Study on the Influence of Artificial Intelligence on Legal Profession

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Abstract—**The development of artificial intelligence technology attracts more and more people's attention, especially for the impact of related legal profession, which cannot be ignored by law practitioners. For law science education, it will determine the future of talent training and professional development. Therefore, this paper first combs the current situation of the development and application of artificial intelligence, attempts to deduce the impact on the legal profession at the macroscopic and microcosmic aspect through the application and development trend of artificial intelligence technology at home and abroad in reality, and then analyzes the three issues of "what to cultivate", "how to cultivate" and "with what to cultivate", tries to put forward and explains how law science education responds to the influence of the development of artificial intelligence on the development of law profession.**

Keywords—artificial intelligence; legal profession; law education; development; influence

I. INTRODUCTION

Due to the unique immunity of the legal industry, the impact of previous industrial and scientific and technological revolutions on the legal profession is always relatively small. From the training of lawyers to the selection of judges, the mode of operation of the legal profession system is still almost the same as that before modern times, especially in western countries. Facing the rapid development of new technology, the operation logic of legal profession seems to have not changed fundamentally. For a long time, the application of new technology in this field is mainly limited to some non-core areas, such as improving efficiency through digital office and management system. For substantive legal solutions, such as the formation of litigation programs and judicial opinions, technology rarely provides substantive support, making it more difficult to replace legal practitioners. However, "artificial intelligence technology is expected to change this reality: as a technology trying to understand the essence of human intelligence and simulate and extend human intelligence on this basis, artificial intelligence technology can efficiently complete information collection, regulation sorting and implementation or imitate the process of legal reasoning by establishing an appropriate computing model in theory, so as to output solutions and the corresponding explanation to the input legal issues. "[1] With the rapid development of this technology, even conservative and proud legal people have to face up to the challenges of

artificial intelligence for the legal profession. In 2015, Ottoman well, an American company, found that 85% of people believed that "In the era of artificial intelligence, artificial intelligence technology can replace the work of paralegals and junior lawyers". [2] Although this kind of investigation may not be the trend of industry development, the alert of legal professionals caused by artificial intelligence can be seen from this.

II. DEVELOPMENT AND APPLICATION OF ARTIFICIAL INTELLIGENCE IN LEGAL FIELD

With the excellent performance of the artificial intelligence systems like AlphaGo in recent years, artificial intelligence has become a hot topic among publics. It also attracts a large number of jurists to think about the relationship between it and the future trend of legal education. However, this thinking and even action actually started much earlier than people expected in the international context. For example, in 1987, the first "Artificial Intelligence + Law Science" conference was held at Boston University in the United States. The conference also established IAAIL (International Association of Artificial Intelligence and Law). [3] In 1991, the International Association of Artificial Intelligence and Law (IAAIL) was established to promote the research and application of artificial intelligence and law, which is an interdisciplinary field. It proposed ten major topics of artificial intelligence in the field of legal application. [4]

After entering the new century, with the rapid development of AI technology, the combination of AI and legal work has become more and more close. For example, in June 2016, Ross, the first AI lawyer in the history supported by Watson, IBM's cognitive computer, was "employed" by an American law firm. It can communicate with lawyers in human language, give people an experience of working with prospective employees, and be able to deal with certain bankruptcy consulting issues [5]. In UK, DoNotPay, a robot lawyer, can help users to challenge traffic tickets and to prepare legal documents. Now it has expanded to government housing applications, refugee applications and other legal services. In February 2018, the AI system developed by lawgeex, an Israeli legal technology company, defeated 20 top lawyers with rich experience in standard business contract review competition. What's more, its average accuracy rate is 9% higher than that of human

beings, and during the whole process, the affairs which human beings need to be finished within 92 minutes, the system completed them in 26 seconds, it can be said that in terms of speed and efficiency, it has completed "double kill" to human beings. [7]

