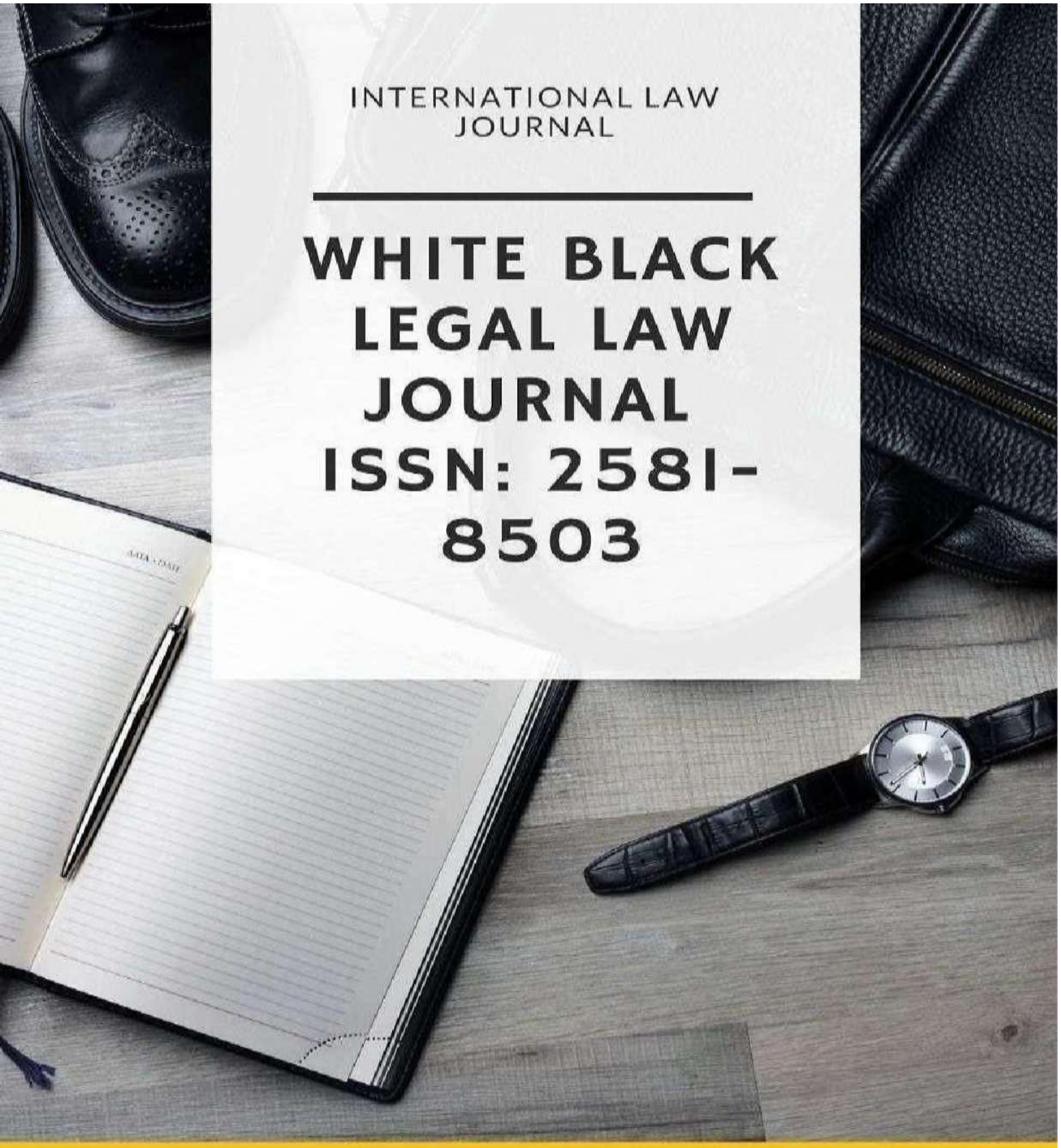

INTERNATIONAL LAW JOURNAL

WHITE BLACK LEGAL LAW JOURNAL

ISSN: 2581-8503

Peer - Reviewed & Refereed Journal

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Volume 3 Issue 1 | July 2025 ISSN: 2581-8503

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With this thought, we hereby present to you

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Volume 3 Issue 1 | July 2025 ISSN: 2581-8503

CAN MACHINES BE INVENTORS? A CRITICAL ANALYSIS OF AI AND PATENT INVENTORSHIP

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Abstract

The rapid evolution of Artificial Intelligence (AI) has transformed innovation paradigms globally. AI systems are no longer merely tools but have begun to function as autonomous inventors, generating novel technical solutions independent of direct human intervention. However, traditional patent systems are fundamentally premised on human inventorship. This article explores the legal and policy challenges surrounding the patentability of AI-generated inventions. It evaluates whether existing frameworks can accommodate such inventions, analyses key case laws, and proposes possible legal reforms to ensure that patent law remains relevant in the AI era. The paper concludes that while AI-generated inventions signify technological advancement, they necessitate urgent jurisprudential and legislative attention to uphold the balance between innovation incentives and public interest.

