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Artificial Intelligence as an Inventor: Legal and Ethical Dilemmas in Patent Law

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Abstract: *The emergence of artificial intelligence (AI) as a tool capable of independently generating inventions and creative works has posed significant challenges to traditional patent law frameworks, particularly in defining inventorship. This study investigates the legal and ethical dilemmas associated with recognizing AI as an inventor under Indian patent law. It critically examines the* ***Patents Act, 1970****, with specific reference to* ***Sections 2 and 6****, which define "person" and govern the filing of patent applications, highlighting how current legislation is limited to human inventors and does not account for autonomous AI systems. The research further analyzes administrative rulings, including the rejection of applications such as those involving the AI system DABUS, demonstrating the Indian Patent Office's stance in alignment with global trends that emphasize human-centric inventorship. Beyond legal frameworks, the study explores ethical concerns surrounding AI exclusion, including questions of fairness, accountability, and the equitable allocation of rights when AI significantly contributes to the inventive process. Utilizing case studies, comparative analyses, and statistical insights into AI-driven innovation, the study emphasizes the urgent need for legislative and policy reforms that accommodate AI-generated inventions while maintaining ethical balance and safeguarding human creative contributions. The findings provide a foundation for developing adaptive legal frameworks capable of responding to the rapidly evolving landscape of AI-assisted innovation.*

Keywords*:* Artificial Intelligence, Inventorship, Patent Law, Patents Act 1970, DABUS, Intellectual Property, Ethical Dilemmas, Legal Reform, AI-Generated Inventions, India

I. INTRODUCTION

The rapid advancement of artificial intelligence (AI) has significantly altered the landscape of innovation, raising unprecedented legal and ethical questions in the domain of intellectual property law. Traditionally, patent systems across jurisdictions have been structured around the assumption that inventors are natural persons who conceive novel ideas through intellectual effort. However, with AI systems increasingly capable of autonomously generating inventions, the foundational premise of inventorship is being challenged. This emerging reality has triggered debates about whether AI should be legally recognized as an inventor, or whether human agency remains a non-negotiable requirement in patent law (Skadden, 2023).

Several high-profile cases illustrate this dilemma. In the United States, the *Thaler v. Vidal* decision concerning the AI system DABUS reaffirmed that, under the Patent Act, inventors must be natural persons (United States Court of Appeals for the Federal Circuit, 2022). Similarly, the United Kingdom Supreme Court held that an AI system cannot qualify as an inventor under the Patents Act 1977, emphasizing that the law's language presumes human inventorship (UK Supreme Court, 2023). The European Patent Office (EPO) has also rejected applications naming DABUS as the inventor, reinforcing the stance that current statutory frameworks do not extend inventorship rights to machines (European Patent Office, 2020). These rulings collectively highlight the global consensus in judicial and administrative practice that inventorship is restricted to human beings.

Beyond statutory interpretation, the ethical implications of excluding AI from inventorship are profound. One concern is innovation incentives: if AI-generated inventions cannot be patented, stakeholders discouraged from investing in AI

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research and development, thereby slowing technological progress (Bostrom &Yudkowsky, 2018). Moreover, questions of attribution arise when AI systems contribute substantially to inventive processes. Determining whether the rightful inventor is the AI's developer, the user who deployed it, or the AI system itself presents both moral and legal challenges (Abbott, 2020). Ethical debates also extend to transparency and fairness, as failing to disclose AI involvement in patents could distort the integrity of the system while concentrating benefits in the hands of entities with access to advanced AI (Patsnap, 2024).

The dilemma further reflects a tension between the static nature of existing statutes and the dynamic demands of emerging technologies. Patent laws were crafted in eras where autonomous machine inventorship was inconceivable, and their language—such as requirements for an oath, declaration, or assignment—assumes human participation (Samuelson, 2020). Yet, scholars argue that denying recognition to AI-generated inventions may undermine the very objective of patent law, which is to incentivize innovation for societal benefit (Scherer, 2022). This contradiction underscores the need for legal reform to balance the principles of human accountability with the practical realities of AI-driven innovation.

