The Subjective Status of Artificial Intelligence in Civil Law

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Abstract: With the development of big data and the rapid changes in technology, artificial intelligence has gradually become involved in our daily lives, and has even become an indispensable tool for contemporary young people. At present, the forms of artificial intelligence are gradually diversifying, and in this regard, a series of related legal issues have arisen. To today's level of science and technology and the degree of robot autonomy, artificial intelligence should be the object, that is, as a civil law object, but a number of scientists have predicted that in the next ten years or even a few years, artificial intelligence can reach 80% of human intelligence, so at this time, strong artificial intelligence can be the status of the subject of civil law to engage in a variety of behaviours and bear the corresponding responsibility is the focus of the discussion. This paper will analyse the current situation of the development of artificial intelligence, its challenge to the civil law, its legal status of the debate, the feasibility of its legal subject status and the foreign legal regulation and judicial practice of the significance of China's legislation from five perspectives, to explore the types of legal attributes of artificial intelligence as a modern or future essential existence.

1. Introduction

Driven by the three mutually reinforcing factors of big data, machine learning and supercomputers, artificial intelligence technology has ushered in a new wave of development. In this, the most typical representative is the rapid development of high-end intelligent robots. In recent years, the development prospect of artificial intelligence has been a hot issue of concern for scholars in various countries. The debate on the legal status of strong artificial intelligence is different, and the focus is on whether it can have a legal personality. As a matter of fact, only natural persons, legal persons, and unincorporated organisations can be called "persons" in civil law, and AI currently has an artificial personality, which still belongs to the category of "things" in law. The purpose of this paper is to explore the feasibility of giving artificial intelligence the status of a subject in law, and to reserve the corresponding space in the future legislation in order to adapt to the rapid development of artificial intelligence.

At present, China has relatively few legislative regulations on AI. In 2017, the State Council issued the New Generation Artificial Intelligence Development Plan, which explicitly proposed the establishment of AI laws and regulations. In January 2018, the White Paper on Artificial Intelligence

Standardisation was released. And there is no relevant law to make clear provisions on the status of the main body of artificial intelligence for the time being. Therefore, the relevant research on artificial intelligence in China is not enough to solve the problems in practice. For example, in the process of the development of artificial intelligence, the face recognition function has a wide range of applications, but at the same time, the number of cases of fraud on the network using the face recognition function and the number of cases of privacy infringement caused by drone filming has gradually increased, and it is more difficult to solve the cases. Another example is the ownership and copyright of works produced by AI. There are many other challenges of AI to the field of civil law, and the basis for exploring the problems brought by AI is still to study the legal attributes of AI, i.e., to figure out the legal status of AI. At present, artificial intelligence-related legislative projects have been included in the legislative planning, the development of the field of AI is a general trend, the legal attributes of artificial intelligence is the basis for solving the corresponding legal issues arising from the era of artificial intelligence, can provide the rule of law for the innovative development of artificial intelligence[1].

2. State of the Artificial Intelligence Development

2.1 Artificial Intelligence Definition

Artificial Intelligence, is a new technical science that researches and develops theories, methods, technologies and application systems used to simulate, extend and expand human intelligence. Artificial intelligence can be divided into two parts: artificial and intelligent. Artificiality, as the name suggests, is created and used by humans, and can be described as a method of producing something new. According to Linda Gottfredson, the term "intelligence" is a broad mental ability to think and think abstractly and solve problems, understand complex ideas, learn quickly, and learn from experience. In the author's view, intelligence is a combination of intelligence and ability, which is more important is the existence of ability, the comprehensive quality of human thinking embodied in its ability, intelligence needs to have the ability to carry out activities and think like human beings.

In general, the main task of artificial intelligence is to complete some complex work that needs to be done by human intelligence through machines, and the carrier - machines are not a necessary existence. The category of artificial intelligence is extremely broad, ranging from smartphones used in daily life to the latest developments in self-driving cars, or even more complex and autonomous tangible objects or intangible states that may exist in the future. All of these can be summarized as artificial intelligence. The emergence of artificial intelligence has already greatly changed people's lives, bringing us closer to "complete mechanization".

