



Original Article

An Evaluate the Legal Gaps Regarding the Artificial Intelligence and Copyright Infringement in the Context of Pakistan

Abdul Salam Soomro¹, Muhammad Zakir Shah², Muhammad Hassan Sajjad³ & Sadia Fatima⁴

¹Lecturer Department of Law, Shaheed Zulfaqar Ali Bhutto University of Law Karachi,

Email: abdul.salam@szabul.edu.pk

²LLM Scholar Government College University Faisalabad, Email: zakirshahjhang@gmail.com

³LLM Scholar Government College University Faisalabad, Email: hassanjutt84022@gmail.com

⁴Lecturer Department of Law, Leads University Lahore, Email: m.ibrarjutt163@gmail.com

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*Corresponding Author:

Muhammad Zakir Shah
zakirshahjhang@gmail.com

ABSTRACT

This study evaluated the legal gaps which are addressing artificial intelligence (AI) and copyright infringement in the domain of legal frameworks in Pakistan. The purpose was to examine whether existing copyright laws adequately protect against unauthorized use of creative works generated or exploited by AI technologies. The study analyzed Pakistan's Copyright Ordinance, 1962, relevant judicial precedents, and international instruments such as the Berne Convention and TRIPS Agreement to assess their applicability to AI-related copyright challenges through the Employed doctrinal legal research methodology. The findings revealed significant gaps, including the absence of provisions addressing ownership of AI-generated works, liability for infringement involving AI systems and mechanisms to safeguard copyright holders against unauthorized AI use. The results underscored the need for legislative reforms to align Pakistan's copyright laws with emerging AI technologies, ensuring adequate protection for creators while fostering innovation. The study recommended the introduction of specific provisions to regulate AI-generated content, determine ownership, and establish liability frameworks to bridge these legal gaps.

Introduction

The application of artificial intelligence has especially in creative field enhancing creativity in art, authors, music and many more all over the world. Programs in generating images, or using text inputs to create images for instance, using AI as a music composer all of these have made it very difficult to distinguish whether the work is done by a human or the AI. For example, today's AI systems like DALL-E, ChatGPT, or OpenAI Codex shows capability of a creating brand new works that mimic its human counterpart in every possible way (Abolade, Ngige, Awodele, & Balogun, 2021).

AI has also entered creative industries and brought new legal questions into action, mainly in relation to copyright regulation. For instance, while codifying copyright laws, Williamson notes that these laws have depended on the conventional ideas of originality and authorship, which inherently presuppose human creativity even though they don't necessarily dictate the kind of creativity. Nonetheless, AI systems that rely on their own or partially own authority disrupt these syllogisms by generating content without direct human intervention. This shift therefore brings into question that owns, protects and or enforces rights over the AI generated works.

Across the world different jurisdictions have differently addressed some of these challenges. For instance, the United States has maintained the requirement of human authorship in cases of copyright, as well observed in *Thaler v. Perlmutter* (2023). On the other hand, China has been more flexible going to the position that AI work is eligible for copyright protections if the conditions are met (Teon, 2023). However, with all these developments in place, Pakistan's copyright laws fail to address questions relating to AI-generated works, which consequently leads to a major legal void.

In Pakistan the Copyright Ordinance, 1962 is the law that governs copyright protection. What this law achieves in regard to old school creative endeavors is the fact it does not consider modern technological features such as AI. With the use of AI and its relevancy in the creation of content in Pakistan growing across the creative and digital sector, the shortcomings of legal support make copyright legislation and protection of intellectual property more difficult (Zakir et al., 2024). This raises the imperative of an urgent study of the existing and emerging deficiencies in Pakistan's copyright system and the development of strategies to deal with these new age phenomena.

Research Problem

The research problem of the study revolves around the discovery of the missing links in Pakistan's current copyright legal regime regarding AI produced works. However, there is still no definite law in Pakistan to regulate the role of AI technologies in creative sectors: even the Pakistan Copyright Ordinance 1962 says nothing about this matter. This absence of law raises numerous questions on who owns, protects and enforces the IPR of AI created content. However, as digital economy of Pakistan grows, including domains like software development, digital artwork, content creation, etc there is no Precedence of law that governs AI generated work which may act as potential barrier towards development, investment and rights of creators. The present thesis was intended to fill those voids, appraise the consequences, and recommend the legal reforms tailored to the contemporary Pakistan's digital practices.