In the face of this situation, China can no longer remain indifferent. In fact, as early as the 1990s, China's courts gradually opened the prelude of information construction, which was consistent with the technological development and policy requirements at that time. [8] After entering the 21st century, this development trend has been continuing within the regime. In 2007, the supreme law redefined the basic position of informatization from the perspective of an important part of trial activities, and put forward development priorities such as business network construction, trial information management and judicial resource development and utilization, so as to realize the benign interaction between high-tech and trial business. In 2013, the concept of "big data, big pattern and big service" was first proposed at the fourth judicial statistical work conference of the national court. Subsequently, the court of China has basically built the people's court informatization version 2.0 with the main characteristics of centralized data management and business connectivity. The information-based process of procuratorial system for more than 20 years also shows that with the continuous iteration of technology and the continuous progress of ideas, it has also experienced the transition and upgrading from office automation to office networking, and then to business information. In 2014, the top-level deployment and comprehensive launch of the unified business application system of the national procuratorial organ marked that the procuratorial organ of China has entered the stage of information prosecution 3.0. In 2016, under the background of the "Internet +" era, the supreme law first proposed the concept of "smart court", which means that the judiciary began to leap over to the 3.0 version of information technology. At the same time, the procuratorial organs also recognize the necessity and urgency of the "Internet + procuratorial work" mode, and put forward the strategic goal of linking science and technology, building smart procurational affairs in 4.0 period.[9] In this context, the entire court system from the Supreme Court to the local court seems to have been mobilized. Beijing, Shanghai, Zhejiang, Jiangsu, Guangdong, Guizhou, etc. have all launched artificial intelligence legal tools with different names, such as the "Perspicacious judge" intelligent research and judgment system of Beijing court, the "206" intelligent auxiliary handling system on criminal case of Shanghai court, and Suzhou court has also formed "Smart trial of Suzhou mode". Under the strong impetus of the national system, even the practitioners represented by lawyers, who have always been relatively insensitive, have taken action. For example, "Xiao Li", known as China's first robot lawyer, currently provides visa, divorce counseling and other services [10]; In 2018, during the first "man-machine war" in the domestic legal field, Daniu legal robot dueled with six senior lawyers who were recruited from the national public recruitment, and achieved great success in finding out the legal facts of the case, providing legal advice and other legal

services, establishing its "hegemonic" status and becoming the "Alpha dog" in the legal field. [11]

Looking at the application of artificial intelligence in the field of law, no matter how closed it is, the fact that AI has reached the door cannot be ignored. In 2014, Jomati, a London legal consulting firm, published a report "Civilization 2030: the law firm in the near future", and even claimed: "After a long period of incubation and experiments, technology can suddenly move forward at an amazing speed; within 15 years, robots and artificial intelligence will dominate legal practice, which may bring 'structural collapse' to law firms, and the market of legal services will be greatly changed." Whether this statement is alarmist or appropriate, it clearly reminds practitioners of the legal profession must seriously consider the possible impact of artificial intelligence.

III. Influence of Artificial Intelligence to the Legal Profession

A. Macroscopic Aspect

From the macroscopic aspect, artificial intelligence technology will profoundly change the operation mode of the legal industry itself. According to the current trend of technology and industry development, it can be predicted that there are likely to be some structural changes in the legal profession:

In the field of research and development, the dependence on technology and data will determine that the investment in research and development of artificial intelligence technology in the legal field will keep expanding for a long time. Traditionally, the legal industry has been highly dependent on the input of human resources to provide substantive legal solutions, which is costly and inefficient: for law firms and other enterprises, the human cost is high; for a large number of individuals and small and medium-sized enterprises who need legal services, they cannot enjoy legal services at affordable prices; the judicial system of China has been in a high load operation for a long time due to budget constraints , so it is difficult for the judicial system to provide efficient and high-quality public products. Therefore, no matter from the perspective of enterprises or society, there is power to invest in the research and development of artificial intelligence technology to solve the above contradictions. And a series of so-called "robot lawyers" at home and abroad listed above actually play such roles.

In the low-level application field, in some scenarios with clear and simple rules system and high standardization of evidence system, the development of legal artificial intelligence technology is likely to eventually replace the work of most of these legal practitioners. For example, New York City has allowed violators to choose an automated online dispute resolution system to resolve parking violations. In these processes, the steps that require the involvement of legal professionals have been significantly reduced. Even in the current background of weak artificial intelligence, this trend is relatively obvious. After all, under the background of

big data, artificial intelligence can make some humanoid behaviors and work with the help of rules. With the strengthening of artificial intelligence, the standardization of law is likely to be completely replaced by artificial intelligence.

In the high-level application field, artificial intelligence for complex scenes can also assist or even replace part of the work of legal professionals, forming a new human-computer collaborative case processing mode. The handling of complex cases is a combination of a series of activities, some of which may be participated or even replaced by artificial intelligence technology, so as to improve the overall efficiency. From the current development of legal artificial intelligence technology, it has become more and more perfect in the field of document management and document review, which is likely to replace the civilian staff and legal assistants to complete the corresponding work; It is far from mature in writing legal documents, providing advice to customers, communicating and interacting with customers, fact investigation, negotiation and appearing in court; In the middle is case management, due diligence, legal document drafting, legal research, litigation strategy analysis and so on. For the complex scene, because it contains a large number of fuzzy and even conflicting rules for analysis, and even needs complex value trade-offs, artificial intelligence technology is difficult to completely replace the legal practitioners with professional knowledge. However, it is still a very important trend to improve the work efficiency with artificial intelligence, which will form the working mode of man-machine combination.

