

THE INTERSECTION OF AI AND LEGAL SYSTEM

AUTHOR – RASHI SHARMA, STUDENT AT MANAV RACHNA UNIVERSITY

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ABSTRACT

The rapid advancement of artificial intelligence AI technologies is transforming nearly every aspect of society including the legal domain this research paper explores the complex and evolving relationship between AI and law focusing on the legal ethical and regulatory challenges posed by intelligent systems from autonomous decision making and predictive algorithms to generative content and legal tech AI raises profound questions about accountability privacy due process and the role of human judgement in justice the paper examines the education of existing legal frameworks in addressing issues such as liability for m ji ai- driven harm Intellectual property rights over a I generated content an algorithmic bias in decision making system furthermore it analyses ongoing regulatory Efforts including the European union's air act and other national approaches to assess how governments are responding to the legal implications of AI by integrating legal theory case studies and comparative regulatory analysis the study aims to for practical recommendations for ensuring that the deployment of AI alliance with fundamental legal principles and human rights ultimately this paper contributes to a more coherent and adaptive legal framework that can govern AI technologies responsibility in the years ahead.

INTRODUCTION

A new set of ethical and legal issues have emerged with the development of artificial intelligence (AI) technology. Automated decision-making in the criminal justice system, as well as the use of face recognition and other types of data analysis in the public and private sectors, are just a few of the ways that AI-driven judgements are having an increasing impact on our daily lives. Governments, companies, and people must take into account the legal

ramifications of AI as the technology develops and becomes more advanced. The legal ramifications of AI will be examined in this article, including with prospective regulatory frameworks, the effects on data privacy and intellectual property laws, and AI's ethical implications. Numerous legal challenges relating to artificial intelligence have emerged as a result of the global spread of technology and its uses (AI). Artificial intelligence (AI) is a

broad phrase that includes many various types of

technologies, such as robotics, machine learning, and natural language processing. As AI technology develops, more difficult legal problems appear. This article will examine some of the legal ramifications of AI, such as liability, legislation, and privacy. This essay will also go through possible remedies to these legal problems, like self-regulation and the creation of an AI legal framework. The article will finally look at some of the ethical ramifications of AI and how they might change the legal system.

FOUNDATIONS AND FRAMEWORK

Artificial Intelligence (AI) is built on a robust foundation that integrates data, algorithms, mathematics, cognitive science, and ethics to enable machines to mimic human intelligence and perform complex tasks. The core of AI begins with data—vast amounts of it are essential for machines to recognise patterns, learn, and make informed decisions. Algorithms,

which are sets of instructions or rules, process this data, allowing AI systems to learn from experience and make predictions or classifications. Mathematics, particularly statistics and calculus, underpins these algorithms, providing the tools to analyse data and model relationships within it. Cognitive science and neuroscience contribute by offering insights into human learning and decision-making, which inspire the development of more human-like AI systems. Ethical considerations and philosophy are also integral, guiding the responsible use of AI, addressing issues like bias, privacy, and accountability.

On top of these foundations, AI frameworks—such as TensorFlow, PyTorch, and Keras—serve as essential tools for developing, training, and deploying AI models efficiently. These frameworks provide standardised libraries and functions, streamlining the creation of sophisticated AI systems and ensuring consistency across projects. In recent years, foundation models—large-scale neural networks pre-trained on massive, diverse datasets—have emerged as a new paradigm. These models, like GPT-4 and DALL-E, are highly adaptable and serve as starting points for a wide range of AI applications, from language processing to image generation. Together, these foundational elements and frameworks form the backbone of modern AI, enabling rapid innovation and the integration of intelligent systems into everyday life.

AI IN LEGAL PRACTICE

Legal professionals who wish to perform due diligence on the use of AI in their practices need to do so thoughtfully and rigorously. If they don't do so, they might not maximize the benefits this emerging technology can provide.

The benefits are significant, with the potential to transform the way legal professionals deliver value and service to clients. For one thing, AI is expected to significantly boost lawyer productivity through time savings, particularly through the automation of repetitive but

necessary tasks that currently can take up a great deal of a professional's workflow—but don't need to. These tasks include drafting standard documents such as contracts. For instance, an AI tool can automate the complex process of searching, cutting, pasting, deleting, and editing to make drafting and analysis of contracts much faster and less tedious.

It's essential, of course, that such a tool be trustworthy. Legal professionals need to create documents that are precise and enforceable. This means that the AI they use must draw from sources developed and maintained by reputable legal experts—and be transparent about its data sources.

