INTERSECTION OF ARTIFICIAL INTELLIGENCE AND THE FIELD OF LAW

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ABSTRACT

This paper explores the integration of Artificial Intelligence within the field of law. It delves into some of the characteristics of AI and law that make such intersection compatible and so effective. Some of prominent use cases such as a tool of research, translation and transcription, case outcome prediction, case management, are discussed which are currently in practice. It also discusses some of the inherent challenges associated with adoption of AI in the field of law, such as bias, hallucinations, data privacy and ethical issues that necessitate a cautious approach to be taken towards such integration. Lastly, the paper is concluded by observing the need for human oversight and adherence to ethical guidelines that may be adopted to make intersection of AI in the field of law, successful and effective.

Keywords: Artificial Intelligence, Law, Trained AI, Use Cases, Challenges.

I. INTRODUCTION

The interface of Artificial Intelligence (hereinafter AI) in the domain of law is reshaping the 'traditional legal practices' by improving 'efficiency, accuracy and accessibility' for legal professionals. AI-powered tools help streamline legal research, automate contract analysis and assist in case outcome prediction, significantly cutting down the expenditure of legal works as well as the time taken. AI models, trained on massive legal data sets, can efficiently analyse such legal data, identify patterns and give remarks on past case rulings, judicial behavior and relevant statutes to predict case outcomes with remarkable accuracy by 'leveraging machine learning and natural language processing', which would take human legal professionals much longer to uncover. This capability aids lawyers in assessing case strengths, advising clients and formulating legal strategies, potentially reducing litigation costs and court congestion. Additionally, AI-driven predictive analytics can help judges make more informed decisions by identifying precedents and highlighting potential biases in sentencing or rulings.

However, the intersection of AI and law also raises significant ethical and regulatory concerns. AI may adopt from biased datasets and algorithms, leading to unfair or discriminatory legal outcomes. The lack of transparency in AI decision-making challenges accountability and raises questions about trust in automated legal processes, making it difficult to justify AI-driven recommendations in a legal context. Furthermore, over-reliance on AI predictions may undermine the human judgment and discretion necessary for fair adjudication. Yet, AI-powered case prediction holds immense potential for improving legal efficiency and decision-making and must be implemented with strict ethical guidelines to ensure fairness, transparency and accountability in the judicial system.

Introduction of AI in the legal field has been nothing short of disruptive, both in negative and positive sense, meaning that it has changed "the way work is done, making it more efficient, accurate, and effective".[1] AI has the capacity to handle large datasets and information, which can be processed and analysed quickly with minimal errors, compared to a human lawyer. This integration of AI in the domain of law now seems inevitable as it is increasingly being used for various applications including, but not limited to, legal research, document discovery, automated standard contracts, case outcome prediction. AI tools, both trained and untrained in

[1] Future Of Professionals Report 2024: An Executive Summary For Legal Professionals, THOMSON REUTERS, (Feb. 7, 2025), https://legal.thomsonreuters.com/blog/future-of-professionals/.

nature, are being used by legal professionals to generate results and output related to questions of law. However, these AI powered tools come with some inherent drawbacks in the form of accountability, bias, ethical concerns and transparency issues, to name a few. As reliance on such tools increases, it becomes imperative to study the impact its challenges have on all the possible aspects of the legal field. Consideration is warranted on the impact of biased AI data and algorithms and how it affects the legal processes, whether such tools can produce fair outcomes and what possible changes will AI powered tools bring about eventually, in the justice system.

II. COMPATIBILITY OF AI AND LAW

Michael Haenlein and Andreas Kaplan define AI as "a system's ability to interpret external data correctly, to learn from such data, and to use those learnings to achieve specific goals and tasks through flexible adaptation."[2] It became a serious field in the 1950s, starting as an academic specialty, quickly developing into an emerging field under the care of scientists such as 'Alan Turing, Marvin Minsky and John McCarthy, also known as the founding fathers of AI'.[3] Its potential attracted investments and funding for further research and development leading to steady growth. However, due to lack of concrete progress, the decades of 1980s saw a decline in interest and investment in the field, slowing down the growth of AI. A phase of resurrection came about in early 2000s, with the rise in technological capabilities, acting as catalyst in the development of AI technologies which further increased with better computing powers and large data generation in the recent years.

