

Intellectual property law in the era of Artificial intelligence

Aakib Khan, Prashant Vaishnav

Department of Law, B.S Anangpuria Institute of Law, Haryana, India

Abstract

In today's rapidly evolving technological landscape, artificial intelligence (AI) systems are becoming increasingly powerful and poised to generate extraordinary discoveries of their own. This poses a significant challenge to the conventional understanding of intellectual property rights (IPR), including patents and copyrights, as well as questions about the regulation of these creations. This publication aims to provide information on the expansion of IPR law in the context of AI, explore a global perspective on the issue, and address emerging issues such as criminal liability for AI-generated content. It critically examines the impact of AI growth on IP rights, explores historical developments, assesses key areas such as copyright, patents, and trademarks, and discusses ethical implications and possible legal reforms. Through this comprehensive analysis, the paper seeks to gain a new understanding of the complex relationship between AI and IP rights, anticipate future legal trends, and suggest recommendations for policymakers and practitioners.

Keywords: Property law, Intellectual property rights, copyright

Introduction

The introduction of artificial intelligence (AI) has transformed several industries, changing the opportunities and challenges in the intellectual property (IP) legal framework. Once confined to science fiction, AI has emerged as a real and influential force in today's world, demonstrating capabilities ranging from simple automation to complex decision-making processes that mimic human cognitive functions. Its widespread use includes data such as healthcare, finance, entertainment and others, increasing efficiency, productivity and innovation in areas such as data analytics, predictive models and personalized services. With advances in machine learning, neural networks, and data analytics, the rapid development of AI technology has led to creative and imaginative results that defy conventional notions of human invention.

This rapid development, the rapid increase in computing power and the availability of large databases allow AI systems to contribute to innovative solutions at an unprecedented rate. However, the intersection of AI and IP rights raises complex legal and philosophical questions, particularly regarding the nature of authorship and invention in the age of AI. This paper explores this challenge by examining how existing IP frameworks are adapting to the new realities presented by AI-driven creation and discovery. In particular, the paper explores the implications of copyright, patents and trademarks in the context of AI-generated works. The question arises whether AI-generated works, from art and music to literary works, can be protected under copyright law, and if so, who owns the rights. Similarly, the debate over patents is about whether AI should be recognized as an inventor and whether standard patent criteria apply to inventions generated by AI. In addition, AI systems create and use brand names and logos independently, and brands face new challenges.

What is Intellectual Property Rights

Intellectual Property Rights (IPR) refer to the legal rights granted to individuals or organizations based on intellectual property rights or intellectual creations. These rights allow

creators and creators to control and exploit their creations or creations. Intellectual property rights are generally divided into several categories:

1. **Copyright:** Copyright protects the author's original work, such as literary, artistic, musical, and dramatic works. This includes books, pictures, songs and movies. Copyright gives creators the exclusive right to reproduce, distribute, perform, and display their work.
2. **Patents:** Patents protect inventions and inventions, giving the inventor the exclusive right to prevent others from making, using, selling, or importing the invention for a limited period of time, usually 20 years. To qualify for a patent, an invention must be novel, non-obvious and useful.
3. **Trademarks:** Trademarks protect symbols, names, logos and slogans that distinguish goods or services from others. Trademark rights allow the owner to prevent others from using a confusingly similar mark in commerce, thereby protecting the reputation and goodwill associated with the mark.
4. **Trade Secrets:** Trade secrets protect confidential information that gives a business a competitive advantage. This may include formulas, processes, techniques, or other information that is generally unknown or readily identifiable to others and is subject to reasonable efforts to maintain confidentiality.
5. **Industrial Design:** Industrial design maintains the visual appearance or decorative features of the product. The types used in this article may include configurations, patterns or decorations.

Intellectual property rights play an important role in promoting innovation, creativity and economic growth by encouraging individuals and companies to invest time, resources and energy in creating new ideas, products and services. These rights also provide legal mechanisms to resolve disputes and enforce ownership of intellectual assets.

