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AI IN LEGAL EVIDENCE ANALYSIS: ETHICAL AND LEGAL IMPLICATIONS

AUTHORED BY - ARCHAK DAS

Abstract

The convergence of evidence law and artificial intelligence (AI) marks a pivotal transformation in the legal landscape, heralding an era where technology augments the practices of lawyers, judges, and legal professionals. This research endeavors to explore the dynamic relationship between AI and the analysis of evidence within the legal context, emphasizing the ethical and legal implications that accompany this intersection. In recent years, AI has gained substantial ground in legal practice, revolutionizing critical aspects of evidence analysis. Natural language processing, machine learning, and data analytics have become indispensable tools in the swift review of legal documents, the identification of relevant information, and the prediction of case outcomes. These AI applications offer a promise of efficiency, cost-effectiveness, and precision that traditional methods of evidence analysis struggle to match. The potential benefits are evident but this research also shines a light on the ethical considerations that arise from the utilization of AI in evidence analysis. Concerns about bias, transparency, accountability, and the risk of reinforcing existing legal disparities come to the fore and it critically evaluates the legal implications, including the admissibility of AI-generated evidence in court and the evolving regulatory framework that governs AI usage within the legal sector. This research highlights from real-world examples and case studies, the tangible impact of AI in evidence analysis, illustrating its influence on legal proceedings and the decisions made within the judicial system. Technical and practical challenges, such as data privacy and security, are scrutinized, as are strategies to ensure responsible AI implementation and human oversight. In the evolving legal landscape, it is essential to anticipate and address the multifaceted challenges that AI poses in evidence analysis, as well as to seize the opportunities it offers. This research aims to contribute to the understanding of AI's transformative impact on the legal system and provide insights for legal practitioners, policymakers, and technology developers on the responsible and ethical use of AI in evidence analysis.

Introduction

AI technologies are permeating various aspects of legal practice, from research and document review to evidence analysis and even predictive case outcomes. This surge in AI adoption is driven by a combination of factors, including the need for increased efficiency, cost-effectiveness, and the pursuit of enhanced accuracy in legal decision-making. The practice of law has been labor-intensive, requiring vast amounts of time and resources for tasks such as document review and legal research. AI-powered tools are revolutionizing this landscape and automating processes that were once reliant on human expertise.¹ Natural language processing (NLP) algorithms and machine learning systems, for instance, have proven invaluable in sifting through extensive volumes of legal documents, contracts, and case law, significantly reducing the time and effort required for these tasks. One of the other primary reasons for the surge in AI utilization in the legal profession is the promise of improved outcomes and informed decision-making. Legal practitioners are increasingly relying on AI-driven predictive analytics to assess case strategies and possible outcomes. AI's ability to process large datasets and identify patterns in legal precedents can provide lawyers with insights that were previously inaccessible, thereby enhancing their ability to make informed decisions for their clients. Law firms and legal departments are continuously under pressure to provide cost-efficient services while maintaining high standards of quality and it contributes to another major reason for the surge of AI. AI solutions have the potential to substantially reduce operational costs and time expenditures and the cost-effectiveness of AI in legal practice cannot be overstated. This economic advantage, coupled with improved productivity, positions AI as a powerful tool for legal professionals to meet their clients' demands while ensuring their bottom line remains robust.

AI and Evidence Law

AI has emerged as a powerful ally in the realm of legal evidence analysis, significantly enhancing the efficiency and effectiveness of various processes while reshaping the practice of evidence law.

Natural Language Processing (NLP) for Document Review

One of the most transformative uses of AI in the legal field is its application in document review, a fundamental aspect of evidence analysis. AI, particularly through NLP algorithms, empowers

¹ V Fomin, 'The Shift from Traditional Computing Systems to Artificial Intelligence and the Implications for Bias' in JS Gordon (ed), *Smart Technologies and Fundamental Rights* (Brill | Rodopi, 2020, to be published).

legal professionals to sift through vast volumes of documents, contracts, and case law efficiently. NLP allows AI systems to understand and extract meaning from written or spoken language, making it a valuable tool for identifying relevant information in evidence. This capability is pivotal for tasks such as e-discovery, where sifting through mountains of documents to find key evidence can be time-consuming and resource-intensive.² The use of NLP-driven document review has significant implications from an evidence law perspective. It accelerates the pre-trial process by expediting the identification of pertinent evidence, thus contributing to the principle of a fair and expeditious trial. It also raises questions about the admissibility of AI-aided evidence and the reliability of automated systems in ensuring the completeness of document review, which necessitates close examination under established evidentiary standards.³