In addition, AI tools developed specifically for the legal profession can conduct research on cases, precedents, and other legal topics. AI can also summarize information across many sources and platforms much more rapidly than poring through these sources "manually." Instead, legal professionals can quickly get the information they need to put together strong cases, documents, and briefs.

AI AND JUDICIAL PROCESS

Artificial Intelligence (AI) is transforming the judicial process by automating administrative tasks, enhancing case management, and supporting legal research. AI tools analyse historical judgments and case data to offer predictive insights, helping judges make more informed decisions and develop effective case strategies. Technologies like Machine Learning, Natural Language Processing, and Optical Character Recognition are used to streamline document management, automate translations, and facilitate legal research, making judicial processes faster and more accessible. AI also assists in reducing case backlogs and improving efficiency by organizing information, recognizing patterns in legal documents, and providing recommendations, while ensuring that final decisions remain with human judges. This integration aims to create a more transparent, efficient, and citizen-centric justice system,

though it also brings challenges related to data security, ethical governance, and legal adaptation.

REGULATIONS AND GOVERNANCE OF AI

Artificial intelligence (AI) governance refers to the processes, standards and guardrails that help ensure AI systems and tools are safe and ethical. AI governance frameworks direct AI research, development and application to help ensure safety, fairness and respect for human rights.

Effective AI governance includes oversight mechanisms that address risks such as bias, privacy infringement and misuse while fostering innovation and building trust. An ethical AI-centered approach to AI governance requires the involvement of a wide range of stakeholders, including AI developers, users, policymakers and ethicists, ensuring that AI-related systems are developed and used to align with society's values.

AI governance addresses the inherent flaws arising from the human element in AI creation and maintenance. Because AI is a product of highly engineered code and machine learning (ML) created by people, it is susceptible to human biases and errors that can result in discrimination and other harm to individuals.

Governance provides a structured approach to mitigate these potential risks. Such an approach can include sound AI policy, regulation and data governance. These help ensure that machine learning algorithms are monitored, evaluated and updated to prevent flawed or harmful decisions, and that data sets are well trained and maintained.

Governance also aims to establish the necessary oversight to align AI behaviours with ethical standards and societal expectations so as to safeguard against potential adverse impacts.

AI AND RIGHTS

Artificial intelligence (AI) is transforming society and has a profound impact on human rights.

On the one hand, AI can advance rights such as access to information and healthcare, but it also raises serious concerns about privacy, equality, and democratic freedoms. AI systems, if not properly regulated, can reinforce bias and discrimination, threaten privacy through surveillance and data profiling, and even undermine freedoms of expression and assembly by tracking or profiling individuals based on their beliefs or actions. Key principles for trustworthy AI include respect for human autonomy, prevention of harm, fairness, and transparency, with requirements such as privacy protection, non-discrimination, technical robustness, and accountability. International guidelines emphasize that the same human rights people enjoy offline must be protected online, and that AI's development and use should always be aligned with fundamental rights and ethical standards.

CHALLENGES AND ETHICAL CONCERNS

Artificial intelligence presents significant challenges and ethical concerns across various domains. Key issues include bias and fairness, as AI systems can inherit and amplify biases from their training data, leading to discriminatory outcomes in areas like hiring, lending, and law enforcement. Privacy is another major concern, since AI often relies on vast amounts of sensitive personal data, raising questions about data collection, consent, and protection. The lack of transparency in many AI models—often described as “black boxes”—makes it difficult to understand or explain their decisions, complicating accountability and trust. As AI systems become more autonomous, there are worries about the loss of human control, especially in critical applications like autonomous vehicles or military drones. Job displacement and economic inequality are also pressing issues, as automation can disrupt labor markets. Additionally, AI can be misused for malicious purposes such as cyberattacks, deepfakes, and surveillance, further complicating ethical oversight. Assigning responsibility and liability when AI systems cause harm remains a complex challenge, and

the environmental impact of training large AI models is an emerging ethical concern. Addressing these challenges requires robust ethical frameworks to ensure AI is developed and used responsibly.

CONCLUSION

The intersection of AI and the legal system is rapidly transforming how justice is delivered, offering significant opportunities for efficiency, consistency, and enhanced data analysis in both judicial and law enforcement contexts. AI tools are now used to analyze vast legal databases, predict case outcomes, and assist in investigative work, making legal services faster and more accessible. However, this integration also raises critical ethical and practical challenges, particularly regarding bias, transparency, and accountability. If AI systems are trained on biased data, they risk perpetuating or even amplifying existing inequalities within the legal system, potentially leading to unfair or discriminatory outcomes. As a result, ongoing efforts are needed to ensure that AI adoption in law is governed by robust ethical standards, transparency, and regulatory oversight, so that technological innovation supports—not undermines—justice and public trust.

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