ARTIFICIAL INTELLIGENCE AND COPYRIGHT LAW: A COMPARATIVE ANALYSIS OF AUTHORSHIP, OWNERSHIP, AND PROTECTION IN THE DIGITAL AGE

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ABSTRACT

The advent of artificial intelligence as a creative industry has essentially challenged the normative rules of copyright across the world. This paper explores the legal implications of AIcreated works in different countries around the world, assessing the way different jurisdictions deal with critical challenges of authorship, ownership, and copyrightability. The paper looks at the different approaches taken by the United States, European Union and Asian jurisdictions and identifies significant differences in how legal regimes balance innovation incentives and the old copyright rules. Issues examined about this area of critical concern include the need to have a human author, the conferral of ownership, the inclusion of copyrighted material into AItraining datasets, the policy implications of creative industries in general. The study shows that there is no jurisdiction that has fully achieved the solution to these problems and the lack of international harmonisation creates great legal uncertainty in the digital age. It is found that the future copyright systems must go beyond anthropocentric and do not compromise the necessary incentive that the copyright law was designed to protect.

Keywords: Artificial Intelligence, Copyright Law, AI-Generated Works, Intellectual Property, Authorship, Ownership Rights, Global Copyright Policy, Training Data, Human Authorship Requirement, Legal Harmonization.

Introduction

The clash of artificial intelligence and copyright law is a major challenge to legal systems in the twenty first century. The copyright law has been founded on the institutions of millennia that creative works are the product of human hands and that the intellectual work of their creators deserves the protection of the law. Machines have now posed a titanic threat to this anthropocentric paradigm, which is capable of generating creative work with minimal or no human intervention.

The last decade has experienced extraordinary development of AI capabilities, particularly in the generative AI systems, which are able to create artwork, music, literature and literature and other types of the expression traditionally associated with human creativity. The abilities of systems such as GPT-4, DALL-E, Midjourney, and Stable Diffusion often create outputs that cannot be readily differentiated between those that were created by people. The technology revolution has transformed the debate of AI and copyright between conceptual hypotheses and acute need.

The consequences of this outweigh the academic interest. The creative industries contribute trillions of dollars to the global economy and put hundreds of millions of people in the world into employment. The copyright law reaction to AI produced content will have a profound effect on AI creation investment, the future of creative careers, the future availability of creative technologies, and eventually determine the balance between innovation and security in the digital age.

The present paper evaluates the legal contexts applicable to AI-generated works in different countries, with a particular focus on the United States, the European Union and some Asian countries. The analysis explores some of the most critical questions: Could the works created through artificial intelligence receive a copyright protection? Who ought to be the owners of such works? How should the copyright laws govern the use of copyrighted material in the training of artificial intelligence systems? What are the policy considerations that should be applied to create copyright frameworks?

Traditional Copyright Framework: Foundations Under Pressure

To get an insight into the problems brought about by the AI-generated works, one should first

identify the primary principles of copyright law. Global copyright regimes, despite differences in jurisdiction, share basic characteristics which reflect common purposes and ideological goals.

The copyright law grants creators the entitlement to control reproduction, distribution, adaptation and public performance of their creative works within a limited period of time. The common law jurisdictions view copyright primarily as a form of economic incentive scheme to encourage creative work that benefits the society. The civil law regimes are more concerned with the personal aspect between the writers and their creations viewing copyright as a means of protecting the personality and moral rights of the writer in his or her expressions of creativity.

Despite these philosophical differences, almost all copyright systems have historically required that an author be a human being. The Berne Convention on the Protection of Literary and

Artistic Works on which the international copyright law is based, repeatedly mentions authors and their works, implicitly assuming the presence of human creators. This assumption runs through the copyright laws, and judicial interpretations of copyright laws around the world.

Another crucial principle of copyright that is associated with the requirement of a human authorship is originality. The works have to show a minimal measure of creativity or separate intellectual effort to be subject to protection. The originality requirement varies across the borders and it ranges between relatively low standards of independent activity and insufficient creativity to more demanding requirements of intellectual activity of the author that reflects his/her identity.

The copyright law has long been adapted to the changes of technology, as it was with the introduction of the printing press, photography, sound recording and digital reproduction. However, the threat of artificial intelligence presents a completely new challenge. Earlier technologies made human creative powers more productive but made no fundamental questions on the humanity of the inventor. However, AI systems have the capability to generate creative products on their own, which means that authorship is to be reconsidered.