What is Artificial Intelligence?

Artificial intelligence (AI) refers to computer systems capable of performing tasks that historically required human intelligence, such as speech recognition, decision making, or pattern recognition. It covers a wide range of technologies, including machine learning, deep learning and natural language processing (NLP). Let's dive deeper into what AI entails:

1. **Machine Learning (ML):** ML uses algorithms trained on data sets to create models that enable computer systems to perform tasks such as recommending songs, identifying optimal paths, or translating text between languages. For example, chatbots and recommendation tools are powered by ML.
2. **Deep Learning:** Deep learning, a subset of ML, involves neural networks with multiple layers. It excels at tasks such as image recognition, natural speech understanding, and speech synthesis. In particular, models like Chat GPT and computer vision rely on deep learning.
3. **Natural Language Processing (NLP):** NLP allows machines to understand and generate human language. Used in chatbots, language translation, sentiment analysis and more.

While we haven't yet reached "general artificial intelligence" (GAI)—machines with human-like reasoning abilities—AI continues to evolve and impact various fields. Whether it is the generation of written content, autonomous driving or data analysis, AI plays a key role in our modern world.

Copyrights In Artificial Intelligence

Copyright, an integral part of intellectual property rights, gives the creator of an original work the exclusive right to use and distribute it. Claims for copyright protection include real and original copies of works. As AI contributes more to literature, AI-assisted copyright studies become important.

Copyright and Ownership of AI Generated Content:

AI-generated content challenges notions of authorship that traditionally require human creators under copyright law, including works of literature, music, and visual arts. Key issues include:

- Works created by AI raise the question of who should be considered the author. Should the AI programmer be the user providing the AI, or the AI itself? This challenges traditional notions of creativity and originality.
- Determining copyright becomes complicated if AI cannot legally hold copyright. Potential ownership can be owned by AI creators, users, or treated based on salary.
- Most current copyright laws do not directly address AI creators, leaving the law gray. These frameworks typically require human authors for copyright protection, excluding AI-generated works. This exclusion raises concerns about the protection and commercial exploitation of such works, which could stifle innovation and investment in AI-powered creative industries.

Copyrights Protection in Artificial intelligence

Confusion about whether AI can be recognized as intellectual property is not new and dates back to 1974. The National Commission for the Use of New Technologies of Copyrighted Works (CONTU) reported on the development of AI in one of its reports. The ability to create independent work is theoretical and impractical. The Office of Technology Assessment (OTA) revisited the issue in 1986, assessing the implications of rapid progress in interactive computing for intellectual property rights. OTA disagrees with CONTU and argues that AI should be considered the rightful author of a copyrighted work.

Thirty years later, the debate about the creative potential of AI continues. One party is of the opinion that computers are incompatible with human creativity, while the other is of the opinion that creativity can be defined in different ways.

Critics of AI immunity argue that machines lack creativity due to misbehavior. For example, Lovelace says that creativity is unpredictable in the absence of machines and computers. However, this argument is contested by those who compare writers and machines, because they often derive their work from preconceived notions.

The legal case with Cummins Bond addressed the issue of copyright in non-human works. The court said that the non-human source should not preclude copyright, although the editorial decision was independent of the case. This example is used to support the registration of works written by AI, which is not human in nature.

Although countries have agreed to grant copyright to AI works, determining who owns the copyright remains a challenge. The current law requires a legal identity for the copyright holder, which AI lacks unless this status is granted on behalf of the creator. Some countries, such as the UK and New Zealand, have solved this problem by giving copyright in AI creations to programmers through legal fictions.

