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Research on Generative Artificial Intelligence Legal Profession Substitution

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Abstract

Generative Artificial Intelligence, since the launch of ChatGPT in November 2022, has sparked great interest and attention from all community sectors. It has impressive performance in various fields, bringing significant impact and change to traditional legal professions such as lawyers and judges, as well as being an essential driving force for the development of digital transformation of the legal profession. This paper empirically examines the application of generative AI in the legal field and, on this basis, develops an analysis of the risks and limitations of the legal application of generative AI. The study finds that: firstly, AI can effectively promote the quality and efficiency of the legal profession and social justice; secondly, generative AI and the legal profession constitute a complementary professional substitution relationship; thirdly, the application of generative AI in the field of the legal profession should be regulated from the dimensions of AI ethics and legal professional ethics. The above findings help to understand the relationship between law and AI correctly and, on this basis, provide ideas and empirical basis for improving the regulatory framework and assessment system of legal science and technology ethics.

Keywords

Generative Artificial Intelligence; Legal Technology; Professional Substitution; Legal Technology Ethics

Introduction

In the summer of 1956, a symposium on machine intelligence was held at Dartmouth University in the United States. The term "artificial intelligence" was formally adopted at the meeting upon McCarthy's proposal, and McCarthy was thus called the father of artificial intelligence. It marked the birth of AI as an emerging discipline. The White Paper on the Standardisation of Artificial Intelligence (2018 Edition) defines "Artificial Intelligence as a theory, method, technology and application system that uses digital computers or machines controlled by digital computers to simulate, extend, and expand human intelligence, perceive the environment, acquire knowledge, and use the knowledge to obtain the best results." Artificial Intelligence and Law is an emerging field of study born in the early 1970s. Buchanan (Buchanan) and Headrick (Headrick) published the paper "Some Examination of Some Problems Concerning Artificial Intelligence and Legal Reasoning" in 1970, which is considered to be the first article in the field of artificial intelligence and law.

Legal technology in the 21st century has subverted the traditional way of work of lawyers. Relevant experts predict that legal artificial intelligence surpasses human legal expert intelligence, and in the future, with the development of GPU, TPU, and other hardware, artificial intelligence devices will become indispensable

assistants to judges or lawyers, and even the phenomenon of human-computer integration or artificial intelligence replacing the judge to make direct decisions. Workers of different occupations, different salary levels, different education levels, and different ages will face the risk of substitution in the face of new technologies such as artificial intelligence. If "Singularity" comes, what measures should we take to avoid AI from opening the "Pandora's Box" of legal career replacement? How should we manage and mitigate the risks posed by the use of AI in the legal profession when generative AI has more excellent "emergent capabilities" and can perform more tasks if we do not consider AI as a full-fledged subject of the legal profession but also consider them as mere tools that do not punish AI for their wrongdoings?

The primary goal of artificial intelligence and legal research is to construct suitable legal applications and generate models that can be implemented in computer programs. China's brilliant court, intelligent prosecution, smart public security, competent law firms and other projects related to AI legal applications belong to this category. "Artificial Intelligence and law" (AI and law) includes two aspects: on the one hand, it is the application of AI in legal affairs; on the other hand, it is the legal problems that AI (brings). This paper focuses on the former, i.e., the application of AI and other legal science and technology in legal affairs, i.e., the science and technology of applying law, which can also be understood as the science and technology of applying law.

This paper adopts the perspective of legal professionals to empirically examine the current situation of generative AI applications in the legal profession. The study finds that there are three significant risks and five major limitations in the application of generative AI in the legal profession and proposes a regulatory path for the replacement of the legal profession by generative AI through a comparative study of the probability of the replacement of the legal profession by generative AI. The study concludes that generative AI and the legal profession will integrate and develop, constituting a complementary career replacement for the legal profession; at the same time, new legal professional groups will be derived from non-legal professions such as legal technology companies. These two should be regulated through the ethics of science and technology (the ethics of artificial intelligence) and the ethics of the legal profession, and these analyses and assessments will help to promote the design of a regulatory framework for the ethics of legal science and technology and the establishment of an assessment system.

