

EVOLUTION AND IMPACT OF ARTIFICIAL INTELLIGENCE IN CHATBOTS

Perna Perna¹
Nidhi Singh

Received 19.06.2024.
Revised 17.07.2024.
Accepted 08.08.2024.

Keywords:

Artificial Intelligence, Chatbot,
Privacy, ChatGPT.

Original research



ABSTRACT

Artificial Intelligence (AI) is reshaping the world and technology, no longer a futuristic concept but a present reality in our daily lives. Businesses are rapidly adopting AI to automate processes, leading to the creation of intelligent agents known as chatbots. These chatbots have revolutionized business communication and significantly enhanced customer satisfaction. This paper explores the history and development platforms of chatbots, examining their integration into daily life despite often undefined purposes. Chatbots use pattern recognition to generate responses, raising questions about moral issues, security, and legitimacy due to their growing popularity. A key focus is on ChatKanoon, a multilingual AI chatbot designed for the Indian legal system. This study analyzes its impact on the Indian legal framework and its potential to revolutionize legal aid in India and other developing countries. Additionally, the research paper covers the basic features, connectivity, services offered, accuracy, and technology providers of chatbots and virtual assistants implemented by Indian banks..

© 2024 Journal of Trends and Challenges in Artificial Intelligence |

1. INTRODUCTION

Artificial Intelligence (AI) has seen unprecedented growth, impacting diverse fields such as finance, transportation, healthcare, education, agriculture, and manufacturing. Among AI innovations, chatbots like ChatGPT have particularly transformed many sectors, including the legal domain (Guleria et al., 2024). As AI continues to evolve, chatbots are becoming essential tools for legal professionals in India, promising to revolutionize various aspects of legal practice from research and document generation to public legal information dissemination (Rajkhanna & Rabbiraj, 2023).

The Indian legal system, while robust, faces significant challenges such as limited access to legal information and assistance (Kumar, 2007). The high demand for legal

services, coupled with the complexity and cost of legal processes, presents substantial barriers, especially for the broader population. AI integration offers a unique opportunity to address these issues (Aldoseri et al., 2023). ChatKanoon, a pioneering multilingual AI chatbot tailored for the Indian legal framework, leverages advanced language models like GPT-4 and Llama2. By using instructional tuning techniques, ChatKanoon aims to provide accurate, reliable, and contextually relevant legal advice, thereby democratizing access to legal information, reducing costs, and enhancing legal efficiency.

The integration of AI chatbots in India raises important legal considerations that need thorough examination. This paper explores the legal challenges associated with chatbots (Kooli, 2023), focusing on data privacy, intellectual property rights, ethical issues, and the regulatory landscape (Singh & Singh, 2019; Panda, &

¹ Corresponding author: Perna Perna
Email: Pernayuhishter0@gmail.com

Chakravarty, 2022; Adhikari et al., 2024). It aims to provide a comprehensive understanding of how these technologies can be effectively and ethically implemented in the legal sector (Wach et al., 2023).

2. CONCEPT OF CHATBOTS

Chatbots, also known as artificial conversational entities, have evolved significantly since their inception. The idea of chatbots dates back to the 1950s, with early versions like ELIZA in 1966, which used pattern matching and substitution techniques (Szmurlo & Akhtar, 2024). Subsequent developments include PARRY in 1972, which modeled paranoid schizophrenia behavior, and Jabberwacky in 1981, designed to simulate natural human conversation for entertainment.

The technology behind chatbots has advanced dramatically, enabling modern chatbots like GPT-3, developed by OpenAI in 2020, to generate human-like text across a wide range of contexts with its 175 billion parameters. These advancements have expanded the applications of chatbots to include language translation, summarization, and question answering. This paper examines the potential uses of advanced chatbots like GPT-3 in the Indian legal field. It discusses the challenges and ethical considerations that must be addressed and explores how these technologies are likely to evolve and impact the legal profession in the future.