2.2 Artificial Intelligence Classification

Artificial Intelligence has a broad scope, and is usually classified by academics into three categories: weak AI, strong AI and super AI, depending on its degree of autonomy, ability to think rationally, and the difficulty of completing the task. Weak AI is an intelligent machine that is programmed by researchers to input data, and the machine operates according to the input process to complete the learning and application of a certain speciality, but is not capable of autonomous reasoning or thinking. Currently we use Alipay face recognition, voice recognition, siri dialogue, and Go master AlphaGo all belong to weak artificial intelligence. The opposite of weak AI is strong AI and super AI, which is also based on logic and computation, but is able to actively think and learn, and has a comparable or even higher level of intelligence than human beings. Super AI can generate its own feelings and make judgements through its own thinking, and it is difficult to determine whether it will still be able to think in accordance with the human way of thinking and moral system.

Hundreds of scientists have come to the conclusion that the year of emergence of strong artificial intelligence is 2040, only 19 years from now.

2.3 Advances in Artificial Intelligence Research

In recent years, in terms of the research and development and creation of artificial intelligence, the large-scale accumulation of data and the uninterrupted evolution of algorithmic models have led to the emergence of more and more forms of artificial intelligence. At present, Alpha Dog Go technology has surpassed human beings; face recognition has become progressively more powerful, reaching the level of human eye recognition in large-scale image recognition; AI systems diagnosing skin cancer have reached the level of a professional doctor; IBM, which is active in the field of AI technology, is currently developing a supercomputer - Blue Cowboy, a strong AI comparable to the intelligence of the human brain. More and more companies around the world are placing AI development among their corporate goals and want to stand on the high ground of their related industries.

In terms of the current state of academic research, as AI stands at the pinnacle of technological development, the number of scholars studying the field of AI as well as the volume of academic reports is also increasing year by year. According to the Global Artificial Intelligence Industry Data Report released by the China Academy of Information and Communication Research in April 2019, the volume of papers published in the field of global AI increased year by year from 2009 to 2019, and the volume of China's publications was as high as 90,000, in which the legal issues brought about by AI were the focus of discussion among various scholars.

3. The Conflict between Artificial Intelligence and Traditional Civil Law

3.1 Expansion of the scope of the subject matter

The traditional legal sense of the person refers only to the natural person, but in the later stage, due to the needs of social development and business development, a new concept of the person has arisen: the abstract subject of rights. At present, China's civil law adopts the abstract legal personality system, the legal sense of the person includes natural persons, legal persons and unincorporated organisations. Expanding the scope of civil subjects from not including all natural persons to encompassing all natural persons and further extending to the artificially created beings formed by the combination of legal entities and natural persons, the author believes that this is a result of the law adapting to society.

The law is lagging behind the state, with the progress of the times and the development of life sciences, not only the external framework has changed, the internal structure is also in a more detailed division: due to the emergence of the concept of natural persons such as asymptote, vegetative, etc., the "General Principles of the Civil Law" 28 articles and 33 articles of the adult intentional guardianship provisions came out accordingly. Therefore, the emergence of artificial intelligence poses a certain challenge to the applicability of civil legal personality. It primarily revolves around whether artificial intelligence should be considered as a civil subject or object. If it is considered as a civil subject, the question arises of whether to expand the meaning of "person" in the law or to construct alternative models. On the other hand, if a form of expanding the personality of robots is adopted, the integration with civil law becomes a matter of concern. These are the issues that need to be addressed. If it is regarded as a civil subject, the question arises of expanding the meaning of "person" in the law or constructing alternative models, and exploring how the personality of robots can be combined with civil law.