Research Objectives and Questions

Therefore, the main goals of this study are as follows: Assess the existing copyright laws of Pakistan in relation to AI; examine the shortfall in addressing content generated by AI and its use of infringement; and suggest potential policy areas to implement in Pakistan to fill the aforementioned gaps. More particularly, this study seeks to evaluate how the current Pakistan copyright legal structure manages works created by AI, identify the conspicuous legal gaps

which dominate AI-driven copyright legislation in Pakistan, and discover ways in which the global best practices can help to enhance the comprehensive copyright legislation in this country. The research questions guiding this investigation include: What has Pakistani law to say on the issue relating to the copyright of AI creations? Currently, what has been identified in Pakistan are there legal loopholes that AI and copyright infringement? And how can theories of other countries' policies be a useful framework for Pakistan's legislation in this respect?

Literature Review

Theoretical Foundations of Copyright Law

Copyright law in the past has been predicated on two basic principles: originality and authorship. In other words, originality entails the idea that a work should have not least been done by the creator unaided and must possess at least a certain minimum of creativity (Goldstein, 2001). The theory of authorship on the other hand posits copyright protection to human beings that engage in creativity while developing a piece of work (Bridy, 2016). Traditionally, these principles stemmed from the belief that authors refer to natural persons who produce works of intellectuality labor (Fisher & Syed, 2020). However, the including of artificial intelligence in the production of content has now led to a reconsideration of these terms since people's authorship in the modern world has raised many questions.

Legal anthropologist and intellectual property expert Pamela Samuelson has described the above situation as follows: As AI technologies continue to develop, generative in nature such as music, imagery, and writing, the traditional concept of authorship may no longer suffice. In this context, the authorship of works is under discussion because the machines themselves are capable of generating content. By extension, Bridy (2016) and Liu (2019) believe that AI-produced work calls into question fundamental principles of copyright, specifically the authorship criteria and originality conformity. The legal contexts that have been implemented in order to safeguard the human authorship have experienced challenges while trying to respond to autonomous creations made by artificial intelligence systems.

It is for this reason that the inclusion of AI-generated works under the copyright regime is key in checking the developments while at the same time providing protection for creators. However, problems posed by the legal qualification of the authorship of an AI or the attribution of AI-generated writing have not been solved yet, let alone the ethical ones (Reilly, 2019). This has posed pressure on the government to reconsider reformations regarding the copyright system that will fit the reality of this new AI technology and make sure that copyright law provides its aim in this new technological world.

AI and Copyright Globally

The legal environment of AI and copyright is characterized by heterogeneous conditions in the USA and the EU on the one hand and China on the other hand as it comes to the different reactions to issues connected with AI-created content. It has been found that most of these differences are occasioned by the legal systems, the culture, and the technology uptake of each of

these regions. It is therefore vital to comprehend these practices to explain the deficiencies in Pakistan's own copyright laws in regard to AI.

In the United States, the Copyright Office has stated that copyright protects only those works that originate from human beings and declined copyright protection for works that were created by machine or AI (U.S. Copyright Office, 2019). In the landmark case *Thaler v. In case of Perlmutter* (2023), the U.S. court upheld the decision that, according to the U.S. copyright law, an AI cannot be seen as an author for any AI work. This decision also reflects the concern with human input in the U.S. copyright law, though continuing legal discussions remain as to whether such works should receive any form of legal protection at all (Goldstein, 2021).