Highlight the copyright challenges posed by AI-generated works

1. **Burrow Gilles Lithographic Co. V. Sarony:** This case illustrates the distinction between creative and mechanical labor, allowing photography to be copyrighted. The court's approach has made it difficult to grant copyright solely to works created by machines.
2. **Bleistein v. Donaldson Lithography Co.:** This case differentiates between human and artificial works, emphasizing the necessity of human creativity as a prerequisite for copyright protection. The court's decision underscores the importance of human involvement in creating copyrighted works.
3. **Alfred Bell & Co. V. Catalda Fine Arts, Inc.:** This decision takes a more lenient stance on copyright, lowering the standard for originality and allowing claims for unintentional or accidental alterations. This provides some relief to copyright claimants for AI-generated works.

Overall, these legal examples highlight the complex interplay between AI technology and copyright law, emphasizing the need for nuanced approaches to address the unique challenges posed by AI-generated creations.

Patents In Artificial Intelligence

The interaction between patent law and AI is growing in today's technology world. As discussed in the previous section of this article, AI has been widely used to simplify basic functions and reduce human effort. However, AI can be used in more sophisticated ways, able to perform tasks based on its own learning.

This section of the paper will first explore the concept of patents, then explore their interaction with AI systems, and finally describe the challenges arising from this interaction. As it turns out, an invention has many important elements that determine patentability. However, certain requirements must be met in order to be classified as an inventor. In the United States, for example, in the case of *Townsend Smith*, it is considered that in order for the invention to be interpreted as a valid result, the permanent idea must go through the "conceptual" stage. It was conceived in the mind of the inventor before it was implemented. This leads to the reason that creative thinking only exists in the human mind.

A persuasive argument for the inclusion of AI as "inventor" is the basis for the revocation of the "brain light" patent test. This test, which respects the requirements of the concept, was stated by the US Congress that if an invention leads to the advancement of science, it does not matter how it happened in the mind of the inventor. Scientists argue that AI programs such as AlphaGo and Watson, which generate solutions based on large amounts of data, contribute to scientific progress and thus qualify for patent status. However, according to scientists, the situation is not so simple.

Trademark In Artificial Intelligence

Trademarks play an important role in branding and differentiating goods or services in the market. In the context of artificial intelligence (AI), trademarks are necessary to protect the identity of AI-powered products or services and to ensure customer recognition and trust. Using AI to create and manage brands creates new ideas in trademark law.

AI Generated Brands

Understand the implications of AI-generated brands, including differentiation issues and AI's potential to analyze market trends to create superior brands.

Use of Trademarks by AI

Explores how the use of AI trademarks in online environments such as digital marketing affects issues such as trademark infringement and dilution.

Challenges for Law Enforcement

Identify the challenges of enforcing trademark rights in a digital landscape dominated by AI, including identifying infringements and using traditional enforcement mechanisms.

The creative and innovative role of AI opens up some unprecedented challenges in IP law. Part of this paper aims to answer this challenge by presenting a critical analysis of the current legal situation and suggesting areas where legal doctrine may require adaptation or reform to keep pace with technological progress.

Protection Of Trademark

The inclusion of AIs in the patent and trademark areas changes the landscape of intellectual property law. Determining whether an AI-generated trademark can be registered and protected under current law is a complicated matter, especially considering the dimensions of human creativity and diversity. Using AI in branding and distributing online materials presents challenges in determining and enforcing trademark rights, including issues of liability and jurisdiction in case of law violation.

This aims to resolve any legal issues that may arise from the involvement of AI in this area through a comprehensive analysis of current challenges and all legal adaptations that may be necessary to accommodate this technological evolution.

Ethical and Policy Considerations (Content Created on the Moon, 2023):

This part addresses ethical and policy considerations regarding the implications of incorporating AI into IP law. It aims to show a way to compensate for innovation and protection policy and offer suggestions for addressing them.

Dispute

In this section, we look at key case law and comparative law to understand how specific legal structures address the complex interactions between AI and IP rights.

Important cases related to AI and IP rights:

1. Thaler and the United States Patent and Trademark Office (USPTO)

In this landmark case, the USPTO rejected patents for inventions created by an AI tool called DABUS, on the grounds that only natural persons can be inventors. This decision was upheld by the US District Court and highlighted the human-centric nature of the current patent system.