3.2 Attribution of Rights to Artificial Intelligence

If exploring the subject status of artificial intelligence is a challenge to traditional civil law on a theoretical basis, then the issue of attributing rights to artificial intelligence is a problem we encounter in practice. One of the most typical examples is the copyright dispute surrounding artificial intelligence. In 1957, the first music composition completely generated by a computer, titled "IIIiac Suiye," was created in the United States. In 2016, Google established the "Magenta" project, which enables robots to engage in artistic creation. In May 2017, Baidu's developed robot Xiaoice published a poetry collection titled "The Lost Window of Sunshine". In response to such cases, the author believes that in the current stage of weak artificial intelligence, the intellectual property rights of works created by artificial intelligence should belong to the owner of that artificial intelligence. The generation of AI is automatically generated based on specific information, and such generation does not have originality and does not belong to works. However, Zhao Zhanling from China University of Political Science and Law suggests that if artificial intelligence plays a significantly small role in the process of creating knowledge and works, the works created by artificial intelligence would still be considered as creations. Then when the AI technology develops to a strong AI state and can create with its own thinking, can the AI be given corresponding rights in the field of intellectual property? On the other hand, when the work created by AI infringes on the rights of others, how should liability be attributed?

3.3 Artificial Intelligence Conflicts with Privacy, Portrait Rights

In the process of the development of artificial intelligence, the face recognition function has a wide range of applications, but at the same time, the number of cases of fraud on the network using the face recognition function and cases of privacy infringement caused by drone filming has gradually increased, and it is more difficult to solve the case. At present, AI face-swapping technology and companion robots already exist, and the problem of violating the person's portrait rights or human dignity has arisen, but there is no corresponding legal regulation. Furthermore, in the era of big data, various applications always understand everyone's personal preferences, behind which is actually the acquisition of personal data by major technology companies, and Facebook Inc. has been negatively impacted by the leakage of citizens' personal information. The issue of privacy in the smart era is highly personalised and complex, according to the survey, 91% of all persons surveyed feel insecure about their online data, but only 50% are willing to take more measures to protect their privacy. The fact of the matter in practice is that people are not just unconsciously leaking their personal data, but in many cases it's a non-denial privacy violation, such as the personal privacy leakage caused by the authorisation behaviour of the WeChat program. So just how many people are willing to give up access to personal benefits and avoid passive data leakage to protect their personal privacy in an age where AI is using our privacy to slowly change my life?

There are many other challenges of artificial intelligence to the field of civil law, but in summary, the basis for exploring the various problems brought about by artificial intelligence is still to study the legal attributes of artificial intelligence, that is, to clarify the legal status of artificial intelligence.

4. The Debate over the Legal Status of Artificial Intelligence

4.1 Assertion

According to the main theory, artificial intelligence has the qualification of being a legal subject. Some scholars suggest that "artificial intelligence is an inevitable product of the development of human society to a certain stage, with a high degree of intelligence and independent behavioural

decision-making ability, and its nature is different from that of traditional tools or agents". Historically, there have been many cases in many countries where artificial intelligence has been incorporated into the status of civil legal subjects. 2010, the Japanese robot "Paro" obtained "household registration" and became the world's first robot citizen; in 2017, Sophia, a humanoid robot developed by the US-based Hanson Corporation, was granted citizenship by Saudi Arabia. In 2017, Sophia, a humanoid robot developed by Hanson, was granted citizenship by Saudi Arabia. This part of scholars classifies AI as a "natural person", which emphasises that in the context of the emergence of strong AI in the future, as an "individual" capable of independent thinking and dealing with life issues like humans, it should have the same status as humans.

Some scholars suggest that AI is essentially an extension of natural human beings. He pointed out that the emergence and development of AI is based on the simulation and realisation of natural human intelligence as the starting point and goal, and it is the equivalent replacement and physical reproduction of natural human intelligence and behaviour. In this case, then, artificial intelligence and human beings are essentially similar to each other.