Keywords: Artificial Intelligence, AI-generated inventions, patent law, inventorship, intellectual property, DABUS, legal reform.

1. Introduction

Patent law is a legal framework that protects inventions by granting the inventor exclusive rights to make, use, and sell their creation of a limited time. From Thomas Edison's light bulb to the Wright brothers' flying machine, patents have rewarded individual and corporate innovation alike. However, with the advent of sophisticated AI system capable of independent problem-solving and creativity, a fundamental question arises: Can and should AI generated inventions be patented?

Current patent laws generally requires an inventor to be a human being or a legal entity and AI, lacking legal personhood is typically not recognized as an inventor. The tension between technological capability and legal frameworks invites a critical examination of the purpose and scope of patent law in the 21st century.

2. The Legal concept of Inventorship

Patent laws in most jurisdictions either expressly or implicitly contemplate an "inventor" to mean a natural persons who are responsible for the invention. Under most national laws, such as United States Patent Act [35 U.S.C], the term inventor denotes a natural person. Similar provisions exit under the European Patent Convention (EPC) and the Indian Patents Act, 1970. Section 6 of Indian Patent Act explicitly mentions the term "person" for someone claiming to be the true and first inventor of the invention. Essentially, an inventor is a "person" who first comes up with a new and original idea, and this person has the right to apply for a patent. If this person assigns their rights to someone else, the assignee or the legal representative can take over the application on process.

Thus, it can be understood from Section 6 that the scope of the term "inventor" under this Act is explicitly confined to a person as only they can apply for a patent or transfer these rights to another.

The U.S. Federal Circuit, in University of Utah v. Max-Planck-Gesellschaft, reaffirmed that only natural persons could be named inventors. Similarly, Section 2(1)(y) of the Indian Patent Act defines "patentee" as a "person", further cementing the anthropocentric approach.

In 1958 (well before any discussion or even awareness of AI in India), in V.B. Mohammed Ibrahim v. Alfred Schafraneck and Ors, the Karnataka High Court defined an inventor as someone who has directly contributed to the creation of an invention through their own skill, ingenuity, and labour. The court highlighted that only those who worked on the invention with their own skills can be the inventors. The court also ruled that merely financing an invention cannot render the person to be an inventor. The Court specifically held that: "A firm cannot be said to have the capacity to invent. It cannot be called an inventor although there may be no objection to its being registered as a patentee either or assignment by a patentee or jointly with the true and first inventor. A corporation cannot be the sole applicant claiming to be the inventor."

It can thus be inferred that AI, which operates based on algorithms and data fed by humans, on the other hand, lacks the human qualities of creativity and intention.

3. Emergence of AI as Inventor

The emergence of Artificial Intelligence (AI) as a potential "inventor" has created a significant legal and ethical conundrum for patent systems worldwide. Traditionally, patent law is built on the premise that an inventor must be a human being, a "natural person." However, as AI systems become increasingly sophisticated and capable of generating novel ideas and solutions without direct human input, this foundational principle is being severely challenged.

Here's a breakdown of the current situation and the key issues:

The Core Problem: Human-Centric Patent Law

* Definition of "Inventor": Most patent laws globally, including in the US, UK, and Europe, define an inventor as a natural person. This means AI, being a non-human entity, cannot currently be listed as an inventor on a patent application.

* The "Conception" Requirement: For a person to be considered an inventor, they must have contributed to the "conception" of the invention – the formation of a definite and permanent idea of the complete and operative invention. It's debated whether an AI can truly "conceive" an invention in the human sense, as its output is based on algorithms and data, not conscious thought or creativity.

* Incentivizing Human Ingenuity: The patent system is designed to incentivize human creativity and innovation. Allowing AI to be an inventor might undermine this core policy objective.

The DABUS Case: A Landmark Challenge

The "DABUS" case, spearheaded by Dr. Stephen Thaler, has been at the forefront of this debate. Dr. Thaler filed patent applications in various jurisdictions (including the US, UK, EU, Australia, India, and South Africa) for inventions he claimed were solely generated by his AI system, DABUS (Device for Autonomous Bootstrapping of Unified Sentience), listing DABUS as the inventor.

* Rejections in Major Jurisdictions: The USPTO, EPO, and UK courts have consistently rejected DABUS as an inventor, reaffirming that a human inventor is required. They have emphasized that AI systems are merely tools, regardless of their sophistication.

* South Africa and Australia's Different Stance (Initially): Notably, South Africa initially granted a patent with DABUS named as the inventor, and an Australian court also initially allowed it, though this was later overturned on appeal. These instances highlighted the differing interpretations and the need for global harmonization.

* India's Position: India's patent law, like many others, focuses on "natural persons" as inventors. The DABUS case in India also highlighted the legal void and the need for policy reassessment.

