

Investigation on human rights ethics in artificial intelligence researches with library literature analysis method

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Abstract

Purpose – The purpose of this paper was to identify whether artificial intelligence (AI) products can possess human rights, how to define their rights and obligations and what ethical standards they should follow. In this study, the human rights ethical dilemma encountered in the application and development of AI technology has been focused on and analyzed in detail in the light of the existing research status of AI ethics.

Design/methodology/approach – In this study, first of all, the development and application of AI technology, as well as the concept and characteristics of human rights ethics, are introduced. Second, the human rights ethics of AI technology are introduced in detail, including the human rights endowment of AI machines, the fault liability of AI machines and the moral orientation of AI machines. Finally, the approaches to human rights ethics are proposed to ensure that AI technology serves human beings. Every link of its research, production and application should be strictly managed and supervised.

Findings – The results show that the research in this study can provide help for the related problems encountered in AI practice. Intelligent library integrates human rights protection organically so that readers or users can experience more intimate service in this system. It is a kind of library operation mode with more efficient and convenient characteristics, which is based on digital, networked and intelligent information science. It aims at using the greenest way and digital means to realize the reading and research of human rights protection literature in the literature analysis method.

Originality/value – Intelligent library is the future development mode of new libraries, which can realize broad interconnection and sharing. It is people-oriented and can make intelligent management and service and establish the importance of the principle of human rights protection and the specific idea of the principle. The development of science and technology brings not only convenience to people's social life but also questions to be thought. People should reduce its potential harm, so as to make AI technology continue to benefit humankind.

Keywords Artificial intelligence, Countermeasures, Ethical problems, Human rights ethics

Paper type Technical paper

1. Introduction

At present, one of the most advanced and popular high-tech is artificial intelligence (AI) technology, which was born in the 1950s. After decades of development, this technology has now developed into an intelligent robot that can be built beyond human beings, which is different from the original simple mode of thinking judgment robot (Park and Han, 2018). Now AI technology has begun to study the subjective consciousness of the human brain, the formation of the subjective consciousness of the human brain, and the causes and methods



of the subjective consciousness of the human brain (Pigozzi *et al.*, 2016). The current AI technology brings unprecedented, surprising and frequently appreciated research results, and brings convenience and benefits to people. At the same time, it also brings ethical issues such as human rights ethics, obligation ethics, ethics of moral standards, generation gap ethics, environmental ethics, and so on.

Although the rapid development of AI technology has led to many ethical issues, there is no need to worry or panic about the ethical issues brought about by this rapidly evolving new technology. Everything has its two sides. As long as human beings can take precautions against the ethical problems that AI technology may cause, they will take timely rescue measures for the ethical problems that have already been caused, so as to avoid the liberation in the process of AI technology development. This will not only contribute to the smooth development of AI technology, but also promote the continuous development and progress of human society. It can be seen that waking up to the ethical issues of AI technology and applying corresponding countermeasures is of great practical significance for AI technology to better benefit human beings.

In this study, the profound analysis of it is make, and from the perspective of human rights ethics, the relevant countermeasures are elaborated to standardize the development direction of AI technology, so that it always serves human beings. In this process, there will be many ethical issues, and many predictable ethical issues. The purpose of this study is to clarify the human rights ethical issues that people need to study in the current and future development of AI in the light of current social practice.

In materialist epistemology, theory guides practice, and practice in turn provides material sources for the development of theory. In the future, the development of AI needs the mutual reference and promotion of relevant theories and practices to embark on a healthier and scientific development path. It is of great theoretical and practical significance to study human rights ethics in the application and development of AI technology.

Learning ability is an important intelligent behavior of human beings. Human beings can adjust their actions by learning, so as to obtain strong environmental adaptability. According to Simon, the master of AI, learning is to enhance and improve the ability of self-task processing through repeated work, so that the next time the system solves similar problems, it will be better and more efficient than before. In this study, the development trend of basic human rights protection of Chinese citizens is summarized on the basis of literature analysis of AI. Through the analysis of the practical obstacles to the protection of citizens' basic human rights at the national and individual levels, in this study, some suggestions are put forward to improve the protection of Chinese citizens' basic human rights.

2. Literature review

There are many researches on AI technology at home and abroad. There are plenty of research works on the development of AI technology. There are also many reflections on AI technology.

2.1 File analysis based on artificial intelligence

For example, Andrew's AI (Bundy, 2017), Menzel's and Aloisio's Future of Robots: An Interview with Humanoid Robots (Pan, 2017), and Margaret Boden's Philosophy of AI (Lu *et al.*, 2017), etc. There are also many reflections on AI technology. For example, in 1950, Wiener pointed out in his book *The Uses of Man for Man: Cybernetics and Society*, that machines can replace man in labor. He worries that automation technology will have infinite possibilities for good or evil. In addition, his cybernetics theory points out that automation

technology or robotics technology may lead to a “devaluation of the human brain” (Lu *et al.*, 2017).