European Union treats AI under its copyright laws in a somewhat different manner focusing on the involvement of AI in the preparation of the works. However, EU copyright law is a creation of human authors and while there have been some transforming changes on whether or not these laws should be transformed based on present development in AI. One of them is that the European Commission has been working for as long as two years on the policy for the use of AI and its role in protection of copyright. In 2021, EU released the regulation known as Digital Service Act (DSA) and Digital Market Act (DMA), the legislation that may be affect AI and copyright in an indirect manner because DSA and DMA set rules on platforms' liability and copyright protection (European Commission, 2021). Moreover, it has been seen that EU has also started discussing AI works within its CP – sendant suite of IP reforms, especially for collective management of rights and distribution of profits arising out of the AI-driven innovations (Kurzer, 2020).

It's necessary to take a look at China as the country that has taken the position of a world leader in AI development, at the same time suffering from numerous concerns regarding the interpretation of copyright laws in relation to content created by AI. China modified its copyright law in 2020 to maintain its relevancy as the use of artificial intelligence increases with content creators. Despite the remaining principle of the human authorship of creations in order to protect them by copyright, Chinese courts are ready to consider creations made by AI on an individual basis. The same year, a Chinese court stated that an image developed through the AI technique cannot be copyrighted as it fails to have human origin. But the ruling implied that in the future the rules might change and allow for copyright to protect the AI works in some cases (Teon, 2023). This decision is consistent with China's overall strategy in handling IPR which aims at protecting innovation while upholding conventional legal milieu (Zakir et al., 2024). That China adopted AI as one of its key strategies outlined in the "Made in China 2025" plan indicates that future changes might allow more freedom in the protection of works created by artificial intelligence.

Advanced AI – generated content accreditation has extended the problem of piracy worldwide making it even hard to determine. Recent released artificial intelligent tools including Open's GPT-3, and DALL•E as well as other creative algorithms has the capability to create unique content that can be compared to human creativity. This has brought controversy of how the same AI will immerse itself in violating the common creator rights of artists through mimicking other art products without license. Discussions are still open in the United States related to the question of whether or not AI tools trained on copyrighted material can be

considered to be infringing, especially in cases where new AI works are similar to or identical for copyrighted material (Reilly, 2019). On the other hand, the EU and China have been looking at legal architectures which may require AI creators to protect works produced through them while keeping the human authors the owners of the IP rights to these works (Kurzer, 2020; Liu, 2020). These advancements point to the fact that there is lack of international practice on how the issues of AI and copyright infringement should be handled and thus Pakistan needs to formulate ways of handling this issue.

Pakistan's Copyright Legal Framework

The main body of Pakistani copyright law is the Copyright Ordinance, 1962 This act was the first legislation that Pakistan passed to address and regulate copyright using principles of the Berne convention of 1886 which Pakistan is a signatory to. The Ordinance comprehensively covers original infringements of authors in textual, artistic, dramatic, musical, cinematographic, sound record and broadcasts. The author of a work owns the work and has the exclusive control over its reproduction, distribution and public performance including the rights of paternity and integrity of the work (Pakistan Copyright Ordinance, 1962). The Hong Kong legislation referred to as the Copyright Ordinance has understood the importance of authorship within the copyright regime, with protection only afforded to those works authored by human beings. It lays down the primary guidelines for novelty or newness, and excludes duplication of an existing piece of work. The Ordinance also includes provisions for registration, provisions for enforcement and provisions for legal redress in case of infringement of the user's intellectual property. However, the Copyright Ordinance is ambitious yet effective, originally developed in a different technological context and aims to regulate the new digital technologies and especially AI. As a result, there is no specific law in Pakistan as to how to deal with such complications arise due to AI or question of authorship where machine a set of algorithms is the creator of a work.

Research Methodology

The study uses a doctrinal legal research method, which compiles statutes, case law, and secondary sources to examine the loopholes in Pakistan's copyright regime regarding AI-created products. Besides, the study will compare the current copyright laws of other countries including the United States, the European Union and China to establish areas of legal ambiguity or solutions. This will involve conducting primary and secondary research within the University. Kindly, the primary data includes the Pakistan's Copyright Ordinance, 1962 and case law concerning copyright and AI will be analyzed. Secondary data will be collected by researching articles, reports and international legal works that give information on how various countries are approaching AI generated content within the purview of copyright law. This anterior and subsequent qualitative and quantitative approach will further assist to assess the efficiency of the Pakistan current legal policies and measures to formulate integrated reforms.