Predictive Coding

Predictive coding is another AI application that plays a pivotal role in evidence law. This technology utilizes machine learning to predict the relevance of documents to a legal case. AI algorithms learn from human reviewers⁴ decisions and progressively become more accurate in identifying key evidence. Predictive coding is particularly valuable in streamlining document review processes and significantly reducing costs. Predictive coding has implications regarding the standard of proportionality. It helps ensure that the cost of identifying evidence does not disproportionately burden one party in litigation, in line with principles of fairness and efficiency.⁵

Data Analysis in E-Discovery

E-discovery, a vital aspect of evidence collection, involves the identification, preservation, and production of electronically stored information (ESI). AI plays a crucial role in data analysis within e-discovery, assisting in the organization and extraction of relevant information from large datasets.⁶ It helps in identifying patterns, trends, and connections that may be pivotal to a case. In evidence law, the use of AI in e-discovery aligns with the principles of relevance and fairness. It ensures that all parties have access to relevant evidence, and that the process of evidence collection is thorough and comprehensive.

² <https://digitalworkforce.com/natural-language-processing-nlp-3/>

³ <https://www.simplifai.ai/blogs/natural-language-processing-in-ai/>

⁴ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6632880/>

⁵ <https://www.frontiersin.org/research-topics/599/predictive-coding#:~:text=Predictive%20coding%20states%20that%20the,connections%20to%20lower%20sensory%20areas.>

⁶ <https://www.exterro.com/basics-of-e-discovery/data-collection>

AI and the Indian Evidence Act, 1872

In India, the usage of AI has shown a significant correlation with the Indian Evidence Act, primarily through its impact on the admissibility and authentication of digital evidence. Several provisions within the Indian Evidence Act have gained prominence due to the evolving role of AI in collecting, preserving, and presenting evidence. One important provision is *Section 65B*⁷, which deals with electronic evidence. As AI-driven technologies increasingly generate and store electronic data, this section has become pivotal in determining the admissibility of digital evidence in Indian courts. AI algorithms are being employed to retrieve and process electronic records, and *Section 65B*⁸ sets guidelines for the certification and admissibility of such evidence. AI's role in facial recognition and surveillance systems affects the interpretation of *Section 45*⁹ of the Indian Evidence Act, which pertains to opinions of experts. Courts now need to consider the reliability and accuracy of AI-generated expert opinions when analyzing digital evidence, as AI systems can be considered expert witnesses in certain cases. The growth of AI has also necessitated amendments to the Indian Evidence Act to address emerging challenges and standards for AI-generated evidence. The synergy between AI technology and this legal framework illustrates the evolving relationship between technology and law in India. As AI continues to advance, the Indian Evidence Act will continue to adapt to accommodate and regulate the evolving landscape of evidence collection, presentation, and authentication, ensuring the fair and just adjudication of cases in an AI-driven world. The key challenge lies in determining the reliability and accuracy of these AI-generated expert opinions. Unlike human experts, AI systems do not have subjective experiences, personal biases, or the ability to explain their reasoning in the same way humans do. Therefore, courts need to consider several factors:

Training and Validation

Courts need to scrutinize the training process of AI systems used to generate expert opinions. This involves assessing whether the AI was trained on a representative dataset and whether the training data was collected in a manner consistent with legal and ethical standards. It's essential to verify that the algorithms and models used for training are appropriate for the specific domain in question. Additionally, the court should consider the system's performance under various conditions and whether it has been subject to rigorous validation and testing to ensure its reliability.

⁷ Indian Evidence Act, 1872

⁸ Indian Evidence Act, 1872

⁹ Indian Evidence Act, 1872

Transparency and Explainability

One of the primary challenges with AI is its lack of transparency, often referred to as the "black box" problem¹⁰. Courts must insist on AI systems that are designed to be transparent and capable of explaining their decision-making processes. This transparency aids in understanding how the AI arrived at its conclusions, which is vital for legal professionals and stakeholders to assess the reliability and fairness of the AI-generated opinions. Research into interpretable AI models and algorithms is crucial for meeting this requirement.¹¹

Error Rates and Confidence Levels

Courts should inquire into the error rates and confidence levels associated with AI-generated opinions. This involves understanding the system's track record of accuracy and its capability to provide a measure of confidence in its conclusions. High error rates and low confidence levels can indicate situations where the AI may not be suitable for providing expert opinions or where additional corroboration is needed.