Law being a multidisciplinary field, has interactions in multiple domains, including the field of emerging technologies such as AI. However, what makes AI and the legal field compatible and in fact ideal for functioning are the eminent features such as the ability of AI to process vast amounts of legal data quickly. Legal research, which traditionally takes hours or even days, can now be completed in minutes using AI-powered tools, quickly scanning through case-laws, legislations, regulations, and legal precedents to produce relevant information, helping lawyers and legal professionals make informed decisions faster.

Another feature that makes AI compatible with law is its capacity for automation. AI can handle

[2] Micheal Heanlein & Andreas Kaplan, Brief History of Artificial Intelligence: The Past, Present, and Future of Artificial Intelligence, 61(4) CALIFORNIA MANAGEMENT REVIEW, 5-11, (2019).
[3] *Ibid.*

repetitive tasks such as contract analysis, document review and due diligence with high precision. Legal AI platforms use natural language processing to analyse contracts, flag potential risks and even suggest modifications based on previous legal precedents. This reduces the duration and expenses attributed with manual work, thereby giving lawyers more scope to concentrate on complex and strategic work.

Additionally, AI also enhances access to justice by making legal assistance more affordable and available to a wider population. AI-powered chatbots and virtual legal assistants provide preliminary legal advice, help users draft legal documents and guide them through legal procedures. This is "particularly beneficial for individuals who cannot afford expensive legal representation but still need basic legal assistance". Besides these mentioned features, law in a way is "almost like code and language combined, so it's the perfect use case for A.I.".[4]

III. TRAINED AI

A trained AI model is an AI system that has learned to perform a specific task by analysing data, it includes the "process of feeding curated data to selected algorithms to help the system refine itself to produce accurate responses to queries".[5] During training, humans manually correct any incorrect results of the AI and in this way help it to improve. Training an AI model involves feeding it large amounts of relevant data and adjusting its internal parameters so that it can recognise patterns, make predictions, or generate responses. The term 'training' alludes to the process of "feeding the algorithm data, examining the results, and tweaking the model output to increase accuracy and efficacy. To do this, algorithms need massive amounts of data that capture the entirety of information and relevant data".[6] This process is the foundation of learning the ability to recognise patterns, understand context and make appropriate decisions. The process of training an AI, which includes "processing, observing, providing feedback, and improving is akin to teaching a child a new skill", in a way that emulates learning by trial and error as a child learns to 'learn'.[7]

[4] Jacquelyn Germain, First 'A.I. Lawyer' Will Help Defendants Fight Speeding Ticket, SMITHSONIAN MAGAZINE, (Mar. 20, 2025), https://www.smithsonianmag.com/smart-news/ai-lawyer-will-help-defendants-fight-tickets/.
[5] Micheal Chen, What Is An AI Model Training & Why Is It Important?, ORACLE, (Mar. 1, 2025), https://www.oracle.com/in/ai-model-training/.
[6] *Ibid.*
[7] Matthew Hutson, How Researchers Are Teaching AI To Learn Like A Child, SCIENCE, (Mar. 1, 2025), https://www.science.org/article/researchers-are-teaching-ai-learn.

In the context of legal field, a trained AI means a system or a model which has been specifically developed to handle matters related to law and has been trained on data such as legislations, caselaws, legal opinions, etc. It includes "solutions that are shaped and informed by a combination of technologists and 'an army' of lawyers who are subject matter experts in their fields, not just by machines ingesting content and engineers writing code".[8] An example of a legal AI includes Westlaw Edge and CoCounsel, among others. On the other hand, a generic AI tool such as OpenAI's ChatGPT is developed on a conversational model, meaning that they are designed to engage in human-like conversations through text or speech. It enables machines to understand, process, and respond to human queries in a natural and interactive way, without being specially trained on any specific dataset, instead they function by extracting meaning from human language prompts and generates responses on the basis of context gathered from general datasets.