Generative Artificial Intelligence in the Legal Profession

Countries around the world have conducted research and exploration on the application of artificial intelligence in the legal field. China has also included the legal application of artificial intelligence in its national strategy. At present, the application of artificial intelligence in the legal field mainly includes the following seven subfields: (1) the use of computers in law; (2) intelligent databases; (3) intelligent legal information systems; (4) computer-assisted legal drafting; (5) database management systems; (6) expert systems; (7) knowledge systems. Applications mainly include AI legal applications such as SAAS products and legal service market trading platforms, legal text parsing technology, artificial intelligence-assisted case handling and large-scale language models.

Overseas legal macro modelling applications

14 March 2023, Open AI releases GPT-4, a generative AI that raises the text input limit to 25,000 words

and optimises support for languages other than English. February 2023 Allen & Overy (A&O), the world's seventh-largest law firm, announces that its 3,500-plus lawyers will be using Harvey's AI products, an OpenAI investment, making it "the first law firm in the world to use a generative AI-based on an Open AI GPT model. OpenAI invested in Harvey's AI products, becoming "the first law firm in the world to use generated AI based on Open AI's GPT model". In March, PwC became Harvey's second corporate client, with all 4,000 of its lawyers using Harvey's AI. On 22 September, Macfarlanes LLP, one of the UK's largest law firms, also announced on its official website that it had entered into a technology partnership with Harvey to fully apply generative AI in legal advice, legal content generation/queries, and client service.2023 On 16 September, Skynews News reported that the UK's leading Lord Justice of Appeal, Colin Lord Birss, said in a speech at a recent event organised by the British Bar Association that he is using ChatGPT to summarise several legal judgments. Birss believes this will disrupt the law, dramatically improving the efficiency of lawyers, judges and others. He is already using these AI products in his work.

Domestic Law Big Model Application

According to incomplete statistics, there are currently more than 130 large models in China. Talking about the hundred model war, Zhejiang University Artificial Intelligence Research Institute Director Professor Wu Fei thinks, "At present, more than 100 big models, although a hundred flowers bloom, but the model quality is uneven, eventually through the iterative optimisation and merger and reorganisation for the big waves of sand, will only be left with several excellent performances, and intelligent technology chain better adapt to the general big model. " On 8 December 2022, the Supreme People's Court issued the "Opinions on Regulating and Strengthening the Judicial Application of Artificial Intelligence", which put forward the general objective of basically building a complete system of judicial artificial intelligence technology application by 2025 and building a judicial artificial intelligence technology application and theoretical system with a rule-leading and application demonstration effect by 2030. Compared with primary AI, generative AI has four significant advantages, including automation and efficiency enhancement, personalisation and customisation, creativity and innovation, interpretability and transparency. Currently, domestic applications of generative AI in the legal field are shown below.

serial number	Each platform	Is there a legal section?	URL	APP	Remark	
1	Iflytek Spark model, you can install the andriod client on your mobile phone and use SparkDesk on your computer.	Spark Legal Consulting, Elite Lawyers, Legal Assistants, Intelligent Civil Lawyers, Labor Law and Regulations Consulting, Legal Consulting Lawyers, Private Legal Consultants and other legal AI, financial and taxation assistants, PPT generation, painting masters	https://xinghuo.xfyun.cn/		Comprehensive board-Xunfei has a lot of content, fast speed, good test experience, and relatively	free
2	Baidu Wen Xin Yi Yan web version Baidu Wen Xin Yi Yan Beginner's Guide	Psychologists review and write tender documents	https://yiyan.baidu.com/ https://yiyan.baidu.com/tutorial	Mobile APP	Comprehensive board-	
3	Ali Tongyi Large Model Tongyi Qianwen Tongyi Wanxiang Tongyi Ting	No legal section - very few sections	https://tongyi.aliyun.com/		Comprehensive board-fewer sections	
4	Tencent Hunyuan A1 large model	Can't test yet	https://hunyuan.tencent.com/		Not open	
5	Wind Change-chatGPT	The dialogue module includes law--a personal lawyer	https://ai-edu.aigcfun.com/chat-home	Mobile APP	Comprehensive board-yes Legal section + other sections - including drawings and	pay
6	Smart Pickup GPT	Professional Board Law	https://www.zhi10.com/	Mobile APP	Professional legal board	
7	Panda AI Legal Service Platform	Professional Board Law	http://ai.pandalaw.cn/	Mobile APP	Professional legal board	
8	AI Linda	No legal section		Mobile APP		
9	Chatlaw	Professional Law	https://www.chatlaw.cloud		Professional legal board	