There are also scholars who believe that it is a feasible and necessary path to define the personality of AI as a property personality and thus to formulate it as an electronic legal person. Zhang Zhijian, in discussing the electronic legal person system of AI, suggests that AI is actually similar to a person with limited civil capacity, which can make its own expression of meaning in specific fields, and when other activities involving property are involved, the expression of meaning can be made by the owner of the AI. The formulation of AI as an electronic legal person can solve the problem of limited liability of multiple subjects related to the interests of AI, and realise the reasonable apportionment of rights, obligations and liabilities arising from the autonomous acts of AI by multiple subjects according to the corresponding proportion, i.e. apportionment of rights and liabilities.

Among the scholars who agree with the subject statement, there is another viewpoint that the artificial intelligence is categorised as a proposed subject. This point of view is currently very controversial, due to the artificial intelligence as a proposed subject, meaning that the subject status of the robot is a legal fiction, similar to the company. Then in this case, the robot has an independent legal status at the same time still subject to the control of natural persons, at this time still cannot deal with the relationship between artificial intelligence and natural persons.

4.2 Object theory-objects

At present, China's legal system and judicial activities, generally recognised is the object theory, that is, that artificial intelligence in today's development, belongs to the tool class of supplies - the tools created by human beings for their own interests, is still attributed to the category of "things". Professor Wang Liming mentioned in the "new challenges to civil law in the era of artificial intelligence" that the current artificial intelligence has not yet raised subversive problems to the traditional civil law subject theory. Hao Tiechuan scholars pointed out that artificial intelligence can only help human beings to engage in rule of law activities in some aspects, but cannot change the dominant role of human beings in the rule of law, because it is not a person, it is a man-made machine.

In the affirmation that scholars put forward the view that artificial intelligence has a high degree of intelligence and the view that artificial intelligence is an extension of human beings, a part of the scholars questioned the statement and dolphins as an example: dolphins are also a kind of animal with a high degree of intelligence and independent behavioural decision-making ability, then in this regard, the legislation should be given to the dolphins of certain legal personality and rights. Based on the above analysis, it can be seen that the concept of "person" in the law is indeed expanding, but there is a scope for its expansion, and it does not have unlimited possibilities. Under the current legal system, the abstract legal personality system is adopted, but whether it is a legal person or an unincorporated

person, the core is the need for human beings, i.e., natural persons for manipulation and organisation, which is carried out under the species of human beings as a combination. Therefore, although artificial intelligence may have intelligence comparable to that of human beings and may exceed the limits of human intelligence in the future, it is ultimately not a human species, and legislation should not endow it with the appropriate legal personality[2].

5. Feasibility Analysis of Civil Subject Status of Artificial Intelligence

5.1 Civil capacity

Civil rights capacity refers to the qualification of natural persons or social organisations to participate in civil legal relations, enjoy civil rights and undertake civil obligations as stipulated by law, and if artificial intelligence is regarded as a subject of civil law, it needs to have this qualification. Some scholars have proposed that civil legal capacity is a possibility, citing examples such as artificial intelligence lacking the right to inherit property and not embodying the legal characteristics of a person. The author argues that artificial intelligence possesses civil legal capacity. Within the scope of civil subjects, each subject has its own characteristics, and therefore, the rights enjoyed by different subjects vary. For natural persons, rights such as the right to inherit and the right to life are related to the personal nature of human beings. It is precisely this uniqueness that allows civil subjects of different categories to possess the same scope of rights within their qualifications, while the scope of civil legal capacity varies between different categories of subjects. Therefore, whether to exercise such rights depends on the presence of civil capacity. Although there is still a certain gap between the intellectual level of artificial intelligence and human beings, resulting in the two have different behavioural and rights capacity and behavioural capacity is not fully equipped, but does not hinder the possession of civil rights capacity of artificial intelligence.