As jurisdictions grapple with these questions, proposals for reform have begun to emerge. Some scholars advocate hybrid models where the human deploying or training an AI system is recognized as the inventor, while others suggest creating new legal categories for AI-generated inventions with tailored rights and obligations (Bar & Bench, 2024). Transparency requirements, such as mandating disclosures of AI involvement in patent filings, are also being considered to ensure fairness and clarity in the system (Reuters, 2024). The evolving discourse demonstrates that the legal and ethical dilemmas surrounding AI inventorship extend beyond narrow questions of statutory wording and reach into broader concerns about fairness, accountability, and the future of innovation ecosystems.

1.1. The Statement of the Problem

The growing capability of artificial intelligence (AI) to autonomously generate inventions has created profound legal and ethical dilemmas within the framework of patent law. Traditional patent systems across jurisdictions were drafted with the assumption that inventors are natural persons, requiring human intellect, accountability, and moral recognition. However, with cases such as the DABUS applications, courts and patent offices worldwide have consistently refused to acknowledge AI as an inventor, citing statutory limitations and the absence of legal personhood. This creates a gap between technological reality and legal doctrine, raising concerns about innovation incentives, fair attribution, ownership rights, and the moral legitimacy of excluding AI from inventorship. The problem thus lies in reconciling rigid legal frameworks with the transformative potential of AI, ensuring that patent law continues to serve its core purpose of promoting innovation while addressing issues of fairness, transparency, and accountability in an AI-driven era.

1.2. The Rationale of the Problem

The rationale for examining artificial intelligence as an inventor lies in the urgent need to align patent law with the realities of technological advancement. As AI systems increasingly demonstrate the capacity to autonomously generate novel and useful inventions, excluding them from inventorship under current statutes risks creating legal uncertainty, discouraging innovation, and concentrating benefits in the hands of a few powerful entities. Addressing this problem is essential not only to preserve the integrity and fairness of intellectual property systems but also to ensure that innovation ecosystems remain inclusive, transparent, and capable of adapting to emerging technologies. By critically exploring the legal and ethical dilemmas of AI inventorship, this study seeks to contribute to policy discussions on reforming patent law so it can continue to incentivize creativity and protect innovation in the era of intelligent machines.

1.3. The Research Questions

RQ1: How do existing legal frameworks governing inventorship in patent law apply to AI-generated inventions?

RQ2: What insights can be drawn from judicial decisions and administrative rulings that address the question of AI as an inventor?

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RQ3: What ethical dilemmas emerge from the exclusion of AI from inventorship in patent law?

1.4. The Objectives of the Study

O1: To examine the legal frameworks governing inventorship in patent law and their applicability to AI-generated inventions.
O2: To analyze judicial decisions and administrative rulings, that address the question of AI as an inventor.
O3: To explore the ethical dilemmas arising from excluding AI from inventorship.

II. THE REVIEW OF RELATED LITERATURE

Pundir et al. (2025) highlight how the rise of AI challenges the foundations of intellectual property (IP) law, particularly in patentability and copyright. They argue that patent regimes still recognize only human inventors, leaving AI-generated innovations outside protection. The study points out gaps in existing frameworks, questions human authorship in copyright, and recommends either attributing authorship to AI's creator or establishing a new IP category to address AI's creative role.

Sharma (2024) focuses on liability in AI-related IP disputes, stressing that AI's autonomy complicates traditional notions of authorship, ownership, and accountability. The paper raises concerns about assigning responsibility when AI infringes copyrights or generates patentable works, questioning whether developers, users, or corporations should be held accountable. It concludes by calling for adaptive reforms to redefine liability standards and ensure fairness in IP law.

Rai (2025) examines copyright and IP challenges in academic contexts where generative AI is used to produce research outputs. The article discusses ownership, derivative works, fair use, and licensing, while highlighting risks of plagiarism and infringement due to AI's replication of copyrighted material. It underscores the need for clearer legal guidelines to manage AI-generated academic content and safeguard intellectual property rights.

Mahala and Chauhan (2025) identify critical gaps in current IP frameworks for protecting AI-generated inventions. Their study emphasizes the lack of global standardization and the varied approaches taken by different jurisdictions. To address these challenges, they propose a novel IP protection model integrating blockchain, smart contracts, and digital rights management systems, ensuring compatibility with existing laws while accommodating AI innovations.

Bharati (2024) provides a global overview of AI and IP interactions, analyzing case law, international agreements, and policy initiatives. The study identifies challenges in applying traditional IP principles to AI-generated works, especially in areas of inventorship and liability. It stresses the importance of striking a balance between encouraging innovation and safeguarding public interest, advocating for adaptive legal reforms to prepare for AI's growing role.