B. Microcosmic Aspect

If switching the perspective to the microcosmic thinking of the legal profession, people might as well divide the legal profession into three categories of practitioners: judicial work, legal work and law science education to make a simple analysis (although in a broad sense, legislators are also one of the legal practitioners, but due to their own political attributes and non-professional nature, the author doesn't think it's necessary to discuss it here judged by the current status of artificial intelligence).

For judges, prosecutors, clerks and other judicial staff, it is a typical field in which artificial intelligence begins to show its influence. In case push, knowledge index query, auxiliary conviction, sentencing reference, evidence review and judgment, integrated support in court, voice / image reading and transformation, case management, deviation analysis, judicial / administrative connection, automatic generation of documents and peer-to-peer proofreading, artificial intelligence has shown great advantages. Especially in China, it can be seen from the progress in "smart court" and other aspects mentioned above that in the judicial field of China, due to the forward-looking and guiding nature of national policies, it should be said that compared with foreign conservative counterparts, it is more advanced. However, on one hand, due to the limitations of the development stage of artificial intelligence, and on the other hand, due to the fact that the judicial work itself needs some characteristics of human beings, the impact of artificial

intelligence on the whole judicial system is not obvious at present. The judicial staffs mainly adapt to the new working methods, but the substitution for the primary work such as accepting cases, recording and executing is obvious, it is estimated that institutional reform in this aspect is imperative.

From the current situation, the biggest impact caused by artificial intelligence in the legal field and the most concerned occupation is the legal workers represented by lawyers. From a global perspective, although from 2011 to 2016, the total amount of financing of global legal technology companies was only $739 million, significantly lower than that of emerging fields such as financial technology and medical technology; However, the number of legal technology listed companies in the world has exploded, from 15 in 2009 to 1,164 in 2016, mainly focusing on nine areas such as online legal services and electronic forensics. In such an international trend, the legal industry, such as law firms, corporate legal departments, courts and so on, also began to actively layout AI legal technology, partly because online legal services, customer cost pressure (such as corporate legal departments increasingly want to get more legal services at a lower cost) and other factors forced law firms to invest in innovation.[12] On the whole, the legal work represented by lawyers will become the forefront of the impact of artificial intelligence on the industry, and it is a must to do a good job in dealing with it.

Due to the human nature of education and the complexity of legal knowledge, or the conservatism of practitioners, artificial intelligence has little influence on legal education, especially in the field of legal higher education. Interestingly, the first practitioners who pay attention to AI are mainly university practitioners. For example, the first "AI + Law Science" conference mentioned above was held at Boston University in the United States. However, in terms of the substitution of artificial intelligence related to legal education itself, the industry is not very active. Therefore, at present, the impact of artificial intelligence in the field of legal education is mainly reflected in the adjustment, intersection and integration of disciplines Chinese government has realized this problem and has clearly proposed to cultivate horizontal composite talents of "Artificial intelligence + Law" in the new Generation of Artificial Intelligence Development Plan. Therefore, in the short term, it is the adjustment of knowledge structure and discipline system rather than the adjustment of practitioners will be taken in Chinese career, which will also be mentioned in the following discussion.

IV. THINKING OF LAW SCIENCE EDUCATION ON ARTIFICIAL INTELLIGENCE DEVELOPMENT

There is no doubt that artificial intelligence has been involved in the law field. At the same time, enough attention should be paid to it. Especially as the main shaper and founder of legal theory, legal education must be on the front of the theory of artificial intelligence and play a theoretical cornerstone. In particular, it is necessary to sort out the basic framework to understand how to train law talents to adapt to the era of artificial intelligence. In the author's opinion, this framework can be divided into three parts:

A. Clarifying the Entrance and Exit of Talents

In any current higher education in China, it is a must to think about the "entrance" and "exit" issues. The so-called "entrance" refers to the target and scale of enrollment, and the so-called "exit" refers to the direction and employment of personnel training. Specifically to the direction of artificial intelligence, a question worthy of consideration is: Should the training object of legal education also change with it? Taking "entrance" as an example, at present, all the law undergraduates enrolled in domestic colleges and universities are selected from the liberal arts majors. However, when it comes to artificial intelligence, the lack or neglect of science knowledge will inevitably affect the absorption and cultivation of relevant knowledge to a certain extent. For example, if the basic knowledge of algorithms cannot be mastered, it is obviously impossible to master the cross knowledge of artificial intelligence and law in depth. Of course, with the development of the reform of the national college entrance examination in the field of Arts and Sciences, and the attention to the compound specialty in the selection of graduate students, the entrance problem should be able to be solved to a certain extent. The problem of "exit" seems to be more difficult. Due to the great influence of tradition, the export of law undergraduate major is affected a lot now, and it has been ranked as a major with red light for employment in the past few years. One of the main reasons for this situation is that the current training of Law Science students is too large, and the direction of employment is often limited to judicial units, corporate legal affairs, law firms and other limited directions. On one hand, the further integration of artificial intelligence and law may promote the differentiation of legal professional training in different colleges and universities, even some colleges and universities are eliminated in this process. On the other hand, it may find some new "exits" for Law Science students, such as the development and integration of relevant legal software. Therefore, to clarify the "entrance and exit" of law education under the background of artificial intelligence is not only related to the development of students themselves, but also related to the survival and development of law schools and departments themselves.