5.2 Factors of realism

First of all, the economic foundation determines the superstructure, when the social development to a certain extent will inevitably cause the political and legal system change. The author believes that, in view of the current economic level and the development of science and technology, the positioning of artificial intelligence as an object is not in line with the development of the times, the positioning of artificial intelligence, especially strong artificial intelligence as a civil subject for its own technological development, commercial application and the solution of the relevant legal issues has the role of the outline. Secondly, when strong artificial intelligence or super artificial intelligence exists, the arbitrary domination of natural persons over human-like objects will challenge the existing ethical and moral cognition of natural persons to a large extent, and in serious cases, it will affect the psychological health of human beings, especially the youth. Furthermore, according to the analysis of the data, the process and speed of intellectual development of human beings and artificial intelligence are similar. For human beings, apart from their natural instincts, the rest of their abilities, such as the cultivation of emotional intelligence and the enhancement of intelligence, are all learnt later in life, while AI also needs to be trained to change its perception of the world and its prediction of the future through the training of big data, so the learning process of the two is similar. In this regard, from the perspective of the development background and development speed of the reality of artificial intelligence, it is feasible to designate it as a subject of civil law[3].

6. The significance of foreign legal regulation for China's legislation

6.1 Foreign regulations in the field of artificial intelligence

The core function of artificial intelligence is to produce predictive results about something in the future based on experience gained from analysing historical patterns of activity. The wide range of applications of this technology has made it a strategic development target in various countries. This paper focuses on the United States, Japan and the European Union, and analyses the significance of China's legislation and practice as a country that is vigorously developing science and technology, especially AI technology, by examining its legal regulation of AI and the social significance behind it [4].

6.1.1 The U.S.

The U.S. artificial intelligence technology has been located in the forefront of the world. 2009, the U.S. has explicitly called for the revitalisation of the U.S. manufacturing industry through the development of robotics, and to develop a new generation of intelligent robots using new technologies; in 2011, Obama announced the implementation of the U.S. National Robotics Plan; in March 2013, the U.S. National Foundation issued the National Robotics Roadmap, which explicitly points out that it is necessary to strengthen the technology level of robotics in robotics. manufacturing; in October 2016, the U.S. White House released the report "Preparing for the Future of Artificial Intelligence", which summarises and looks forward to the current state of AI as well as its future development, and raises AI to a national-level strategy, while planning a grand blueprint for the future of AI; at the end of 2017, the introduction of the U.S. bipartisan bill, the "Artificial Intelligence Futures Act", illustrates the life, legal aspects triggered by the arrival of the age of artificial intelligence and its impact on the U.S. economy and society; in the same year, robots developed by U.S. companies were granted citizenship; in May 2018, the U.S. White House announced the establishment of the Special Committee on Artificial Intelligence to vigorously promote the development of AI technology, and hosted the "U.S. Industry Artificial Intelligence Summit ". In summary, the United States holds a positive view on granting AI subject status.

From the point of view of the U.S. legal regulation of artificial intelligence, the author believes that the reason why the U.S. can lead in the artificial intelligence industry, one of which is the strong support of the government, according to the data survey, the U.S. government in the fiscal budget of fiscal year 2019, the U.S. government has taken the research and development of artificial intelligence and unmanned autonomous systems as a government priority for funding, which is the first ever to take artificial intelligence, autonomous and unmanned systems as a priority for managing research and development. Financial request. With the support of the government and the system leading the way, various citizens and businesses are in the atmosphere of AI technology development. The second is the leadership of the major Internet giants, with platforms such as INS, Facebook and Google currently occupying the high ground in AI technology, and Google's AI drone aerial photography technology included in the US military strategic catalogue [5].

6.1.2 Japan

Japan has always been the country with the highest supply of industrial machinery, and since 1980, the Japanese government has supported the development of artificial intelligence in enterprises, and in this regard, the Japanese government and major industrial organisations have invested a lot of resources in the development. In June 2014, the Japanese government proposed to promote a "robot-driven new industrial revolution"; in January 2015, the Japanese Ministry of Economy, Trade and Industry (METI) summarised the results of the committee's discussions and compiled the "Japan's

Robotics Strategy: Vision, Strategy, and Action Plan"; and in May 2016, the Ministry of Education, Culture, Sports, Science and Technology (MEXT) of Japan defined the "Artificial Intelligence/Big Data/Big Data/Artificial Intelligence". In May 2016, Japan's Ministry of Education, Culture, Sports, Science and Technology (MEXT) identified the "Integrated Artificial Intelligence/Big Data/Internet of Things/Cybersecurity Project" as a strategic goal for 2016; in 2018, Toyota [6], Japan's largest automobile company, demonstrated a self-driving shared-use concept car and put forward the concept of a "Highly Intelligent Mobility Space". In 2018, Toyota, Japan's largest automobile company, presented a self-driving shared concept car and proposed the concept of "highly intelligent mobile space".