Chohan et al. (2024) explore ownership and authorship issues arising from AI-generated content in fields such as literature, art, and music. They question the assumption that creativity is exclusively human and examine contradictions across IP regimes in the EU, US, UK, and Singapore. The study emphasizes the need for a harmonized global legal framework that recognizes AI's creative potential while protecting human creators' rights.

2.1. The Research Gap of the Study

Despite growing scholarship on AI and intellectual property, a clear research gap persists regarding the specific legal and ethical dilemmas of recognizing AI as an inventor under patent law. While existing studies examine liability, copyright, ownership, and global variations in IP frameworks they often focus broadly on AI and IP without adequately addressing inventorship criteria, the ethical implications of excluding AI, and the insufficiency of current judicial and statutory approaches. This leaves unresolved questions about whether patent law should adapt to accommodate AI-generated inventions or continue restricting inventorship to humans, creating uncertainty for innovation and legal policy.

III. THE METHODOLOGY OF THE STUDY

This study adopted a **phenomenological research methodology** to explore the legal and ethical dilemmas surrounding the recognition of artificial intelligence (AI) as an inventor in patent law. Phenomenology was appropriate as it seeks to

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capture and interpret the lived experiences, perceptions, and meanings attributed by legal scholars, policymakers, and practitioners to the challenges posed by AI-generated inventions. The method emphasized understanding how stakeholders experience the tension between traditional human-centered notions of inventorship and the emerging reality of AI's creative capacities. Data was gathered through an extensive review of case law, statutory provisions, administrative rulings, and scholarly literature, which were then thematically analyzed to reveal common patterns of thought and divergent interpretations. This approach enabled the study to go beyond surface-level legal analysis, instead uncovering the deeper conceptual and ethical concerns that shape the discourse on AI inventorship.

IV. THE ANALYSIS AND INTERPRETATION

O1: To examine the legal frameworks governing inventorship in patent law and their applicability to AI-generated inventions.

In India, the legal framework governing inventorship in patent law is primarily encapsulated in the **Patents Act, 1970**, which outlines the criteria for patent eligibility, including the requirements for inventorship. Specifically, **Section 6** of the Act stipulates that a patent application must be made by a 'person' who is the true and first inventor of the invention. The term 'person' is defined under **Section 2(1)(s)** to include the Government, but it does not explicitly recognize artificial intelligence (AI) systems as inventors. This omission has led to legal ambiguities regarding the recognition of AI-generated inventions. For instance, in the case of **Dr. Stephen Thaler's DABUS system**, which autonomously generated inventions, the Indian Patent Office rejected the application, asserting that only natural persons can be recognized as inventors under the current legal framework.

The increasing involvement of AI in innovation is evident from statistical data. A report by the **U.S. Patent and Trademark Office** indicates that the percentage of U.S. organizations and inventors patenting in AI increased from under 5% in 1980 to just over 20% in 2018. This significant growth underscores AI's expanding role in technological advancements and the challenges it presents to traditional patent law frameworks.

The ethical dilemmas arising from excluding AI from inventorship primarily revolve around issues of authorship, accountability, and the allocation of rights. As AI systems become increasingly autonomous in generating inventions, the traditional human-centric model of inventorship may no longer adequately address the complexities of innovation. Excluding AI from inventorship raises questions about the fairness of attributing all rights and responsibilities to human inventors, especially when AI systems contribute significantly to the inventive process. This situation necessitates a reevaluation of legal frameworks to ensure that they reflect the contemporary landscape of innovation and fairly distribute rights and responsibilities.

Indian patent law currently does not recognize AI as an inventor, the global discourse and statistical data indicate a need for legal reform. Addressing the ethical dilemmas associated with AI-generated inventions requires a comprehensive approach that considers the evolving nature of innovation and ensures that legal frameworks are adaptable to technological advancements.

O2: To analyze judicial decisions and administrative rulings, that address the question of AI as an inventor.