IV. USE CASES OF AI IN THE FIELD OF LAW

The impact of AI on the legal field is evident, yet, the depths of such impact is analysed under this part of the paper, which deals with the various aspects and use cases in which the capabilities of AI are relied upon to carry out various legal processes, some of which are discussed below.

1. LEGAL RESEARCH: AI-powered legal research streamlines the process by using Natural Language Processing and Machine Learning powers to analyse vast legal databases quickly, assisting legal practitioners in pinpointing crucial evidence within thousands of documents, drastically reducing the research and preparation time. In a study conducted to understand the relevance of AI in legal profession, around 65% of interviewees endorsed the AI tools for research in legal matters[9], underscoring the recent surge in availability of various AI powered research tools suitable for legal matters. Some pf the tools currently in use are LexisNexis's Lexis+AI, Harvey, Thomson Reuters's CoCounsel and Westlaw Edge, which help speed up the research

[8]AI vs. Legal AI, What is The Difference?, LEXIS NEXIS, (Mar. 1, 2025), https://www.lexisnexis.com/legal/p/thought-leadership/posts/ai-vs-legal-ai-what-sdifferenc?srsltid=AfmBOoo0lxN3SihxUkbShNoRUpPd6JMcu0BAsIwKPG9Sr4BD50jfDzZj.
[9]International Legal Generative AI Survey, LEXISNEXIS, (Feb. 27, 2025), https://www.lexisnexis.com/community/news/posts/lexisnexis-international-legal-generative-ai-survey-half-of-the-legal-profession-believe-generative-ai-will-transform-practice-of-law.

process, improving accuracy and facilitating advanced analysis within minutes. [10]

2. DOCUMENT AUTOMATION: AI powered tools can "create automated templates for documents, eliminating the need to build them from scratch every time".[11] It uses the particular firm or professional's existing legal documents to generate templates that can be used to produce new legal documents. AI tools such as "ContractMatrix, developed in partnership with Microsoft and Harvey, streamlines contract drafting, review and analysis", thereby aiding the process of document automation.[12]

3. CASE OUTCOME PREDICTION: AI's predictive analytics capabilities support Litigation Analytics, which plays a powerful role in helping an attorney decide whether to file a motion or not. These AI tools can "help litigators to predict outcomes of cases by analysing vast troves of historical judgments, looking at the facts in each particular case and decisions reached by the judge".[13] These AI tools "can help generate insights, recommendations and predictions based on large volumes of data, enabling faster delivery, smarter and more cost-effective solutions"[14].

4. TRANSCRIPTION: AI tools are used to aid in converting audio or video recordings into written text, by utilising machine learning models and particularly the Automatic Speech Recognition systems, to analyse audio and transcribe it with high accuracy, while "allowing judges, lawyers and litigants to see the transcript feed and make notes as it scrolls by, enabling them to review recent testimony and to mark up transcripts for review".[15] The Supreme Court of India initiated a pilot project employing AI to transcribe live court proceedings, where the system converted oral arguments made in Constitution Bench cases, into text.[16] The Calcutta High Court has also announced the "distribution of Dragon Legal Speech Recognition Software, which aims to assist

[10] *Ibid.*
[11] Seven Key Benefits Of Legal Document Automation, THOMSON REUTERS, (Feb. 28, 2025), https://legal.thomsonreuters.com/en/insights/articles/text=What is legal document automation,speak to the firm's technology.
[12] Ibid.
[13] Alex Heshmaty, Use Of AI In Law Firms To Predict Litigation Outcomes, LEXISNEXIS, (Feb. 28, 2025), https://www.lexisnexis.co.uk/blog/future-of-law/using-ai-to-predict-litigation-outcomes.
[14] David Wakeling, A&O Has Announced Exclusive Partnership With Harvey, A&O SHEARMAN, (Feb. 28, 2025), https://www.aoshearman.com/en/news/ao-announces-exclusive-launch-partnership-with-harvey.
[15] Transcription Of Court Proceedings, DAKSH INDIA, (Mar. 1, 2025), https://www.dakshindia.org/transcription-of-court-proceedings/.
[16] Bangalore Techies Bring AI To Supreme Court For The First Time, LIVE MINT, (Mar. 1, 2025), https://www.livemint.com/news/india/supreme-court-uses-ai-based-transcript-for-the-first-time-11677402929.html.