Legal Gaps in AI and Copyright in Pakistan

Lack of recognition from the government of the contents produced under the AI Sophia

One of the biggest issues lairs in the legal structure of Pakistan regarding the copyrights is the non-acknowledgement of AI generated content. The current legal framework embodied by the Copyright Ordinance, 1962, has little in the way of dealing with the products of artificial intelligence systems since it was constructed on the foundations of the assumption that works are authored by natural human beings. This absence of recognition generates doubts on the legal situation of works originated by an AI without human intervention, as creations like artistic, music, or writing pieces. This notion made people think about copyright protection for such content, as well as about an author or owner of an AI work. Unfortunately, in the absence of such provisions, there are no black letters of the law regarding the protection of such works as well as protection against copyright infringement.

Vague Concepts about Authorship and Ownership

Currently under Pakistan's copyright law, authorship and ownership are human-based, which poses a problem when determining on whom the rights of the ownership of the AI-produced material rest. The humanness of creativity has always been a prerequisite to authorship, which is something that AI, as a machine or system, fails to score on. This has the rather unfortunate side effect of creating confusion about who owns the copyright in content created by artificial intelligence. As with copyright, the absence of a definite regime on ownership of AI products further hinders the determination of the rights of either party in cases of offense or intractable over usage permissions. In AVA, legal changes need to be made in order to regulate ownership based on the contribution of AI, which is more complicated in the creative sector.

Enforcement Challenges

There are principal difficulties related to the enforcement of copyright in terms of AI created content. As it becomes even more challenging for non-human creative to prove that their contents are distinct, so does it become an equally greater challenge to posit that there has been an infringement on their contents? AI systems rely on patterns in large datasets to create new works and may well trigger an infringement of copyright. However, since the "author" of the work is not a human being or some identifiable person it becomes difficult to prosecute the accused of infringement. Further, AI's capability to in the World generates new works at the speed and in large numbers additionally challenges monitoring and enforcement initiatives as copyright proprietors could possibly be challenged to find whether or not their work has been used by AI systems.

There is no Clause for new technologies

Pakistan's Copyright Ordinance is not sufficient to prevent the effects of the new technologies in evolution; especially AI. However, J derived that as AI progresses; it is likely to have even more impacts in the region of the copyright law given its current capacity in creating complicated copyright materials. Due to these changing advancements, the law fails to deliver in

the protection of intellectual property. This paper seeks to put forward the issue that as AI is increasingly incorporated into the entertainment sector as well as other sectors like advertising and publishing, there is need to have provisions for the copyright law to consider in relation to reference. Without these provisions, creators, industries and consumers are left legally blind on the specific issues arising from the use of AI in content creation, ownership and or infringement of copyright. The following areas in the current copyright legal frameworks of Pakistan merits serious notice and attention to rectify as they relate to the now ushered in complexities of AI technologies and their management by the existing legal systems. The legal regime governing authorship and ownership of AI creations; the enforcement regime; and the provisions for new technologies call for reform in order to fit the modern digital environment.

Comparative with Globally Approach

The U.S. Approach

The United States copyright system has in the past demanded human authorship in order to be conferred copyright protection. In the recent case that is *Thaler v. Perlmutter*, the U.S courts also declared that works created completely with the help of artificial intelligence or AI and no input of any human being can be copyrighted under current law. In this instance, the inventor of an AI application, Stephen Thaler tried to submit a series of AI-generated work registered under his name since he claimed that the AI, called DABUS developed the works on its own. The court nevertheless ruled that under American copyright law, AI cannot right the works and the contested works could only be ascribed to the named human authors. They are committed to the traditional concept of the United States of America's copyright legislation by setting up the bar for human authorship of the work categorically high, thereby, leaving no room for automation.

The US approach, whilst propagating conventional construct of human creativity, poses a number of problems for AI generated content, particularly as the capacities for AI increases and its potential to create genuinely new works improves. This legal attitude also poses future questions on handling of other continually emerging AI produced artifacts such as art, literature, and music, which, under the current law, would not qualify for copyright protection.