Data Quality and Bias

The quality and bias of the data used to train AI systems must be rigorously examined. Biased or inaccurate training data can lead to skewed or unreliable expert opinions, which can have significant legal implications. Assessing data quality involves looking into issues such as data collection methods, data representativeness, and the presence of any known biases or distortions in the training data. Additionally, courts should be aware of ongoing efforts to mitigate bias in AI systems and ensure that the AI used complies with best practices in this regard.¹²

Corroboration

While AI can provide valuable insights, there may be situations where human expert testimony or corroborating evidence is necessary to validate or challenge AI-generated opinions. Courts should establish guidelines for when such corroboration is required, especially in cases of high

¹⁰ A Holzinger, C Biemann, CS Pattichis and DB Kell, 'What Do We Need to Build Explainable AI Systems for the Medical Domain?': 'Often the best-performing methods are the least transparent', 2, available at: <https://arxiv.org/pdf/1712.09923.pdf>

¹¹ On AI, in general, see the reference book of S Russell and P Norvig, *Artificial Intelligence: A Modern Approach*, 4th edn (New Jersey, Pearson, 2020)

¹² 8 I Goodfellow, Y Bengio and A Courville, *Deep Learning*, 9th edn (Cambridge, MA, The MIT Press, 2016) 2–3; H Surden, 'Machine Learning and Law' (2014) 89 *Washington Law Review* 87–115, 88: 'Machine learning systems are computer algorithms that have the ability to learn or improve in performance over time on some task'.

stakes or where the AI's reliability is in question.¹³

The dynamic interaction between artificial intelligence (AI) and the legal framework in India highlights the imperative for continuous adaptation and modernization to effectively address the emerging challenges and opportunities in the collection, preservation, and presentation of digital evidence. The case of *Shafhi Mohammad and Ors. v. The State of Himachal Pradesh and Ors.*¹⁴ is a significant legal precedent that highlights the need for modernization in the investigation process and has substantial relevance to the integration of artificial intelligence (AI) in the context of evidence law. The court's acknowledgment that investigating agencies were not fully equipped for videography but that the time was ripe for its introduction reflects the broader principle that the legal system should adapt to technological advancements to improve the quality and transparency of evidence collection and investigations. This principle extends seamlessly to the use of AI in evidence law. The court's assertion that investigating agencies were not fully prepared for videography underscores the need for adequate training and preparation when introducing new technology into the investigation process. This concept applies directly to the integration of AI. Law enforcement agencies and legal professionals must undergo training and acquire the necessary expertise to use AI effectively, ensuring that it is applied in a manner consistent with legal standards and regulations. This training is critical for maintaining the integrity of evidence and avoiding potential pitfalls associated with AI's misuse or misinterpretation. The court's decision emphasizes the need for transparency and accountability when implementing new technologies. AI systems used in investigations must be transparent and capable of explaining their decision-making processes to ensure that the evidence generated is fair, reliable, and admissible in accordance with evidence law principles. This transparency aligns with the legal requirement that evidence should be presented in a clear and comprehensible manner to the court and all parties involved.

The references to previous cases like *Ram Singh and Ors v. Col. Ram Singh*¹⁵, English judgments, and American jurisprudence in the *Shafhi Mohammad and Ors. v. The State of Himachal Pradesh and Ors.*¹⁶ Case underlines a broader principle in evidence law: the willingness to embrace new techniques and devices to improve the quality of evidence provided their accuracy can be proven. This principle holds true not only for traditional methods of

¹³ A Keane, P McKeown, *The Modern Law of Evidence*, 12th edn (Oxford, Oxford University Press, 2018)

¹⁴ (2015) 7 SCC 178

¹⁵ 1985 (Supp) SCC 611

¹⁶ (2015) 7 SCC 178

evidence collection, as exemplified by videography, but also for emerging technologies like the Internet of Things (IoT). The overlapping of AI and evidence law in the context of these references is a testament to the legal system's adaptability to harness the advantages of new technologies while upholding the standards of accuracy and reliability in evidence. In the case of *Shafhi Mohammad and Ors. v. The State of Himachal Pradesh and Ors*¹⁷, the court recognized that investigating agencies were not fully equipped for videography but acknowledged the potential benefits of its introduction. This mirrors the willingness to adopt AI in evidence law. AI, when employed properly, can enhance the accuracy and efficiency of evidence analysis, particularly in cases where large volumes of data are involved, such as those related to IoT devices. The reference to IoT evidence, which is already present, as opposed to videography, which is created during the investigation process, underscores a crucial distinction. AI's role in handling IoT-generated evidence lies in its capacity to process and analyze data from these interconnected devices, providing valuable insights that can be utilized as evidence. In essence, the IoT contributes to a wealth of real-time and historical data that can be valuable in investigations and legal proceedings. AI, with its data processing capabilities, can play a pivotal role in transforming this IoT-generated data into structured and actionable evidence. The interplay of AI and evidence law is evident in the legal recognition of IoT-generated evidence and the acceptance of new techniques and devices to support legal arguments and claims. Just as videography was initially met with skepticism but later embraced, AI and IoT-generated evidence are progressively integrated into the legal landscape, subject to the same rigorous standards of accuracy, admissibility, and reliability that underpin evidence law. The legal system's adaptability to evolving technologies ensures that it remains effective and responsive while safeguarding the principles of fairness, transparency, and justice. It also signifies a willingness to harness the advantages of AI and the IoT while preserving the integrity of the legal process in the digital age. The case of *State (N. C. T. of Delhi) vs Navjot Sandhu*¹⁸, often referred to as the "Parliamentary attack case," offers insights into the admissibility of electronic records, specifically mobile data records, in a legal context. The case's decision, which considered the admissibility of electronic evidence in the absence of strict compliance with *Section 65B*¹⁹ of the Indian Evidence Act, correlates with the intersection of AI and evidence law, showcasing the adaptability of the legal system to incorporate modern technology while maintaining the standards of reliability and credibility in evidence presentation. The accused raised concerns about the admissibility of