judicial officers in fulfilling their day-to-day roles even in the absence of support staff such as stenographers, by converting their spoken word into accurate written text".[17]

5. TRANSLATION: AI-based translation systems facilitate multilingual access to legal resources, ensuring greater inclusivity and accessibility in India's diverse linguistic landscape. The Supreme Court has adopted AI for translating some of the prominent "Supreme Court and High Court judgments into vernacular languages, as well as for legal research and process automation", having translated over 31,184 judgments into 16 languages including Hindi, Punjabi, Kannada, etc. as of December, 2023.[18] It has also developed an AI powered machine assisted translation tool called 'Supreme Court Vidhik Anuvaad Software' (SUVAS) to facilitate the increased use of regional languages in courts, as and when possible. It is "specially designed for judicial domain and currently has the capacity of translating English Judicial Documents, orders or Judgments into ten vernacular languages".[19]

6. AI ASSISTANTS AND CHATBOTS: AI-powered chatbots serve as virtual legal assistants, providing immediate responses to common legal inquiries. These chatbots help individuals understand legal procedures, draft basic legal documents, and even determine whether they need a lawyer for a particular issue. They "provide litigants with real-time information on case status, procedural guidance, and essential legal updates. This round-the-clock digital support makes the judicial system more accessible and user-friendly, especially for individuals unfamiliar with legal procedures".[20] For instance, LAWFYI's AI-powered chatbot provides citizens with instant guidance on legal queries, empowering them to navigate complex laws without needing immediate professional counsel, helping bridge the gap between legal expertise and public

[17] Srinjoy Das, Calcutta High Court Distributes 'Dragon Legal Speech Recognition Software' To Judicial Officers Of WB & Andaman And Nicobar Islands, LIVE LAW, (Mar. 1, 2025), https://www.livelaw.in/high-court/calcutta-high-court/calcutta-high-court-dragon-legal-speech-recognition-software.
[18] Artificial Intelligence In Judiciary, PRESS INFORMATION BUREAU, (Mar. 2, 2025), https://pib.gov.in/PressReleasePage.aspx?PRID=2043476#:~:text=The Supreme Court of India,Bench matters since February 2023.
[19] Action Plan For Simple, Accessible, Affordable And Speedy Justice, PRESS INFORMATION BUREAU, (Mar. 2, 2025), https://pib.gov.in/PressReleasePage.aspx?PRID=1947490.
[20] Digital Transformation Of Justice: Integrating AI In India's Judiciary And Law Enforcement, PRESS INFORMATION BUREAU, (Mar. 8, 2025), https://pib.gov.in/PressReleasePage.aspx?PRID=2106239.

accessibility, especially in rural and underserved areas.[21]

7. AUTOMATED ALTERNATIVE DISPUTE RESOLUTION: AI-powered tools are "trained on vast data sets, having exceptional capacity for natural language processing, allowing them to rapidly search, compare, summarise and extract insights from large volumes of text, images and data".[22] By evaluating variables such as case types, industry sectors, legal arguments, and historical settlement amounts, AI can provide insights into the likelihood of specific settlement options. This aids mediators, arbitrators, and disputing parties in finding common ground more efficiently.[23] Such automation significantly cuts down costs associated with human labor, making ADR more accessible to a wider audience.

As is evident from the plethora of use cases, AI is highly valuable addition in the field of law, with it super speed and accuracy that aids in the development of the field. However, AI is not fool-proof and has some challenges associated with it, which will be discussed next in this paper.

V. CHALLENGES ASSOCIATED WITH AI IN LEGAL FIELD

While AI does have significant impact on the legal domain, aiding its processes at multiple levels, it is not free from drawbacks which are either inherently part of its coding algorithm or it is acquired in the course of training on large datasets which may be faulty. This necessitates a look at the associated challenges of AI and how it manifests in its responses and outcome, some of which are discussed below.