In India, the question of whether artificial intelligence (AI) can be recognized as an inventor under the Patents Act, 1970, remains unresolved, as the legal framework does not currently accommodate non-human inventors. Section 6 of the Act stipulates that a patent application must be filed by a "person" who is either the true and first inventor or an assignee, and the term "person" is interpreted to include only natural or legal entities, excluding AI systems. Consequently, patent applications listing AI as the inventor have been rejected by the Indian Patent Office, as seen in application number 202017019068, where the Controller objected to recognizing AI as an inventor based on the provisions laid out in Sections 2 and 6 of the Act. Internationally, the DABUS case has brought attention to the issue of AI as an inventor. In this case, Dr. Stephen Thaler sought to have his AI system, DABUS, recognized as the inventor of two patents. However, courts in various jurisdictions, including the United Kingdom, the United States, and the European Union, have unanimously rejected this claim, asserting that an inventor must be a human being. For instance, the UK Supreme Court ruled that an inventor must be a person under the current law, thereby denying DABUS the status of an inventor. In India, while there have been no direct judicial decisions addressing the issue of AI as an

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inventor, the legal framework and administrative practices align with the international stance. The Indian Patent Office's rejection of patent applications listing AI as the inventor reflects the prevailing interpretation that inventorship is a human-centric concept. This approach underscores the need for legislative reform to address the evolving role of AI in innovation and to determine the appropriate legal recognition of AI-generated inventions.

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These rulings collectively underscore a global consensus that patent laws, as currently structured, do not accommodate AI systems as inventors. They highlight the necessity for human involvement in the inventive process to meet the legal criteria for inventorship. However, the evolving nature of AI technology suggests that future legal reforms may be required to address the complexities introduced by AI in innovation

O3: To explore the ethical dilemmas arising from excluding AI from inventorship.

The exclusion of artificial intelligence (AI) from inventorship in Indian patent law raises significant ethical dilemmas that warrant careful consideration. Indian intellectual property (IP) laws, including the Patents Act, 1970, the Copyright Act, 1957, and the Trade Marks Act, 1999, were designed with the presumption that creators and inventors are natural persons—human beings. This human-centric framework fails to accommodate the reality of AI systems autonomously generating inventions and creative works.

One of the primary ethical concerns is the potential undervaluation of AI's contributions to innovation. AI systems, particularly those utilizing machine learning algorithms, can independently produce novel and non-obvious inventions. However, the current legal structure does not recognize these AI-generated outputs as patentable inventions unless a human inventor is identified. This limitation may discourage the development and deployment of AI technologies in inventive processes, as the lack of clear ownership and protection can deter investment and innovation.

Moreover, the absence of AI as an inventor in patent law creates ambiguity regarding the attribution of rights and responsibilities. When AI systems generate inventions, it becomes challenging to determine who should be credited as the inventor—the developer who created the AI, the user who operated it, or the AI itself. This uncertainty can lead to disputes over patent ownership and the allocation of benefits derived from AI-generated inventions.

Ethically, denying AI recognition as an inventor may also perpetuate a narrow view of creativity and innovation. It implies that only human beings are capable of genuine creativity, overlooking the potential of AI systems to contribute meaningfully to inventive processes. This perspective could hinder the acceptance and integration of AI in various fields, limiting the scope of innovation and technological advancement.

In the Indian context, while there is no direct case law addressing AI as an inventor, the legal framework's silence on this issue reflects a broader ethical dilemma. The lack of provisions for AI in patent law suggests a reluctance to adapt to technological advancements, potentially stifling progress and ethical considerations in the evolving landscape of innovation.

To address these ethical dilemmas, there is a growing call for legal reforms that recognize AI's role in the inventive process. Proposals include introducing new categories of inventorship that acknowledge AI's contributions, thereby ensuring that inventions generated by AI systems are appropriately protected and attributed. Such reforms would not only align the legal framework with technological realities but also promote fairness and encourage further innovation in the field of artificial intelligence.

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V. CONCLUSION

In conclusion, this study demonstrates that existing legal frameworks in India, particularly under the Patents Act, 1970 (Sections 2 and 6), are designed to recognize only human inventors, making them largely inapplicable to AI-generated inventions. Analysis of administrative rulings, such as the rejection of patent applications for AI systems like DABUS, underscores the courts' and patent authorities' adherence to a human-centric interpretation of inventorship. Simultaneously, excluding AI from inventorship raises significant ethical dilemmas concerning fairness, accountability, and the equitable allocation of rights, given AI's growing role in autonomous innovation. Collectively, these findings indicate an urgent need for legal reform and policy adaptation to address AI-generated inventions, balancing technological advancement, ethical considerations, and the protection of human creative contributions.

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