Japan's approach to AI development is mainly based on the construction of optimised systems using large amounts of data. According to the survey, Japan's AI technology is more developed in public health care and social pensions. I believe that, unlike the United States, which wants to occupy the high ground in the world of science and technology through AI technology, the emergence of such a situation in Japan is to solve the increasingly serious problem of Japan's aging population, and it is precisely because of the social needs of the development of AI that the development of Toyota's new sharing concept car is also to improve the efficiency of the people's livelihoods. In summary, the development of AI in Japan has a greater social utility [7].

6.1.3 EU and Russia

In July 1982, the European Collaborative Committee on Artificial Intelligence (CCAI) was established; in January 2015, the EU's Legal Affairs Committee (LAC) set up a working group to explore the development of AI; and in May 2016, the EU's Legal Affairs Committee (LAC) submitted a Draft Report on Legislative Recommendations to the European Commission on the EU Civil Rules of Law on Robotics. In October of the same year, the research results were published as the EU Civil Legal Rules on Robotics. Russia has given robots the legal status of agents in the Grechen Act, which clarifies the subject status of artificial intelligence [8].

The author believes that the EU in the civil legislation of artificial intelligence in the process of full consideration of the value of ethical aspects, although the status of civil subject given to the robot, but the AI it sells to citizens is subject to a review process to ensure that the AI is in the interest of humans. The author speculates that future EU legislation on AI will always be linked to ethics [9].

6.2 Implications of national regulations for our national response to artificial intelligence

China has relatively little legislation or regulation on AI. In 2017, the State Council issued the New Generation Artificial Intelligence Development Plan, which explicitly proposed the establishment of AI laws and regulations. In January 2018, it issued a White Paper on Artificial Intelligence Standardisation, which mentioned issues such as the ethics, privacy and security of AI. In the same year, General Secretary Xi, at the opening ceremony of the Artificial Intelligence Conference, emphasised the need to deal with the new topic of artificial intelligence and law [10-12].

The field of artificial intelligence in China is developing rapidly, but the legislation has failed to keep up accordingly. Although the law has limitations and lagging, we have to minimise this nature through human wisdom, instead of passively waiting for the expansion of legal loopholes, we have to reserve the corresponding legislative space to cope with the rapid development of society, science and technology, culture and other fields [13-14].

In the author's opinion, when dealing with the issue of the civil legal status of artificial intelligence, China should establish an open legal system. Open legal system means that, at the present stage of artificial intelligence fails to have the ability of self-decision making, it is only the object of the right, when the artificial intelligence is fully in line with the possession of autonomous intelligence, the

status of the subject of the rights given to it has been adapted to the needs of the times. Due to the uncertainty of the time of the future strong artificial intelligence, in the case of artificial intelligence many practical problems have not yet been solved, should avoid the hasty introduction of laws and regulations, but need to have a fixed legal structure, and with the development of the times at any time to update.

An open legal system can also highlight a country's ethical concern for AI. In the Basic Act on Robotics proposed by South Korea, it is pointed out that robots can have legal personality, which stipulates that the government should formulate policies to grant robots the status of electronic personality with corresponding rights and obligations, and to determine the responsibility and compensation scheme for damages caused by robots, and at the same time, the designers, manufacturers and users of robots should abide by robot ethics. The Korean government's corresponding approach shows that treating AI as a subject under special circumstances can help to enhance ethical concerns about AI.