1. BIAS: refers to the "systematic errors that occur in decision-making processes, arising from various sources including data collection, algorithm design and human interpretation, leading to unfair outcomes".[24] Commonly used AI systems such as

[21] Dr Nivash Jeevanandam, India's AI-Driven Legal Future: Opportunities And Emerging Trends In 2025, INDIAAI, (Mar. 8, 2025), https://indiaai.gov.in/article/india-s-ai-driven-legal-future-opportunities-and-emerging-trends-in-2025

[22] Katie Shonk, AI Mediation: Using AI To Help Mediate Disputes, HARVARD LAW SCHOOL PROGRAM ON NEGOTIATION, (Mar. 7, 2025), https://www.pon.harvard.edu/daily/mediation/ai-mediation-using-ai-to-help-mediate-disputes/.

[23] AI And Alternative Dispute Resolution (ADR): Automating Arbitration And Mediation, INDIAAI, (Mar. 7, 2025), https://indiaai.gov.in/article/ai-and-alternative-dispute-resolution-adr-automating-arbitration-and-mediation#.

[24] Emilio Ferrara, Fairness And Bias in Artificial Intelligence: A Brief Survey of Sources, Impacts, And Mitigation Strategies, UNIVERSITY OF SOUTHERN CALIFORNIA, (Mar. 9, 2025),

ChatGPT are trained on vast data of human-generated information, from where they may inherit biases from these texts and sources, raising ethical concerns, particularly in emotionally vulnerable settings. For example, USA employs an "AI-driven risk assessment model called Correctional Offender Management Profiling for Alternative Sanctions or COMPAS, which is used to predict the likelihood of recidivism in criminal defendants". It is suspected of being "biased against African American defendants, falsely predicting that they would reoffend compared to white defendants".[25] Researchers noted that these biases could worsen as AI interacts with users in real-time, further reinforcing stereotypes and social prejudices.[26]

2. ETHICS: integration of AI in the legal field raises significant ethical concerns particularly regarding bias and discrimination against certain sections of community, along with questions about accountability, liability and ethical considerations of the decisions made by AI powered tools. For example, predictive policing algorithms may disproportionately target marginalized communities, while AI-driven sentencing recommendations might unfairly disadvantage certain groups due to the inherent biases in its algorithm or acquired from large data. Establishing clear regulatory frameworks and guidelines is crucial to address these issues with increasing usage of AI in the legal context.

3. PRIVACY: increased digitisation in the recent years has significantly widened the ambit of data pools, with "all data collected and stored now available digitally, making our lives are increasingly digital. The result is that in this vast ocean of data, there is a frighteningly complete picture of us".[27] AI-powered data collection and analytics hold immense power and possibilities of intelligent data processing, which needs to be exercised carefully, so as to not breach the privacy of individuals, including both data and personal privacy.

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https://arxiv.org/pdf/2304.07683#:~:text=Ensures that AI systems are,systematically biased against certain individuals.

[25] Matthias Spielkamp, Inspecting Algorithms For Bias, MIT TECHNOLOGY REVIEW, (Mar. 16, 2025), https://www.technologyreview.com/inspecting-algorithms-for-bias/.

[26] AI Has Human Emotions? Study Reveals Insights Into AI's Emotional Responses In Mental Health Care, INDIAN EXPRESS, (Mar. 13, 2025), https://www.newindianexpress.com/ai-has-human-emotions-study-reveals-insights-into-ais-emotional-responses-in-mental-health-care.

[27] Ethics of Artificial Intelligence and Robotics, STANFORD ENCYCLOPAEDIA OF PHILOSOPHY, (Mar. 17, 2025), https://plato.stanford.edu/entries/ethics-ai/

4. TRAINING & SKILLS: rapid advancement of AI in the domain of law makes it necessary that the legal professionals adapt new skills and knowledge by developing technological proficiency, critical thinking, and strategic decision-making skills, along with the ability to understand and work with AI-driven legal technologies. This includes knowledge of legal research platforms, predictive analytics, and automation tools that streamline case management and litigation processes, which needs comprehensive training and support systems to acquire.[28] Without these new competencies, lawyers risk being left behind as AI reshapes the legal industry.