3. IMPORTANCE OF CHATBOTS

Chatbots hold significant potential in the Indian legal field, offering various applications to streamline legal processes (Bishnoi et al., 2024). Firstly, they can efficiently search and analyze vast legal documents, case laws, and regulations, providing valuable insights to legal professionals (Gromov et al., 2023). Additionally, chatbots assist in drafting legal documents such as contracts, agreements, and petitions by offering templates and suggestions based on user input. They also offer general legal guidance to individuals and businesses, helping them navigate common legal issues and understand their rights. Moreover, chatbots can streamline repetitive tasks like client intake, scheduling appointments, and sending reminders, thereby improving efficiency and reducing the workload for legal professionals (Mese et al., 2023). Considering the future importance of chatbots, this research paper analyzes their deployment in Indian banks.

3.1 Usage of Chatbot in Legal Sector

ChatKanoon leverages key language models, GPT-4 Turbo and Llama2 70B, to enhance legal processes, provide access to legal documents, and maintain rule standards. One of its main advantages is offering services in various Indian languages, including Hindi, Gujarati, Marathi, Tamil, Telugu, Malayalam, Punjabi, and Urdu, making legal advice accessible in preferred languages.

ChatKanoon understands and provides information on Indian laws and state-wise facts, helping to reduce case backlog in courts and improve judiciary efficiency. Additionally, it provides cost-effective legal solutions, aiding low-income earners and reaching rural areas, thereby bridging the gap in legal services between urban and rural populations. Furthermore, ChatKanoon promotes digital literacy by encouraging interaction with technology for legal information, contributing to technological skill-building. ChatKanoon reaches rural areas, overcoming the gap in quality legal services between urban and rural populations. Promotes digital literacy by encouraging interaction with technology for legal information, contributing to technological skill-building.

3.2 Usage of Chatbot in Banking Sector

Indian banks are adopting advanced technologies like big data, analytics, machine learning, AI, and IoT to improve operational efficiency, reduce costs, and enhance financial control. Many banks in India presently are implementing chatbots and virtual assistant that are created using AI and machine learning technologies. Following the implementation of central banking systems, banks have embraced internet banking, mobile banking, biometrics, and more. Notable examples of chatbot deployment include State Bank of India's SIA, an AI-powered chatbot capable of handling up to 864 million queries a day, making it the largest in the financial sector. HDFC Bank's EVA, India's first and largest AI-powered banking chatbot, has answered over 5 million queries with over 85% accuracy. ICICI Bank's iPal, another AI-powered chatbot, has completed 6 million responses.

4. ISSUES AND CHALLENGES IN CHATBOT

4.1 Legal Regulatory issues of chatbot

Chatkanoon model requires high processing power and resources, as chatbot utilises the models GPT-4 and Llama2 70B which demand significantly high computational resources due to their large size and complexity. So, we lack the necessary computational resources.

Another critical legal consideration is the "Right to be Forgotten," which involves data protection and the ability to request the deletion of personal data when it becomes irrelevant or unnecessary. This issue necessitates careful attention to safeguard patient privacy and comply with relevant data protection regulations.

4.2 Privacy issues in Chatbot

Privacy and confidentiality are also major concerns, particularly in fields dealing with sensitive information, such as medicine. Strong encryption protocols, secure data storage, and strict privacy policies are essential to address these issues. Robust data protection and privacy laws, including data minimization, anonymization,

deletion, and encryption, are crucial for AI deployment. Additionally, AI systems can inherit biases from training data, leading to discrimination issues, as seen in the Amazon recruitment program incident in 2018. Monetization of AI tools could threaten access in low and middle-income countries, raising concerns about a digital divide and global inequalities.

Generative AI models like ChatGPT can collect and process personal data during user interactions, raising significant data protection and privacy concerns. These models might access sensitive information that users prefer to keep private. Robust data protection and privacy laws—including policies on data minimization, anonymization, deletion, and encryption—are essential before fully deploying AI technologies. On March 31, 2023, the Italian data regulator banned ChatGPT, citing illegal data collection and processing practices. French, German, and Irish regulators contacted their Italian counterparts to understand the reasons behind the temporary ban. Although the ban has since been lifted, it has sparked important discussions. For instance, Samsung has prohibited its employees from using generative AI tools like ChatGPT due to increasing security risks associated with these technologies.