Risks and Limitations of Generative AI Legal Applications

In April 2017, renowned British physicist Stephen Hawking suggested that Artificial Intelligence is a "double-edged sword" that could end the history of human civilisation unless we learn how to avoid the dangers. On 12 September 2023, Yuval Noah Harari, author of A Brief History of Humankind, warned at the CogX Festival, "In the next few years, artificial intelligence is likely to rapidly absorb all human cultures since the Stone Age (all achievements), and begin to produce new cultures of alien intelligence.". Every major technological invention rekindles the dual-use dilemma - new technologies have the potential to be used for good or for evil, and generative AI has the same risks and limitations.

Risks of Generative AI Legal Applications

According to the latest "Identifying and Mitigating the Safety Risks of Generative Artificial Intelligence" re-

view by Google DARPA et al. dated 22 September 2023, there are eight key risk categories of generative AI, such as impaired fairness, intellectual property rights infringement, information leakage, malicious use, security threats, model illusion, environmental/social and regulatory, and third-party risks, which have been summarised. In addition, the application of generative AI in the legal domain requires attention to the following three significant risks: security risk (data safety), risk of unethical use and intellectual property infringement, and risk of controllability of legal decisions.

In the field of judicial data security, generative AI collects public information in the judicial field for user profiling and language model training for use in the judicial decision documents network, social media such as microblogs, WeChat, and the official website of the judiciary and the database of lawyers, and there is a risk of data and personal privacy leakage. The EU's GDPR, California's CCPA, China's Cybersecurity Law, Personal Information Protection Law, Interim Measures for the Administration of Generative Artificial Intelligence Services, and other laws and regulations all list the safety of generative AI as a primary issue and regulate it legally. In the area of intellectual property, the European Artificial Intelligence Act has proposed regulation. According to TechWeb.com, on 21 September, the Writers Guild of America and 17 well-known authors launched a class action lawsuit against OpenAI, accusing it of using copyrighted works as training. The lawsuit is the latest legal challenge facing OpenAI. In legal decision-making, when AI and new rules fully breach the traditional legal services market are yet to be established, the controllability differences between them will become increasingly prominent. 2022 The Opinions on Regulating and Strengthening the Judicial Application of Artificial Intelligence, issued by the Supreme People's Court on 8 December 2022, has already clearly stipulated the principle of AI-assisted trials and emphasised that, regardless of the level of technological development. AI shall not replace judges in adjudication, thus ensuring that adjudication powers are always exercised by the adjudication organisation rather than AI decision-making.

Limitations of Generative AI Legal Applications

The five main limitations of generative AI in law include the following five significant limitations: illusion and fiction, algorithmic discrimination and bias, trustworthiness, non-interpretability, and lack of human sensitivity.

Linguistic macro models such as ChatGPT are prone to "hallucinations", where the output generated appears coherent on the surface but may be incorrect or wholly fabricated. A typical example of ChatGPT's "illusions and fictions" occurring in the legal profession is the case of Rolla v. Starr, LLP, New York, USA. Issues of discrimination and bias, such as the COMPAS algorithm developed by Northpointe to assess offenders' risk of repeat offences, were found to be racially discriminatory (Angwin et al., 2016). Technological trust and acceptability are the cornerstones of the application of legal technology in the legal profession and gaining the trust of society. The Legal Services Regulatory Authority (LSRA) in the UK suggests that a critical enabler of innovation in legal technology is the principle of social acceptability of technology. Both the LSB and the SRA recognise that the use of technology that has gained the public's trust is a crucial enabler of open access to legal services and the provision of better access to services. Our Interim Measures for the Administration of Generative Artificial Intelligence Services explicitly call for improving the accuracy and reliability of generated content. Amara's law states that people consistently overestimate the short-term benefits of technology while underestimating its long-term impact. The impact of generative AI on the humanistic sensitivity of the legal profession is mainly in the following three areas: first, the change in the training mode of young