The Chinese Approach

China, for instance, has not been very rigid with regards to AI ownership of artistic works affirming some legal rules that grant limited copyright protection to such works. Like that of many other jurisdictions, the Chinese copyright law is principally intended to protect human creations, however, Chinese courts have recognized the AI capability of producing creative content. Modern Chinese court practice does have precedents where AI-created objects, including paintings, images, and music, can be accorded copyright protection in one way or another; nevertheless, the AI creation usually has a human creator/ operator behind it.

China's approach is more liberal in some ways than such approaches taken by developed jurisdictions towards automated works, in that it provides partial recognition of such works within the current copyright paradigm. However, as for the autonomous works created by AI

without Human intervention, China has not elaborated the protection of the copyright in these works. That said, this flexibility can serve as a template for the countries such as Pakistan, contemplating the steps towards the inclusion of AI into their national copyright legislation.

Lessons for Pakistan

By way of conclusion, there is ample to be learned from these international practices in cultivating Pakistan's own copyright reform in response to AI. While the US approach used an almost puritanical standard that required human authorship at every turn, it may still provide a less problematic approach in the future, the problems of applying the concept of authorship in an age where AI is rapidly developing the ability to create new works of art are faced. This model can leave a large part of AI-generated content exposed and thus disadvantage creators as well as industries using AI.

On the other hand, China's position in this concept is a lot more flexible, offers a lot more room for contribution of AI in the creative process to be counted as creative. As it is still in its formative stages, this approach provides Pakistan incentive to adopt a more modern and flexible approach, which recognises AI-created content and offers some form of protection especially to sectors as entertainment, technology and media that are already incorporating the use of AI in some form or way.

The reason is that the adoption of elements of both the U.S. and Chinese approaches would help create a much more delicate copyright system in Pakistan, protecting both human and AI-generated works. This would entail the formulation of commercial definition for ownership of AI, authorship of AI works, and other accreditations of right in conjunction with special provisions win draw to combat difficulties posed by AI technologies in matters of copyright.

Thus, understanding AI and copyright laws on the international scale, and most notably the difference between US and China perspectives will provide Pakistan with the valuable input for the development of its proper legal framework. It is therefore important to develop of the technological of AI while avoiding extremes of copyright that either eliminate creativity or implement intrusive technology whose future prospects are uncertain.

Recommendations

- A new law has to be passed to treat the AI works as extension of the Copyright Ordinance, 1962, along with rule pertaining to authorship and ownership of such work.
- Unveil distinctive definitions and have to establish concrete criteria for identifying the authorship and ownership of AI-based content together with the positions of creators and companies involved.
- Develop specific IP forums or branches to hear and dispose of AI related copyrights and to ensure effective remedies.
- Participate in international treaties and agreement in order to make Pakistan Copyright laws at par to international laws and standards.

Conclusion

This study discussed the crucial areas that require improvement in today's Pakistani copyright laws related to AI-produced works. These matters have not been well handled due to the lack of clear provisions on the law governing artificial intelligence a region mostly governed by the Copyright Ordinance of 1962 but has failed to address these issues. It means that Pakistan is not clear about the protection and enforcement of works that originate from Artificial intelligence. On the same note, it is also hard proving authorship and ownership of works and even the incidence of the infringement is also considerably challenging. These gaps weakened the capacity of legal frameworks to address new digital economy, where AI is involved in many creative industries.

Refereeing to the world practices leaving aside that extremely rigorous American human authorship rule, Chinese scant respect of AI created works and court decisions available it is quite comprehensible that immediate changes are needed in Pakistan. For this reason the country has to adapt its legislation to the existing technological progress of AI. Pakistan, therefore, must clearly introduce provisions for AI generated works, define authorship and ownership in reference to AI generated works, and develop specific enforcement regimes so as to effectively protect rights in relation to industrial property in the light of AI. Moreover, regional cooperation will be essential to harmonize the Pakistan copyright laws with the international standards for its appropriate protection of contents created by Ay, systems. Legal adjustments must occur on the same day as these threats and bring legal conditions suitable for supporting innovations and defending IPRs.

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