4.3 Bias and Fairness

Discrimination issues can manifest in various ways when businesses employ AI systems. One primary concern is the bias inherent in the data used to train AI tools. Since AI models are created and trained on data generated by humans, human biases can become embedded in the design, development, implementation, and use of these AI systems. For instance, in 2018, Amazon discontinued an AI-based recruitment program after discovering that the algorithm was biased against women. The model had been programmed to evaluate candidates based on patterns in resumes submitted over a decade, but since most candidates in the training data were men, the AI learned to favor male candidates over female ones.

Currently, ChatGPT is accessible for free, although a premium version is available. Future monetization could limit access, particularly in low and middle-income countries, exacerbating disparities in access to knowledge and information in resource-poor environments. This potential for a digital divide and global inequalities in health information raises significant concerns. Establishing AI awareness and a governance body in developing countries could help address these issues and promote equitable access to AI technologies.

4.4 Intellectual Property Rights

Concerns about potential legal issues related to copyright have been raised regarding the use of large language models (LLMs). The outputs from these models are derived from various training data, potentially infringing on the intellectual property rights of authors. Intellectual property (IP) risks associated with AI can emerge in several ways. Firstly, because AI systems are trained on vast amounts of data, this training data likely includes third-party IP, such as patents, trademarks, or copyrights,

for which prior authorization has not been obtained. Consequently, the outputs generated by these AI systems may infringe upon the IP rights of others. This issue has already resulted in litigation.

In November 2022, pseudonymous software engineers filed a class action lawsuit in *Doe v. GitHub* against GitHub, Microsoft, and OpenAI. They claimed that the defendants had trained two generative AI tools—GitHub Copilot and OpenAI Codex—using copied copyrighted material and licensed code, violating open-source licenses and infringing on intellectual property rights. This lawsuit is significant as it is the first-class action case to challenge the training and outputs of AI systems. In February 2023, Getty Images filed a lawsuit against Stability AI, accusing the company of infringing its copyrights by using millions of Getty photos to train its AI art-generation tool.

Additionally, disputes can arise over the ownership of intellectual property (IP) generated by an AI system, especially when multiple parties contribute to its development. For instance, OpenAI's Terms of Use state that the "right, title, and interest" in the output of the large language model (LLM) belong to the user who provided the prompts, as long as the user complies with OpenAI's terms and the law. However, OpenAI reserves the right to use both the user's input and the AI-generated output "to provide and maintain the services, comply with applicable law, and enforce our policies."

5. REGULATION OF CHATBOTS

Globally, governments are striving to regulate AI. The EU's AI Act is on track to become law, while Canada has introduced the Artificial Intelligence and Data Act as part of Bill C-27.

The UAE is committed to strong AI governance, with initiatives like the UAE National Strategy for Artificial Intelligence 2031 and regulatory frameworks for digital investment managers. Currently, various laws in the UAE address AI concerns, including the Federal Law Combating Discrimination and Hatred, Data Protection, Consumer Protection, and Cybercrime laws. However, their interpretation in AI contexts remains to be seen.

Financial free zones in the UAE are actively exploring the role of AI in finance. In March 2023, the Dubai International Financial Centre (DIFC), in collaboration with the UAE Artificial Intelligence Office, introduced the Artificial Intelligence (AI) and coding license. This license provides additional benefits for companies looking to join the DIFC fintech Hive. In 2019, Abu Dhabi Global Markets (ADGM) established its regulatory framework for Digital Investment Managers, also known as 'robo-advisors', operating within ADGM. Currently, AI in the UAE is governed by a complex array of laws. The UAE Federal Law Combating Discrimination and Hatred protects against AI-driven bias and discrimination. The Federal Data Protection Law addresses privacy and data governance issues. The

Federal Consumer Protection Law can hold AI companies accountable for consumer harm. The Federal Cybercrime Law can penalize those who attempt to harm AI systems. Intellectual property laws ensure fair treatment of IP owners. However, the interpretation of these laws concerning AI models like ChatGPT remains to be seen.