The United States Approach: Human Authorship Required

The United States Copyright Office and the federal courts have made it very clear that copyright protection requires the authorship of a human being which has been reviewed and reiterated in

several high-profile cases of AI-generated works.

The canonical example that proves this point is to the "Creativity Machine," an artificial intelligence application by Stephen Thaler. Thaler tried to get copyright of a work titled "A Recent Entrance to Paradise" and listed the AI system as an author. The Copyright Office refused the application and explained that non-human authorship has never been recognized by the copyright law historically. Thaler appealed this decision to the federal court, claiming that the policy of Copyright Office contradicted the copyright act and constitutional principles.

The United States District Court upheld the decision of the Copyright Office and claimed that copyright required the input of humans in the creation, according to the existing precedent and interpretation of the legislation. The court considered this condition by analyzing the rulings of the Supreme Court, and the historical precedents, and concluded that the expansion of copyright to non-human producers requires special congressional actions. This decision was subsequently affirmed in a court of appeal and demonstrates the need of human creation of AIgenerated works.

The Copyright Office has made it clear through policy statements and guidelines on registering. The office separates between the work created by AI on its own and the one created by individuals using AI as a resource. Where a human writer uses AI technology to assist in the creative process, retaining the final creative control and making major creative decisions, the final work can be subject to copyright, but only those parts of it that rely on human creation.

This distinction is difficult to implement in practice. Has one taken sufficient creative control when he or she writes a detailed prompt to an AI image generator, selects parameters, edits outputs and makes subsequent edits? According to the Copyright Office, these conclusions depend on specific situations.

The US approach represents a conservative interpretation of the existing copyright law where consistency with existing norms is emphasized.

European Union Perspectives: Harmonization Amid Complexity

The European Union uses a multiplexing method of AI-generated works, which is shaped by harmonised EU copyright directive and the different national laws of EU member states. The copyright system of the EU has been designed to give more emphasis to the protection of the

rights of the authors and is most times more robust in the moral rights aspect compared to those found in the common law states.

The basic principle of the copyright law of EU is that the works that are being protected should be the intellectual production of the author which reflects his or her personality. Such a criterion is articulated in numerous decisions of the Court of Justice of European Union, and it points to the need of human creative decisions. The court has also made it clear that copyright protection is achieved when an author gets to show his or her creativity through independent and creative choices hence putting his or her original spirit into the piece. This type of methodology poses significant problems when it comes to recognizing copyright in the cases of the works created by the independent AI systems.

The copyright, Designs and Patents Act of 1988, which is a part of the copyright laws in the United Kingdom, specifically addresses computer-generated works and states that the author is the person who makes the necessary arrangements to give rise to the work.

The other EU states are generally not enforcing specific regulations related to the works created with the help of computers or even artificial intelligence. The German copyright legislation is more concerned with the personal intellectual creativity of the author, which makes it difficult to extend such protection to the AI-generated content that lacks human creative input. According to the copyright laws in France, a work must depict the personality of the author and therefore not protect solely AI-created works.

The European Commission has been occupied in assessing the implications of AI to copyright laws. The 2019 Copyright Directive addressed certain issues on text and data mining and provided exceptions on the application of scientific research and, in some cases, other purposes. However, such provisions do not adequately cover AI-generated works or address AI and authorship problems in general.

European approaches normally exhibit a strong commitment to the belief that copyright preserves human innovation and individuality. This intellectual background makes European regimes particularly hesitant to accept the copyrights of the works created by AI only. European jurisdictions accept the fact that people may use AI tools and maintain authorship provided that they are in sufficient control of creativity.

Asian Perspectives: Diverse Approaches to AI and Innovation

Asian states show a variety of approaches to the works created by AI, and they are often characterized by different stages of technological development, commercial demands, and legal traditions.

China emerged as a leading participant in the field of AI development and has proven to be a practical approach to the problem of copyright. The Chinese courts have already made several decisions regarding AI-generated content, which signifies the readiness to consider the protection of copyright under certain circumstances. The court claimed that a person who selected the model, gave the data, and helped to construct the work could be considered the author in case he/she showed enough creative contribution.