lawmakers. The second is the degradation of practical communication ability. The third is the lack of humanistic empathy in the legal profession. Artificial intelligence obviously cannot have empathy and emotional elements like human beings and cannot experience the humanistic concern of "endeavouring to let the people feel fairness and justice in every judicial case".

Generative Artificial Intelligence Legal Career Replacement Probability

In 2013, the University of Oxford released "The Future Workplace: Which jobs will likely be replaced by computers? a survey report. The study showed that lawyers have a 30-50 per cent risk of being replaced, judges have a 40 per cent risk of being replaced, judicial support staff such as judge's assistants and clerks have a 41 per cent risk of being replaced, and positions such as arbitrators and hearing processors have a 64 per cent risk of being replaced. Some scholars believe that another way for AI to complement human strengths is to provide us with tools. There are also foreign scholars who, based on the task model approach, have given several scenarios in which four different types of tasks can be replaced by computers in the workplace, namely, substitution, complementarity and conditional substitution or complementarity. Some scholars in China classify AI lawyers as "derivative occupations" under high-potential emerging occupations. The discussion, as mentioned earlier, on the replacement of occupations by AI focuses on four types of views, namely, substitution, instrumental, complementary and derivative.

Based on the characteristics and requirements of the legal profession, there is no possibility for the legal profession to be replaced entirely by generative AI or future generalised AI because human beings will not tolerate machines making decisions in place of humans. At the same time, looking at the current status of the application of generative AI in the field of the legal profession at home and abroad and the judgement of future development, AIGC has been developed from primary application to higher-order application and is no longer confined to the tool functions such as simple retrieval of legal technology and assisting in trial. Therefore, we believe that AIGC technology has the possibility of legal career substitution for the legal industry, which should be included in the category of complementary career substitution rather than complete substitution, instrumental substitution or derivative career substitution based on the task model approach and the attributes of the legal industry.

Another emerging legal career replacement phenomenon is the rise of the abovementioned types in legal technology companies. In many countries (e.g., the United States and Denmark), lawyers are still prohibited by law from sharing attorneys' fees with non-lawyers or from allowing non-lawyers to take ownership of law firms. This prohibition reflects deep concerns about the control of the legal profession by non-lawyers and the deleterious effect that such control can have on lawyers' obligations of professional responsibility. At the same time, it can increase efficiency by allowing law firms to act as service providers, offering legal and business services. While the technology behind many of the tools currently available is still underdeveloped, this will inevitably lead to significant changes in the structure of the legal profession. Does legal services have to be a monopoly if we have higher quality and more fair and equitable legal service providers? When legal technology companies can use artificial intelligence to provide society with lower cost, high quality and efficient legal services, the emerging derivative legal profession is born.

In summary, generative AI and the legal profession will deeply integrate and develop and form a complementary relationship. In addition, generative AI will give rise to the birth of new professional groups in legal technology companies and gradually form a new legal professional group.

Regulation of Generative Artificial Intelligence Legal Applications

Now, there is a need to consider whether new ethical norms need to be established if generative AI disrupts our traditional mechanisms of punishment and accountability in the legal profession. If so, what should we do? The application of generative AI in the legal field should be regulated from two dimensions, namely, AI ethics and legal professional ethics, to promote the integration and development of AI and the legal profession.

Artificial intelligence ethics

Artificial intelligence can only benefit society if it is developed on the track of the rule of law, and it is bound to be a scourge to society and humankind if it is developed outside the rule of law. The "principle of well-being" is widely considered the first principle of AI ethics or the guiding principle overarching the other principles.