2. Decision of the UK Intellectual Property Office on DABUS

Similarly, a UK patent application naming DABUS as an inventor was rejected. The English Court held that the "discoverer" must be a person empowered by the Court of Appeal.

3. Warner Music AI Generated Music Copyright

Warner Music has signed an agreement with the start of creating AI-generated music, indicating commercial interest in AI-generated works and raising questions about the copyright of such creations.

4. 'Design Night' and Google Data Privacy

Although not a direct AI-IP phenomenon, Google's health data collection project raises questions about the ownership and use of data, which is a key part of the development of AI related to IP considerations.

India Approach

Ministry of Trade and Industry

The existing IPR regime to protect AI-generated works does not require the creation of a separate legal category. Intellectual property rights, such as copyright and related rights, provide exclusive rights to legal entities for a specific period of time. This right allows for the protection of a work or creation or innovation and allows to collect royalties

through licensing. To be eligible for issuance, the owner must meet the criteria specified by law. As a party to all international conventions and treaties for the protection of intellectual property rights, India adequately protects the rights created by copyright law for works created by legal entities and protects inventions through the patent system. Therefore, there is no need to create a separate legal category for AI and related innovations in India's IPR regime. Therefore, while artificial intelligence (AI) and related innovations are a growing technology stream, the current legal framework in patent and copyright law is well equipped to protect the work produced by AI and related innovations. Currently there is no proposal to create a separate right, so that ram becomes legal in the content generated by AI.

Reproduction, translation, adaptation, etc., were granted by the copyright holder in 1957. Exclusive economic rights, such as copyright, require Generative AI users to obtain permission to use their work for commercial purposes. Fair dealing rules in section 52 of the Copyright Act. Because intellectual property rights are private rights, they are enforced by individual rights holders. Fair and effective civil and criminal remedies are provided under copyright law for any infringement or unauthorized use of the work, including in digital circulation.

International Approach

Different jurisdictions take different approaches to AI challenges for IP rights.

US takes a traditional approach, emphasizing human participation in the creative and inventive process for IP rights. This case demonstrates the reluctance to extend IP protection to works produced by AI without human rights or inventions.

Likewise, the EU's approach is conservative, focusing on creators and inventors. However, the adaptation of IP legal guidelines to accommodate AI innovations is being discussed in B.

Some Asian countries are more open to the role of AI in IP creation. For example, Japan and South Korea are actively exploring legal reforms to address AI in their IP laws, which can recognize the role of AI in the innovation process.

In contrast, the court in Australia made a landmark decision, recognizing the AI system as an invention for patent purposes. However, this decision is subject to appeal and does not represent settled law.

This comparative analysis highlights the diversity of legal responses to AI-related IP issues around the world. While some jurisdictions maintain traditional attitudes, others are exploring more modern tactics that reflect a dynamic and evolving legal landscape.

The outcome of these cases and the different procedures of different jurisdictions will have a significant impact on the future legal framework related to AI and IP rights.

Investorship And Ownership in Artificial intelligence

In the complex AI context, the concept of invention and ownership presents significant challenges.

AI is currently based on patent law, which stipulates that an invention can only be attributed to a human inventor. Claiming AI as an inventor would require significant legislative changes.

Ownership issues arise in identifying the owner of AI-generated inventions. Patent applications for AI-generated

inventions involve complex considerations, including the roles of AI creators, users, and potentially the AI itself.

In the United States, the USPTO does not recognize AI as an inventor, insisting on human involvement in the invention process. Similarly, the European Patent Office (EPO) holds a similar view, rejecting patent applications citing AI as the inventor.

Some jurisdictions, such as Australia, have shown a more open stance, with courts recognizing the potential of AI as an inventor, which keeps the area evolving.