Such approach reflects the general goals of China in terms of encouraging AI development and keeping some relationships to the traditional norms of authorship. Chinese officials have claimed that even though AI-created works can qualify as a subject to protection, human input in the creative process must be recognisable. The standards of such participation are not as strict as some of the Western countries, which may be seen as an indication of Chinese aim to advance AI development and commercialisation.

Japan has approached AI and copyright with a certain degree of pragmatism in an effort to find middle ground between the need to foster innovation and the need to protect the rights of creators. The copyright law in Japan protects works that creatively express ideas or feelings, which was traditionally a criterion that required human work. The approach of Japan has been to establish the conditions, in which AI systems can be used as a tool against the situations, when they can be used as a creator. Moreover, Japan has introduced amendments to the copyright laws, which introduce exemptions on text and data mining, including to AI training, with some limitations to protect the rights of the right-owners.

Although India has a rapidly developing technology industry, it has yet to draw any clear legal precedents to AI-generated works. Indian copyright is based on the common law tradition in Britain and mostly requires that an author is human. The issue of AI authorship is yet to be properly covered by Indian courts with regards to the major cases, and legal scholars and politicians have already started debating the issues, realizing the growing importance of the issue.

The Ownership Puzzle and Training Data Controversy

Despite the understanding of copyright protection of AI-generated or AI-assisted works, the definition of ownership is a complex matter. The stakeholders might have legitimate interests, including the developer of the underlying system of the AI, the individual operating the system and providing prompts, and the provider of the training data used in the development of the AI system.

In the majority of cases, the authorities that have thought about this problem prefer to provide the ownership to natural persons, who exercised the creative influence on the development of the work. Such an approach does not eliminate the requirement that people write, but still acknowledges that people might use advanced technology tools. The use of this method in specific situations requires a complex evaluation of the level of creative input in a situation.

There is an added complexity of contractual agreements. The terms of service provided by AI service providers tend to include the ownership of the inputs and outputs of the services. Such contracts can either provide ownership of outputs to users, retain certain rights with the service provider or stipulate other arrangements. These contractual clauses may not be enforced or interpreted in a similar manner across jurisdictions.

The use of copyrighted materials in the AI systems training is a very controversial question. The present-day generative AI systems are typically trained on large datasets of millions of works, much of which falls under copyright protection. Creators of the content argue that their work is being duplicated and used without their permission and without payment. The developers of AI claim that such applications are considered an example of fair use or fair dealing, are beneficial to society and that they do not have any negative effect on the market of the original work.

There are many high profile cases that question these aspects which are currently underway in the United States. Authors, artists and computer programmers have filed class action against AI companies stating that using their work to train without permission should be regarded as copyright infringement. Such cases are related to AI that generates text, graphics, and code.

European policies on this issue have also provided such exceptions as text and data mining, and there have been ongoing debates over the scope of these exceptions. EU Copyright Directive includes the terms on text and data mining to scientific research, among other

purposes, although the right owners have a right to opt out. It is debatable whether these provisions are sufficient to be used in training AI.

Policy Considerations and Future Directions

The legal status of the AI generated works begs the fundamental policy questions of the purpose of copyright and its impact on society. Rewards on innovation should be carefully tuned. The copyright law has never been short of encouraging the creative productions through granting the exclusive rights which enable the creators to make some financial gains out of the production. Whether this argument can be applied to AI works is still a controversial topic.

Interests of human creators should be considered. Many artists, authors, musicians, and other artists consider AI as a potential threat to their careers. Provided that AI-created works receive copyright protection and can be replicated cheaply on a large scale, they will potentially replace human creations in the market. This is indeed of particular concern in business applications where the cost and efficiency factor may override the human element of innovation.

Availability of art work and involvement in cultural activities are important values. The potential advantage of AI systems is that they allow creative tools to be democratised, that is, to enable more people to express themselves creatively. This possible benefit depends on the availability of AI tools and the resources that are necessary to be used in their efficacy.

There should be transparency and disclosure. Are the works created by AI to be marked differently? Is there a need to establish requirements in terms of reporting on the training data used and degree of human involvement? These questions relate to the protection of consumers, authenticity, and decision making.

The policy decisions depend on international competitiveness and economic development. Nations are competing to be the leading ones in AI technologies, and the copyright policy is an element of the legal framework in general, affecting this competition. The policymakers will have to overcome the priorities of local creative sectors versus the need to advance AI and technological investment.

