how AI advancements affect copyright. Most existing copyright laws worldwide continue to operate under the assumption that creators are human individuals who possess the capacity for creativity and exercise personal agency in creating their works. Nevertheless, given AI's capacity to generate original creations without direct human involvement, it becomes imperative to broaden the scope of authorship and copyright ownership. The central inquiry pertains to whether AI programmers who create the algorithms and AI models responsible for generating works possess copyright ownership over these works. Conversely, can AI be regarded as a copyrightable entity? This intricate legal matter necessitates profound contemplation regarding copyright ownership in autonomous technologies like AI.

4.2.2 Piracy and Copyright Infringement in the Digital Era

The rapid generation of copies and alterations of existing works by AI has significantly amplified the risk of copyright infringement. In addition, AI can rapidly alter content, which presents additional difficulties in identifying and resolving cases of copyright violation.

The need to accurately and promptly identify instances of copyright infringement is becoming more pressing at a time when works may be readily uploaded, replicated, and disseminated through the internet. When confronted with these issues, it is crucial to have innovative techniques for monitoring

and enforcing copyright. A significant emphasis has been placed on the advancement of monitoring equipment that can promptly and precisely detect copyright infringements solely via artificial intelligence techniques. Furthermore, it is crucial to establish cooperation among copyright holders, internet service providers, and the government to guarantee efficient law enforcement.

In order to address copyright infringement, copyright holders frequently employ legal measures, such as issuing cease and desist letters or initiating legal proceedings. Nevertheless, this strategy may not always yield the desired results due to its potential for requiring excessive time, incurring high costs, and encountering challenges in implementation across different countries. Moreover, the internet's anonymity poses a significant obstacle in identifying the culprits behind copyright infringement, hence adding complexity to the pursuit of legal recourse.

4.2.3 Rights of Attribution and Integrity

Concerns occur when AI applications are utilized in ways that may contradict the values or objectives of the humans responsible for creating or utilizing the AI. One instance of this is when artificial intelligence is employed to disseminate misinformation or tarnish the reputation of a person or a collective. It is crucial to contemplate the ethical limitations of employing AI and the role of humans in overseeing and assuming accountability for AI operations. Several potential strategies under consideration including restricting the use of AI to only those goals that align with ethical standards, formulating explicit ethical guidelines for the utilization of AI, or granting AI owners enhanced authority over the actions of their AI systems. Furthermore, it is crucial to establish a comprehensive legal framework that considers these ethical concerns during the ongoing advancement of AI technology.

4.2.4 Novelty and Legitimacy

An AI-generated work possesses the semblance of the original; however, its basis frequently stems from pre-existing human-created works. This gives rise to apprehensions over the authenticity of the AI's work, questioning if it is genuinely 'original' or a sophisticated derivative. Likewise, human designers frequently imbue their creations with purpose, sentiment, and cultural significance. Artificial intelligence needs to include these unique human characteristics, raising issues about the depth and authenticity of its original creations. Legal systems are now debating whether such content can meet the criteria for copyright protection [17].

4.2.5 Plagiarism and AI- generated Content

Plagiarism and creating content by AI pose complex issues. AI can generate distinct outputs, which

frequently arise from patterns in the training data. The distinction between inspiration and plagiarism becomes unclear. In addition, conventional plagiarism detection technologies may encounter difficulties when dealing with AI-generated content, particularly if they skillfully modify or rearrange old works innovatively. AI writing helpers pose a potential danger of excessive dependence on AI ideas, resulting in standardized content and the erosion of the distinction between authorship and creative thinking [18].

4.3 The Future prospects and AI

The future of AI in copyright protection is characterized by significant and revolutionary progress. State-of-the-art artificial intelligence algorithms are currently being created to autonomously identify and highlight instances of copyright violations in a wide range of media formats, including written content, music, and videos, with unparalleled accuracy.

These systems can examine large data sets to detect content duplication, derivative works, and unlawful sharing. Moreover, AI-powered solutions will assist in optimizing the copyright registration and monitoring procedure, guaranteeing that authors can effortlessly safeguard their intellectual property. The utilization of AI in enforcing copyright laws can greatly discourage piracy and preserve the rights of content providers on a worldwide scale. Here are a few emerging viewpoints on AI tools.

4.3.1 Adaptions of AI in Copyright Law

The advancement of AI has prompted legal experts, policymakers, and practitioners to examine its impact on copyright law closely. The primary shift has been to recognize the function of AI as a tool in the creative process rather than considering it as a separate and autonomous creator. Many legal systems are adapting copyright laws to address the use of artificial intelligence in creative endeavors. One approach is to consider the extent of human input as a determining factor for granting copyright protection [19].

