

The Role of Artificial Intelligence in Patent Claim Interpretation: Legal Challenges and Opportunities

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Abstract : The rapid advancement of Artificial Intelligence (AI) is transforming various fields, including intellectual property law. This paper explores the emerging role of AI in interpreting patent claims, a critical and highly specialized area within intellectual property rights. Patent claims define the scope of legal protection granted to an invention, and their precise interpretation is crucial in determining the boundaries of the patent holder's rights. Traditionally, this interpretation has relied heavily on the expertise of patent examiners, legal professionals, and judges. However, the increasing complexity of modern inventions, especially in fields like biotechnology, software, and electronics, poses significant challenges to human interpretation. Introducing AI into patent claim interpretation raises several legal and ethical concerns. This paper addresses critical issues such as the reliability of AI-driven interpretations, the potential for algorithmic bias, and the lack of transparency in AI decision-making processes. It considers the legal implications of relying on AI, particularly regarding accountability for errors and the potential challenges to AI interpretations in court. The paper includes a comparative study of AI-driven patent claim interpretations versus human interpretations across different jurisdictions to provide a comprehensive analysis. This comparison highlights the variations in legal standards and practices, offering insights into how AI could impact the harmonization of international patent laws. The paper proposes policy recommendations for the responsible use of AI in patent law. It suggests legal frameworks that ensure AI tools complement, rather than replace, human expertise in patent claim interpretation. These recommendations aim to balance the benefits of AI with the need for maintaining trust, transparency, and fairness in the legal process. By addressing these critical issues, this research contributes to the ongoing discourse on integrating AI into the legal field, specifically within intellectual property rights. It provides a forward-looking perspective on how AI could reshape patent law, offering both opportunities for innovation and challenges that must be carefully managed to protect the integrity of the legal system.

Keywords : artificial intelligence (ai), patent claim interpretation, intellectual property rights, algorithmic bias, natural language processing, patent law harmonization, legal ethics

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