B. Paying Close Attention to the Cultivation of Compound Talents

The development of artificial intelligence will lead to the redistribution of the professional structure. The main orientation of future legal professionals is likely to be reviewers or value judges. Of course, it may be easier and more convenient to train technical personnel to understand the law than to train legal personnel to understand the technology. However, in the existing pattern, how to cultivate "legal personnel understand technology" has become the main training path of law science. Therefore, in view of the current training situation of law major, interdisciplinary training is the basic configuration of talent training. At the same time, in addition to training the value judgment ability and legal thinking of law science students, it is also suggested to pay attention to training their ability to apply artificial intelligence in legal activities. According to the Requirements of the New Generation of Artificial Intelligence Development Plan, in order to create compound legal talents, colleges and universities can integrate the contents of artificial intelligence education in the original basic classroom. The integration of artificial intelligence and law science will inevitably involve ethics, computer science, sociology and other disciplines, so it is necessary to establish a multi-disciplinary cross platform. At the same time, the corresponding supporting course system also needs to be implemented, which is possible to add teaching courses that are relatively easy to carry out, such as the retrieval of legal big data, the analysis and discussion of typical cases of artificial intelligence, the relationship between artificial intelligence and ethics and jurisprudence. In the field of academic research, this may be an area that artificial intelligence cannot be involved in a short period of time. In addition, the practice and teaching of artificial intelligence should be strengthened. The colleges and universities can cooperate with domestic and foreign enterprises and law firms to provide practice platforms for law science students, give them the opportunity to contact and use AI robots and AI operating systems, and accelerate the transformation of theoretical achievements to practical achievements.

C. Strengthening the Interdisciplinary Research

From the current development trend of artificial intelligence, it is not very likely that the academic field will be replaced by robots. After all, the emergence of a "roboticist" is difficult to imagine, whether in technology or ethics. But not being replaced doesn't mean not being impacted. Especially in the teaching of artificial intelligence law science, the necessary knowledge reserve has become a key node for us to export relevant knowledge to students. At present, the first problem is how to build the subject system and curriculum system of AI law science? How to compile textbooks and materials of AI law science? In the long term, teachers are bound to meet the challenges of artificial intelligence in their own subject areas, and even every professional course may face AI problems (maybe law and history courses can survive). Therefore, in this case, it may be the work that most legal educators have to renew their knowledge reserve and strengthen interdisciplinary research.

V. CONCLUSION

Final problem: Whether the law profession can be fundamentally replaced by AI?

From the current development stage, artificial intelligence is still in the primary stage of "weak artificial intelligence". Now it seems a bit alarmist to talk about AI replacing human beings in an all-round way. This assumption is more similar to science fiction than serious academic research. As some scholars think, it's nonsense to talk about robot judges now. Judges "need wisdom and intelligence, the first thing is to assist and serve judges in handling cases, rather than replace judicial decisions and eliminate handling judges."[13] However, the author believes that as a legal educator, the research should be forward-looking, or people don't have to take the current technical background as the unique bottom for discussion. From the perspective of long-term technology development

trend, the substitution of artificial intelligence for human beings is not groundless. In fact, this kind of worry is the real driving force for the current scholars to study artificial intelligence. The core of human substitution is to replace human labor ability and deprive employment opportunities of human beings. Back to the topic of this paper, the final form of the impact of artificial intelligence on the legal profession may be whether the legal profession can be completely replaced by artificial intelligence. To this question, it should be answered not only from science and technology aspect, but also from philosophy or ethics aspect. For example, how can a robot be a human? How does the law define the responsibilities and rights of a robot? Can people accept the right of a robot judge to judge us for life or death? Such questions may not be answered yet, but the thinking about it should not be limited by technological development. Although this paper can't development the thinking about these problems in a limited content, it is hoped that colleagues in the field of law can discuss various possible answers together. After all, AI is on the way, and people need to get on the road as soon as possible.

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