In response to the rapid development of AI, China has intensively issued relevant regulations in the field of AI ethical governance: the New Generation Artificial Intelligence Development Plan (2017), the New Generation Artificial Intelligence Governance Principles (2019), the Guidelines for Construction of the National New Generation Artificial Intelligence Standard System (2020), the New Generation Artificial Intelligence Ethical Norms (2021), the Opinions on Strengthening Ethics in Science and Technology Governance (2022), Provisions on the Management of Deep Synthesis of Internet Information Services (2022), Opinions on Regulating and Strengthening the Judicial Application of Artificial Intelligence (2022), Guidelines on the Standardisation of Ethical Governance of Artificial Intelligence (2023), Exposure Draft of Measures for the Review of Ethics in Science and Technology (Trial) (2023), and Interim Measures for the Management of Generative Artificial Intelligence Services (2023). The release and implementation of these legal norms and standards strengthens and regulates the legal safeguards for AI ethics, as well as the ethical norms to be followed for the application of AI in the legal field.2022 The Chinese government's Position Paper on Strengthening the Ethical Governance of Artificial Intelligence, submitted to the United Nations on 16 November 2022, puts forward four propositions: ethical prioritisation, self-restraint, responsible use, and international cooperation.

Ethics of Lagal Technology

The value potential of applying generative AI in the legal industry comes from the following four main advantages: management quality improvement, virtual legal experts, social governance fairness and justice, and legal content refinement and generation. Therefore, it has become a proposition how AI legal applications can be developed to meet the ethical requirements of human society. It is necessary to establish ethical norms for ethics of legal technology based on following the ethics of artificial intelligence and the ethics of the legal profession and to bring punishment and accountability into the rule of law.

Based on the above considerations, we need to consider: firstly, does generative AI have a profound impact on legal professional ethics in the context of its deep integration and application in the legal field? Secondly, does generative AI lead to the outward expansion of legal professional ethics, as well as how to establish dual regulatory standards for AI and legal professional ethics? Third, how do we innovate and construct the rule

system of legal technology ethics? To this end, the construction of ethical norms for the legal application of artificial intelligence can consider the following three aspects: firstly, people-centred humanism rather than technocentrism. Ethics of legal technology combine the standard regulatory functions of AI ethics and legal professional ethics. Legal professional ethics should be centred on the client-lawyer relationship and based on the protection of reliance interests, professionalism, and privacy protection. Second, social values centred on fairness and justice rather than utilitarianism. Whether it is the technology manager, developer or user, the primary responsibility awareness should be implemented on the issue of safeguarding the basic principle of fairness and justice: whoever manages is responsible, whoever develops is responsible, whoever uses is responsible, and only by strengthening the awareness of responsibility and formulating and clarifying the relevant legal responsibilities can we establish the social value of fairness and justice instead of utilitarianism. Thirdly, based on ethical regularisation, the regulatory framework and assessment mechanism of ethics of legal technology should be constructed. The legal profession has its unique group norms and professional, ethical rules. We believe that legal, professional, and ethical rules should be embedded in all aspects of the management, research and development, supply and use of ethics of legal technology through technical norms, ethical rules, and supervision and evaluation to effectively safeguard and implement the ethical norms of technology as well as the ethical norms of the legal profession.

Conclusion

Throughout the history of human technology, every technological innovation resulted in innovation in production tools and a significant increase in efficiency. We believe that generative AI will significantly enhance the efficiency of the legal profession and reduce the cost of legal services. Secondly, generative AI and the legal profession constitute complementary professional substitutes. Generative AI cannot replace legal professionals in decision-making, and legal professionals should make legal decisions on their own and according to the ethical regulations of the legal profession and related legal responsibilities. Finally, the core value of generative AI and the future development of general AI lies in creating new supply, and new groups of legal professionals will be derived from legal technology companies.

As a result, legal technology is no longer a tool. However, it has taken on the power of the rule of law, and legal technology will change and reshape the legal services market and the social governance model. To this end, we need to carefully weigh the ethical and social implications of the application of generative AI in the legal profession to ensure that integrating technology and law can bring more human well-being and digital justice to society.

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