Using AI also presents challenges in branding and trademark creation. AI can create logos, brand names, and other trademarked materials, raising questions about originality and the trademark features created by AI.

Conclusion

The era of artificial intelligence (AI) presents unprecedented challenges and opportunities for intellectual property rights (IPR). The intersection of AI and IPR raises complex legal, ethical, and policy considerations that require careful review and adaptation of existing legal frameworks.

Throughout this paper, we have explored the evolving IPR landscape in the AI era, including copyright, patent and trademark law. We have seen that AI-generated works challenge notions of authorship and invention, leading to debates about the recognition and protection of AI-generated content under copyright and patent law.

In addition, the use of AI in trademark creation and trademark creation creates new challenges in determining the ownership and originality of AI-generated brand features. Trademark enforcement in an AI-dominated digital landscape poses challenges related to liability and jurisdiction.

Jurisdictions around the world have responded differently to this challenge, with some adopting a traditional approach that emphasizes human involvement in the creative and inventive process, while others are exploring more modern tactics to accommodate AI innovation in IPR.

Future IP laws must balance encouraging innovation and protecting rights ethically and economically. The need for international cooperation in developing harmonized standards and regulations will become even more important to address the global nature of AI technology and IP rights.

References

1. Gribincea A. Intellectual Property Rights to an Artificial Intelligence Product, 2020, 27(4). doi:10.37635/JNALSU.27(4).2020.231-241.
2. Sully SE. JSTOR: An IP Practitioner's Perspective. 1997. doi:10.1045/JANUARY97-SULLY.
3. Kazim E, Koshiyama A. The interrelation between data and AI ethics in the context of impact assessments, 2021, 1(3). doi:10.1007/S43681-020-00029-W.
4. Upadhyay NK, Rathee M. Impact of Artificial Intelligence on Intellectual Property Rights, 2020, 9. doi:10.47344/TYSW.V9I0.192.
5. Becker M. Rights in Data – Industry 4.0 and the IP Rights of the Future, 2017, 9(3). doi:10.1628/186723717X15069451170847.
6. Gruzдова TV. Definition and evaluation of intangible assets (of objects of intellectual property), 2011, 2011(3). doi:10.15407/SOCIUM2011.03.099.
7. Fleming DS. US Patent and Trademark Office refuses registration of flavour trade mark, 2007, 2(5). doi:10.1093/JIPLP/JPM044.

8. Dabus. Dabus, 2022, 53. doi:10.1007/s40319-022-01186-7.
9. Schneble CO, Elger BS, Shaw D, Shaw D. Google's Project Nightingale highlights the necessity of data science ethics review, 2020, 12(3). doi:10.15252/EMMM.202012053.
10. Hsieh TT, Emerson RM, Foster LD, Link BF, Trautman LJ. Intellectual Property In the Era of AI, Blockchain and Web 3.0, 2023. doi:10.2139/ssrn.4392895.
11. More on AI-generated content. More on AI-generated content, 2023, 22(6). doi:10.12788/cp.0371.
12. Verbandt Y, Vadot E. Non-patent literature search at the European Patent Office, 2018, 54. doi:10.1016/J.WPI.2017.07.001.
13. Andreotta AJ. The hard problem of AI rights, 2021, 36(1). doi:10.1007/S00146-020-00997-X.
14. WIPO: Artificial Intelligence and Intellectual Property [Internet]. Available from: https://www.wipo.int/about-ip/en/frontier_technologies/ai_and_ip.html.
15. KS Legal & Associates: IPR and Artificial Intelligence [Internet]. Available from: <https://ksandk.com/ipr/ipr-and-artificial-intelligence/>.
16. USPTO Report on AI and IP [Internet]. Available from: <https://www.uspto.gov/about-us/news-updates/uspto-releases-report-artificial-intelligence-and-intellectual-property>.
17. Wikipedia: Artificial Intelligence and Copyright [Internet]. Available from: https://en.wikipedia.org/wiki/Artificial_intelligence_and_copyright.