JUDICIAL AND LEGISLATIVE DEVLOPMENTS IN INDIA

So yet, India has mostly handled the copyright concerns of AI through official interpretation

instead than passing legislation. Although ideas like authorship and originality are still grounded in human imagination, the 1957 Copyright Act expressly disregards works produced by artificial intelligence. Courts have indirectly engaged with AI by using long-standing precedents since legislatures have stayed silent on the matter. According to Indian law, copyright protection is conditional on the existence of human authors. According to the 2008 Supreme Court ruling in Eastern Book Company vs. D.B. Modak, which implies that human cognition is essential for uniqueness, "a little creativity" is necessary. While AI wasn't the main focus here, it does highlight issues with protecting works made by conventional AI, particularly in cases when human involvement is low. The fact that the Indian Copyright Office has decided that AI systems cannot be acknowledged as co-authors in some cases shows how commonly believed it is that only people or legal entities can claim authorship. No new copyright or AIrelated laws have been passed in India as of yet. However, research on the national AI policy and NITI Aayog discussion papers show that the government is cognisant of the necessity to revise legislation governing AI. Expert committee discussions and parliamentary debates have also hinted at future developments by highlighting AI's expanding position in the creative sectors. To handle copyright-related matters until specific legislation is passed, India is expected to depend on judicial interpretations and international comparisons.

Conclusion

Artificial intelligence and copyright law collision is a great threat to the legal frameworks that were developed throughout the centuries on the premise of human authorship. This paper has examined how different jurisdictions treat the question of copyrightability of AI-generated works differently, pointing out that there are many gaps in the legal theory and underlying policy approaches.

The United States supports a firm standing in the principle of human authorship and refuses to grant copyrights to works that have been autonomously created by AI systems. The European Union also emphasizes the originality of humans and the distinctness of their authorship, which places considerable barriers in the path of the works created by AI alone. The methodologies of the Asian states vary, and China is more open, Japan is more pragmatic in balancing, and the framework of India remains in the process of development.

There is no jurisdiction that has come to a comprehensive and satisfactory resolution of the complexities that AI poses to the copyright law. The concerns have multiple layers, starting

with the basic matters of copyrightability and the right to the ownership, and the debates about the training data and policy-level matters to the issue of innovation encouragement and creative protection. Such a lack of a harmonisation on the international level creates legal uncertainty at the cost of all the participants in a globalised digital economy.

Several findings are made after this analysis. It is also quite unlikely that keeping the traditional structures of copyright intact and not changing them is practical in the light of the transformational feature of AI. Secondly, the complete abandonment of the need to have human authorship puts in danger the crucial aims of copyright and legitimate interests of human creators. Third, finding a middle ground that would incorporate AI as a creative tool and preserve the basic relevance of human authorship is the most beneficial way forward. Fourth, global cooperation and consequent harmonisation though challenging would benefit all the stakeholders by reducing legal ambiguity.

The policy choices that civilisations will take regarding AI and copyright will not only affect the legal system but also the economic development, the creation of culture, and the entire relationship between humans and increasingly sophisticated computers. Such choices require harmonization of several values, such as innovation, protection of creators, cultural availability, authenticity, and economic competitiveness.

The proposed changes in the legislation of major nations are predicted to provide a better understanding of AI-generated works. The decisions of courts that will be made in the cases, which are in progress, will create precedents in matters of training data and fair use. International discussions will continue but a significant harmonisation can take years to materialise. The world of technology will continue to evolve and the current debates will become obsolete in the near future as more questions emerge.

Policymakers, judicial officials, and jurists have the challenge of establishing models that are flexible to rapid changes in technology and at the same time provide predictability and stability that would encourage investment and business ventures. The copyright law has been flexible to the technological revolutions that have happened in the past. The question is not whether it can change to AI, but how it will change and whether it will do so in a deliberate manner that will be advantageous to social interests.

The legalization of AI-created works, in any case, reflects major questions of human values

and interests in the age of developing AI. The copyright legislation, which is directed towards innovations, authorship, and relationships between creators and society play a central role in these vast debates. The solution to the copyright problem concerning AI will not only define but also reflect the way we tackle the monumental changes that artificial intelligence brings to the human life. The solution requires constant dialogue between all the stakeholders and willingness to question established ideas and respect the traditional values that have paid off in society.

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