5. SUSTAINABILITY: AI-powered models are highly expensive to build and run, highlighting a broader issue in the AI industry: balancing innovation, scalability and profitability in a sector where resource consumption grows exponentially with usage, necessitating constant recalibration of business models.[29] The substantial costs incurred by AI companies are rooted in the demands of data processing, training and deploying of large-scale systems, along with the need for continuous updates. All these processes are highly sophisticated and need expert skill to execute, further adding to the cost of running and maintaining a technology like AI.

6. HALLUCINATIONS: are a "phenomenon wherein an AI tool perceives patterns or objects that are nonexistent or imperceptible to human observers, creating outputs that are nonsensical or altogether inaccurate".[30] Such distortions happen due to technical 'overfitting, training data bias or inaccuracy and high model complexity', making the incorporation of AI in the legal field full of risk, as seen in a study which revealed that "general-purpose chatbots were found to hallucinate between 58% and 82% of the time on legal queries, highlighting the risks of incorporating AI into legal practice".[31] The ramifications of such hallucinations were witnessed in a well known case, where a "New York based lawyer faced sanctions for citing ChatGPT-invented fictional cases

[28] AI For Legal Professionals: A Guide, THOMSON REUTERS, (Mar. 13, 2025), https://legal.thomsonreuters.com/blog/ai-for-legal-professionals-a-guide/.
[29] Cost Of Intelligence: Can AI Sustain Itself?, INDIAN EXPRESS, (Mar.16, 2025), https://www.newindianexpress.com/opinions/2025/Mar/11/cost-of-intelligence-can-ai-sustain-itself.
[30] What Are AI Hallucinations?, IBM, (Mar. 17, 2025), https://www.ibm.com/think/topics/ai-hallucinations.
[31] AI on Trial: Legal Models Hallucinate in 1 out of 6 (or More) Benchmarking Queries, STANFORD UNIVERSITY HAI, (Mar. 17, 2025), https://hai.stanford.edu/news/ai-trial-legal-models-hallucinate-1-out-6-or-more-benchmarking-queries.

in a legal brief", which upon cross verification were found to be fake, leading to actions against the lawyer.[32]

From the abovementioned challenges, it can be clearly observed that AI is riddled with some issues that need immediate addressing before it can be fully integrated so as to avoid the inaccuracies and shortcoming which can jeopardise justice and have no place in the field of law.

VI. WAY FORWARD

In conclusion, the integration of Artificial Intelligence and the legal field has truly transformed how legal work is performed, offering faster, more accurate and accessible services to both the lawyers and the clients. AI tools are now widely used in tasks like legal research, contract analysis, case prediction, transcription, translation and even online dispute resolution. These advancements help lawyers work more efficiently and make legal services more available to people who otherwise may not afford them. However, despite these benefits, there are serious concerns that must be addressed. Issues such as bias in AI algorithms, lack of transparency, hallucinations and ethical challenges raise questions about fairness and trustworthiness of AI-based legal decisions. Privacy concerns and the need for legal professionals to learn new technical skills also add complexity to AI adoption. Therefore, while AI holds significant promise in its ability to aid and improve the legal processes, at the same time there is a "need for cautious integration of technology" to ensure that it does not "undermine the core tenets of judicial reasoning".[33] Extensive recalibration of algorithm and data must be undertaken to ensure that biases are minimized and meticulous human supervision is maintained at all stages, guided by strict ethical standards. Only then can it support the justice system without compromising the core values of the legal system.

[32] US Lawyers Fined For Submitting Fake Court Citations From Chatgpt, THE GUARDIAN, (Mar. 17, 2025), https://www.theguardian.com/technology/us-lawyers-fined-submitting-fake-court-citations-chatgpt.

[33] *'Technology Must Not Replace Judicial Functions': CJI BR Gavai Sounds Caution About Use Of AI & Automated Systems,* LIVE LAW, (Jun. 14, 2025), https://www.livelaw.in/top-stories/cji-br-gavai-sounds-caution-about-use-of-ai-automated-systems-artificial-intelligence-294635#:~:text=Chief%20Justice%20of%20India%20BR,core%20tenets%20of%20judicial%20reasoning..