Under an open legal system, how to grasp the boundaries of legislation is key, and when and under what circumstances the positioning of AI is attributed to the subject is an important question. In the author's view, when strong AI appears, if it can meet the strategic needs of the country or solve the practical needs of society, we can learn from the Japanese legislative system, and regard AI as the subject of civil law to promote the development of society. For example, in the case of advanced driverless cars, the qualification of the subject can be determined through legislation to ensure that such innovative activities are carried out in an orderly manner to improve efficiency for the society and provide convenience for the people [15-18].

7. Conclusions

At present, the artificial intelligence related legislation project has been included in the legislative planning, the development of AI field has been the general trend, the legal attributes of artificial intelligence positioning is to solve the corresponding legal problems caused by the era of artificial intelligence, can provide the rule of law for the innovative development of artificial intelligence protection. The author believes that it is feasible to grant artificial intelligence the legal entity status that aligns with the development of the times, in situations where it combines the national conditions, solves problems, and promotes social development within an open framework [19].

References

[1] Jianfeng Cao, "Artificial Intelligence: machine discrimination and countermeasures", Information Security and Communication Secrecy, Vol. 12, 2016
[2] Chen Jidong. On the Legal Personality of Robots - A Discussion Based on Legal Interpretation [J]. Journal of Shanghai University (Social Science Edition), 2018, 35(03):78-89.
[3] Chongqing NPC, NPC Reference 2019(08).
[4] Chu Qingqing. Research on the status of the legal subject of artificial intelligence - analysis based on the perspective of rights and power [J]. Future and development, 2019, 43(09):15-18.
[5] Fang Shaokun, Lin Guanghui. The discursive thoughts on the suitability of civil subject of artificial intelligence. Journal of Soochow University (Philosophy and Social Science Edition) 2018(05):64~72, 191.
[6] Guo Shaofei. The legal subject theory of "electronic person"[J]. Oriental Law, 2018(03):38-49.
[7] Hao Tiechuan. The impact of artificial intelligence on the rule of law must not be fantasised and overestimated [J]. Legal Daily, 2018 (1).
[8] Li Aijun. Theory of legal behaviour of artificial intelligence [J]. Politics and law forum, 2019, 37(03):176-183.
[9] Lu Ping. Overseas Artificial Intelligence Development Direction and Experience, China Electronic Information Industry Research and Development Institute, 2018(12).
[10] Ren Yanwu, Wang Wenbo. Feasibility analysis of clarifying the civil subject status or rights of artificial intelligence [J]. Pearl River Discussion Series, 2019(02):27-46.
[11] Wang Liming. The challenge of artificial intelligence to civil law [N]. China city newspaper, 2017-09-11(022).

[12] Wang Liming. New challenges to civil jurisprudence in the era of artificial intelligence [J]. Oriental Law, 2018(03):4-9.

[13] Yang Lixin. Artificial class personality: The civil law status of intelligent robots--Another discussion on the civil liability for damages caused by intelligent robots [J]. Journal of seeking truth, 2018, 45(04):84-96.

[14] Yang Lixin. An attempt to solve the legal adjustment problem of artificial intelligence with the current civil law rules [J]. Zhongzhou Journal, 2018(07):40-49.

[15] Yang Lixin, Zhu Chengyi. The negation of animal personality: the legal "object" of animals [J]. Legal Research, 2004(5): 86-102.

[16] Yin Weimin. On the right subject of artificial intelligence works--Another comment on the legal personality of artificial intelligence [J]. Science and Publication, 2018(10):102-107.

[17] Yuan Zeng. Artificial intelligence limited legal personality review [J]. Oriental Law, 2017(5):50-57.

[18] Zhang Zhijian. On the electronic legal person status of artificial intelligence [J]. Modern Law, 2019, 41(05):75-88.

[19] Yin Jianping, Zhu En, Liu Yue, and others. Stuart J. Russell, Peter Norvig. artificial intelligence:a modern approach [M]. Beijing: Tsinghua University Press, 2017:17.