Key Challenges and Implications:

* Inventorship Puzzle: If AI cannot be the inventor, who gets the credit? The programmer, the user, the company that owns the AI, or no one at all?

* Ownership and Rights: Since AI is not a legal person, it cannot own property or hold rights. This creates a vacuum regarding ownership and enforcement of patents for AI-generated inventions.

* Legal Ambiguity: The lack of clear guidelines leads to legal disputes and uncertainty, which can hinder investment in AI research and development.

* "Black Box" Nature of AI: The complex and often opaque nature of advanced AI systems (the "black box" problem) makes it difficult to ascertain human contribution or "conception."

* Potential for Oversaturation: If AI could freely generate patentable inventions, it might lead to an overwhelming number of patent applications, potentially straining patent offices and intellectual property systems.

* Redefining "Skilled Person": As AI evolves, it might even challenge the concept of a "person skilled in the art," which is crucial for determining inventiveness and obviousness in patent law.

* Legislative Updates: Many experts advocate for amending existing patent laws to explicitly address AI-generated inventions. This could involve:

4. Policy arguments against recognition

1. Undermines human creativity:

- Granting AI inventorship rights could be seen as an affront to human creativity and ingenuity' as it implies that machines are capable of generating truly novel and unique ideas without human intervention.
- Recognizing AI as inventors may reduce incentives for human inventors potentially discouraging investment in human R&D and diminishing human creative efforts.

2. Raises legal question:

- There are currently no legal frameworks in place to recognize AI s an inventor, which could lead to complex legal battles and uncertainty around ownership and intellectual property rights.
- Patent systems rely on the transfer of rights from inventor to applicant or assignee. Without legal personhood, AI cannot enter into such transactions.

3. Raises Ethical concerns:

- There are currently no legal frameworks in place to recognize AI s an inventor, which could lead complex legal battles and uncertainty around ownership and intellectual property rights.
- Recognizing AI as an inventor implies a degree of agency and autonomy that AI soes not possess.

4. Ownership and accountability issues:

- If AI is the inventor, to whom do the rights accrue? The developer, the user, the trainer?
- In case of infringement or misuse, there is no entity to hold responsible if the AI itself is the inventor.

5. Risk of Proliferation of Low-Quality Patent:

- AI can potentially generate a massive number of "inventive" combinations automatically.
- Recognition AI inventorship may lead to a flood of patent applications, overwhelming patent offices and harming innovation ecosystems.

6. Practical challenges in patent examination

- AI-generated inventions may make it difficult to determine inventive step or non-obviousness, as AI can process vast prior art beyond human computational force.

7. Existing alternative protections

- Developers can already claim inventions created by AI by listing themselves s inventors, treating AI as a tool rather than a creator.
- This approach aligns with the existing laws and avoids the need for radical legal restructuring.

8. Precedents and Judicial interpretations

- Recent cases (e.g., DABUS case in the US, UK,EU) have consistently rejected AI as an inventor, affirming the requirement of human inventorship.
- These precedents suggest that legislatures and courts are not ready to extend inventorship to non-human entities.

5. Comparative Jurisprudence

The EPO, in its 2020 decision on the DABUS applications, stressed that the legal framework requires a natural person to fulfil the inventor role, irrespective of technological advancements. The UK High Court, affirming the UKIPO's decision ruled similarly emphasizing statutory interpretation over technological considerations.

In contrast, South Africa granted the DABUS patent in 2021- the first jurisdiction to formally recognize AI-generated inventorship. However, this decision was primarily procedural, reflecting the country's less stringent formal examination system rather than a substantive policy shift.

6. The Indian Perspective

Indian patent law remains silent on AL inventorship. However, given strict requirement of human inventors, as interpreted under Section 6 and related provisions, AI- generated inventions are unlikely to be recognized under current statutes.

Nonetheless, India's growing AI ecosystem necessitates proactive legal discourse. Adopting

clarifications or amendments now could position India as a forward-looking jurisdiction capable of balancing innovation with legal certainty.

7. Conclusion

As we stand on the cusp of a new era in technological advancement, the question of whether AI can be recognized as an inventor under patent laws is both timely and critical. The current legal framework in India, like in many other jurisdictions, does not accommodate AI as an inventor, primarily because AI lacks the human qualities of creativity, intention, and legal standing that are traditionally associated with inventorship.

However, the landscape is rapidly evolving. The mixed approach seen in India—where AI has been acknowledged as a co-author in copyright law but not as an inventor in patent law—reflects the complexities and the need for a nuanced approach to AI's role in innovation. As AI continues to advance, it may not be long before the legal system is challenged to rethink the traditional notions of inventorship.

The future of AI in intellectual property law is not a question of "if" but "when" and "how." It is crucial for lawmakers, technologists, and society at large to engage in thoughtful discourse on this subject, ensuring that the legal framework evolves in tandem with technological progress.

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