¹⁷ (2015) 7 SCC 178

¹⁸ 2005 11 SCC 600

¹⁹ Indian Evidence Act, 1872

telephone records, highlighting questions about the credibility and reliance on the electronic records due to a perceived lack of compliance with *Section 65B(2)*²⁰ of the Indian Evidence Act. *Section 65B* pertains to the admissibility of electronic evidence, including the requirement for certification by a person with knowledge of the functioning of the computer or device used to generate the electronic records. This scenario parallels the challenges posed by the introduction of AI-generated evidence in court proceedings. AI-generated evidence, like phone records, often involves complex technology and data analysis. The court's decision reflects the need for flexibility in evidence law when it comes to emerging technologies like AI. Just as the court in this case relied on cross-examination to establish the credibility and reliability of electronic records, AI-generated evidence can be subject to scrutiny and validation by competent witnesses who are knowledgeable about the AI systems used. The legal system's adaptability is crucial in the context of AI and evidence law. The overarching principle here is that evidence law should remain flexible and capable of adapting to evolving technologies like AI. The legal system should accommodate the use of AI while upholding the established standards of credibility, reliability, and fairness.

The use of electronic evidence in legal proceedings has become increasingly common, but it often poses challenges when it comes to determining its admissibility as primary or secondary evidence. In many cases, the original data or "contents of the documents" reside on servers in remote locations, making it practically impossible to produce primary evidence as defined in the statute. This necessitates the creation of a copy of the electronic record and the production of a certificate to establish its authenticity. In previous Supreme Court judgments before *Anvar vs Basheer*²¹, it was interpreted that the use of the word "may" in the Indian Evidence Act did not preclude parties from adducing electronic records using other traditional sections like *Sections 63 and 65*. These sections allowed for the admissibility of secondary evidence when primary evidence was unavailable. Many High Court judgments followed this interpretation, recognizing the practical difficulties of obtaining primary electronic evidence from remote servers but, a significant shift occurred with the *Anvar P.V v P.K Basheer case*²², where the Supreme Court mandated strict compliance with *Section 65B*²³, for the admissibility of electronic evidence. This section specifies the requirements for the admissibility of electronic records, including the necessity of a certificate from an expert to confirm that the electronic record is a true and accurate

²⁰ Indian Evidence Act,1872

²¹ 2014 10 SCC 473

²² 2014 10 SCC 473

²³ Indian Evidence Act,1872

representation of the original. This ruling effectively changed the landscape of electronic evidence in Indian courts, emphasizing the importance of maintaining the integrity and authenticity of such evidence. This change in approach is indeed beneficial for next-generation evidence, particularly in cases involving computer and digital records. Electronic evidence is highly susceptible to tampering, alteration, or manipulation. The requirement for a certificate from an expert adds an additional layer of assurance that the evidence has not been tampered with and is presented accurately in court. It enhances the reliability and credibility of electronic records, assuring that they meet the standards of evidence law and can be trusted by the legal system.

Conclusion

The need for modernization is underscored by the evolving standards for data privacy and consent. AI systems often rely on personal data, and the Indian legal system must adapt to accommodate the changing landscape of data protection laws and regulations. This adaptation is essential to strike the right balance between leveraging AI's capabilities in evidence collection and preserving individuals' privacy rights. The call for transparency and explainability in AI systems used in legal contexts further emphasizes the need for modernization. As AI lacks the human capacity to provide detailed explanations for its decisions, updates to the Indian Evidence Act should promote and regulate the use of AI systems that can offer clear insights into their decision-making processes. These updates will enable legal professionals, judges, and other stakeholders to understand and assess the reliability of AI-generated expert opinions and digital evidence. The evolving relationship between AI and evidence law in India demonstrates the legal system's adaptability to modern technology while ensuring that the principles of fairness, credibility, and reliability remain at the forefront. This adaptability is not only a testament to the dynamism of the legal framework but also an acknowledgment of the pivotal role that AI plays in enhancing the quality and efficiency of evidence collection, preservation, and presentation in the digital age. The intersection of AI and evidence law offers a promising future where technology and justice work hand in hand to maintain the integrity of legal proceedings and uphold the principles of a fair and equitable legal system.