4.3.2 Content Recognition and Licensing Platforms

Artificial intelligence can optimize and simplify the licensing process. AI technologies can enable automatic licensing to ensure creators are remunerated for their labor when copyrighted content is identified. Utilizing AI in copyright recognition and licensing systems improves the effectiveness and precision of rights management, guaranteeing that authors receive acknowledgment and compensation for their work [20]. AI algorithms can examine market trends, user behavior, and material popularity to establish flexible license pricing. This approach aims to optimize revenue generation for creators and

licensors. AI-powered platforms can recommend material to potential licensees by analyzing their previous actions, interests, and market trends. This enables a more efficient process of discovering and acquiring content [21].

5. Recommendations

The swift advancement of AI has significant consequences for copyright law, requiring careful adjustments. Here are recommendations, ideas, and forthcoming guidelines for policymakers, legislators, and legal practitioners. It is necessary to allocate time to precisely establish the definitions of AI-related phrases, such as 'machine learning,' 'neural networks,' and 'algorithmic generation,' within copyright laws to remove any uncertainties.

1. **Reconceptualize the concept of originality:** Rethink the conventional standard of uniqueness. Acknowledge that AI-generated content, although derived from existing sources, can exhibit a unique and original kind of innovation.
2. **Implement guidelines for AI authorship:** Determine whether AI can possess copyrights or if the rights should be assigned to human operators, developers, or users. Propose establishing a distinct classification of rights exclusively for the products generated by artificial intelligence.
3. **Determining Copyright Duration:** Establish a specific duration for copyright protection for AI-generated content since no human author's lifespan can be used as a reference.
4. **Moral Rights Adaptation:** In legal systems that prioritize moral rights, modify these rights to suit the AI setting, recognizing the absence of emotion or intention in AI creations.
5. **Foster Global Cooperation:** In light of AI's widespread influence, advocate for worldwide collaborations to establish unified copyright rules and tackle issues related to AI-generated material.
6. **Invest in AI Copyright Tools:** Allocate resources towards developing AI-based copyright detection technologies to identify and address potential copyright violations, including those arising from AI-generated content.
7. **Education & Training:** It is imperative to provide legal practitioners with knowledge and understanding of the capabilities and ramifications of AI. Regular workshops, courses, and seminars can help individuals stay informed and up-to-date.
8. **Moral Considerations:** Besides legalities, it is important to contemplate the ethical ramifications of AI in copyright situations. Ensure that regulations uphold principles of equity, clarity, and

reverence for creators.

9. **Online Surveillance:** Continuously monitor the internet for any instances of unauthorized utilization of your copyrighted material and promptly take action to uphold your rights and eliminate infringing content.
10. **Copyright Registration:** In many jurisdictions, such as the United States, registering copyright with a national body offers further benefits, such as the ability to claim statutory damages and attorneys' fees in legal disputes.
11. **Utilize Digital watermarking** and encryption technologies to safeguard your copyrighted materials and discourage unauthorized reproduction or dissemination.
12. **Collaborate with Legal Experts:** Establish a close working relationship with seasoned intellectual property solicitors, such as Lawdit ® Solicitors, who can offer customized guidance and assistance to assist your business in navigating the intricate landscape of copyright law in the digital era.

As AI continues transforming the creative field, adopting a proactive, well-informed, and collaborative approach to copyright legislation is crucial. Ensuring a happy cohabitation of AI and copyright in the digital age would need a careful balance between fostering innovation and safeguarding intellectual property rights.

6. Conclusions

The rapid increase of AI has significantly impacted the traditional realm of copyright law, prompting a critical reassessment of its fundamental concepts. This study has examined the complex relationship between AI and copyright, investigating the difficulties and advantages that arise in this changing environment. AI-generated content raises issues with ownership, creativity, and the concept of creation.

The current legal system is struggling to keep up with the rapid advancements in AI, but there is a clear way to progress. To fully utilize AI, it should be seen as a valuable addition to an artist's resources, rather than a threat to human creativity. Collaboration among politicians, legal experts, and AI developers is crucial for achieving happy cohabitation. They can collaborate to create precise and flexible copyright guidelines that promote innovation while protecting intellectual property rights.

This investigation has produced significant insights that lighten the future of AI and copyright. We need to surpass the conventional concept of creativity. Though influenced by prior works, AI-generated content might display a distinct and original quality that merits independent acknowledgment. The issue

of authorship in AI requires a clear and final resolution. Should artificial intelligence be recognized as a copyright holder, or should copyright be given to human programmers, users, or a combination of both? Creating a new set of rights explicitly designed for AI-generated works could be feasible.

Thirdly, legal systems that prioritize moral rights need to be modified to accommodate the lack of emotions or intentions in AI creations. The global scope of AI requires a cohesive copyright strategy. Collaborative endeavours are essential to developing uniform regulations and addressing the challenges of AI-generated content internationally. Utilizing AI-powered copyright detection systems is crucial for detecting and resolving infringements, particularly those originating from AI-generated content [22].

By adopting these suggestions and promoting a culture of invention and collaboration, it can be guaranteed that AI and copyright law can coexist and benefit each other. This will enable AI to become a potent instrument for creative expression to ensure the protection of creators' rights and promote a robust digital environment conducive to human and machine innovation growth.

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