6. CONCLUSION AND SUGGESTIONS

Chatbots have the potential to revolutionize the Indian legal system by enhancing legal research, streamlining document generation, and increasing public access to legal information. However, their implementation raises significant ethical and practical challenges that need to be addressed. As chatbots and AI technologies continue to evolve, it is essential for the legal community, policymakers, and the public to engage in ongoing discussions about their responsible development and deployment. This will help ensure that these tools uphold

principles of justice, fairness, and access to legal services for all. AI-based legal assistance services can democratize legal access in developing countries by reducing costs and addressing the lack of legal infrastructure. While these technologies can enhance diversity in legal environments, it is crucial to consider cultural and contextual variations and to collaborate with legal experts. Implementing AI in legal services is technically challenging but offers substantial rewards in terms of efficiency, accessibility, and speed.

For the effective implementation of AI technologies in the legal and banking sectors, the following recommendations are proposed. Firstly, exercise caution when adopting chatbots and generative AI, particularly for government contracts or commercial work. Secondly, adopt policies governing the deployment of these technologies in business products and their use by employees. Lastly, recognize the potential for chatbots to err, and instruct employees not to rely on them uncritically.

References:

- Adhikari, K., Naik, N., Hameed, B. Z., Raghunath, S. K., & Somani, B. K. (2024). Exploring the ethical, legal, and social implications of ChatGPT in urology. *Current Urology Reports*, 25(1), 1-8.
- Aldoseri, A., Al-Khalifa, K. N., & Hamouda, A. M. (2023). Re-thinking data strategy and integration for artificial intelligence: concepts, opportunities, and challenges. *Applied Sciences*, 13(12), 7082.
- Bishnoi, R., Kaur, R., Kaur, N., Kaur, H., Kaur, A., & Johal, A. (2024). Utilizing Artificial Intelligence in Legal System with Special Reference of India. *Educational Administration: Theory and Practice*, 30(5), 2217-2223.
- Gromova, E. A., Ferreira, D. B., & Begishev, I. R. (2023). ChatGPT and Other Intelligent Chatbots: Legal, Ethical and Dispute Resolution Concerns. *Revista Brasileira de Alternative Dispute Resolution-Brazilian Journal of Alternative Dispute Resolution-RBADR*, 5(10), 153-175.
- Guleria, A., Krishan, K., Sharma, V., & Kanchan, T. (2024). ChatGPT: forensic, legal, and ethical issues. *Medicine, Science and the Law*, 64(2), 150-156.
- Kooli, C. (2023). Chatbots in education and research: A critical examination of ethical implications and solutions. *Sustainability*, 15(7), 5614.
- Kumar, C. R. (2007). Corruption, Development and Good Governance: Challenges for Promoting Access to Justice in Asia. *Mich. St. J. Int'l L.*, 16, 475.
- Mese, I., Taslicay, C. A., & Sivrioglu, A. K. (2023). Improving radiology workflow using ChatGPT and artificial intelligence. *Clinical Imaging*, 109993.
- Panda, S., & Chakravarty, R. (2022). Adapting intelligent information services in libraries: A case of smart AI chatbots. *Library Hi Tech News*, 39(1), 12-15.
- Rajkhanna, R. K., & Rabbiraj, C. (2023). Innovation in legal education: the role of artificial intelligence and its significance for the legal profession. *International Journal of Intellectual Property Management*, 13(3-4), 268-282.
- Singh, N. P., & Singh, D. (2019). Chatbots and virtual assistant in Indian banks. *Industrija*, 47(4).
- Szmurlo, H., & Akhtar, Z. (2024). Digital Sentinels and Antagonists: The Dual Nature of Chatbots in Cybersecurity. *Information*, 15(8), 443.
- Wach, K., Duong, C. D., Ejdy, J., Kazlauskaitė, R., Korzynski, P., Mazurek, G., ... & Ziemia, E. (2023). The dark side of generative artificial intelligence: A critical analysis of controversies and risks of ChatGPT. *Entrepreneurial Business and Economics Review*, 11(2), 7-30.

Prerna Prerna

Faculty of Law, University of Delhi,
India.

Prernayuhishter0@gmail.com

ORCID: 0009-0007-8676-9898

Nidhi Singh

Faculty of Law, University of Delhi,
India.

shrinetnidhi2012@gmail.com

ORCID: 0009-0005-4523-5545