In 1967, in the American social philosopher Mumford’s book *The Myth of the Machine*, it is strongly criticized that the application of the machine from a humanist standpoint. It is believed that machines will not only deprive people of their right to work, but also gradually eliminate individual differences, make people lose their individuality and make the whole social mechanism mechanized (Wang *et al.*, 2017).

There are also many philosophical reflections on AI technology, such as Zheng Xingfu’s *Four Philosophical Problems of AI* (Majumdar *et al.*, 2018), Li Qiong’s *Philosophical Thinking of AI* (Horaisová and Kukal, 2016), Shi Nanfei’s *Moral Concern about AI* (Pantic *et al.*, 2017), Chen Lipeng’s *Scientific and Technological Ethical Problems Caused by AI* (Bryson and Winfield, 2017), Liu Yan’s *Philosophical and Ethical Dimensions of Emotional Robot* (Rodríguez *et al.*, 2016), etc.

Newspaper articles include Tan Wei’s “Ethical Choice of Robots” (Selvarajah *et al.*, 2018) and Hu Yao’s “Robots Should Have Virtue” (Prado and Kovarik, 2018) and so on. According to the available data, the typical Periodical Document is: Chi Meng’s *Ethical Boundary of Robot Technology* (Li, 2017).

2.2 Human rights ethics

People realized that literature analysis can quickly and easily understand the research status of a certain subject. As early as 1973, Dorm and Heit noticed the importance of academic journals. Literature analysis can not only help us understand the progress of research in a subject, but also publish a critical view for the scholars’ academic achievements (Watson *et al.*, 2017). Baxter *et al.* (2016) pointed out that reviewing past research results can promote understanding of disciplines (Baxter *et al.*, 2016). Ekker *et al.* (2016) explored the role of literature as a data source in qualitative research and explored the process of literature analysis in conjunction with practical research experience (Bekker and Finch, 2016). Jing *et al.* (2016) believe that literature analysis can quickly and easily understand the research status of a certain subject, and then travel scholars apply literature analysis to the field of hotel research (Jing *et al.*, 2016). Horng *et al.* (2017) explored articles on tourism entrepreneurship research published in the seven international authoritative tourism and hotel journals from 1986 to 2006. Research shows that entrepreneurial articles are still at a lower level of research, lacking a mature theoretical framework and complex methodologies and statistical tools (Horng *et al.*, 2017).

There are no books and other research results on human rights ethics in the application and development of AI technology, but they are occasionally mentioned in the perspective of ethical issues in the application and development of AI technology (Abualigah, 2019). Therefore, in this study, through detailed analysis and innovative breakthroughs of human rights ethics in the application and development of AI technology, it is hoped that there can be some developments on the original theoretical basis (Abualigah and Hanandeh, 2015). In the existing research literature, there are few discussions on the advantages, conveniences and limitations of AI technology itself, especially on the ethical issues related to AI technology (Abualigah and Khader, 2017). In this study, through the literature analysis of the relevant concepts of AI, the relationship between “artificial life” and “natural life” and their respective characteristics are analyzed, the human rights ethical problems in the application and development of AI technology are sorted out, and the solutions are summarized in combination with practice.

3. Proposed method

3.1 Research methods

In this study, the literature analysis method is used to study and analyze the human rights protection data in the development of AI. Document analysis method, also known as historical method, is an indirect social research method, which uses literature review and collection to analyze and study some related carriers that record social phenomena. Literature can be obtained through multiple channels, which is an indirect social research method.

The main characteristics of literature analysis are summarized as follows:

First, the literature analysis method is not limited by the times and space. Researchers can stay in research institutes or laboratories and study human rights ethics in the process of AI development only by connecting to the Internet, soaking in libraries and searching various large domestic databases. Through collecting some useful records, the related issues of human rights protection can be understood and studied.

Second, the literature analysis method is helpful to the implementation of other survey methods such as experiment, questionnaire, interview, scale and test, observation. Referring to the literature analysis method, through the analysis of the literature in different periods, a horizontal and vertical understanding of the subject to be investigated and all the relevant subjects can be obtained.

Third, the cost of literature analysis is low. By comparing with other social research methods, it can be found that the cost of literature analysis method is the least and the investment of equipment is the least. In research work, a computer, some office supplies, a library card, a small amount of book purchase costs are needed. Internet can reduce a lot of expenses. Many books can be obtained free of charge in Baidu Library, Google Academy, Wanfang Database, various company portals and major IT technology forums. The total cost is less than the human, material and financial resources required to carry out social surveys of the same scale.

Fourthly, it is difficult to guarantee the quality of documents collected in the process of literature analysis. Whether it is the publishing house books or the company portal news, the quality of the collected documents will be affected by personal bias or personal interest orientation, and the incomplete correspondence between the documents and the real situation in the process of writing documents due to various reasons.

Fifthly, some of the information needed for literature analysis is not readily available. Although there are more and more channels to obtain documents, many documents are still not published publicly and cannot be freely obtained, such as personal letters, personal notes, documents of some important government agencies, organizations, conference reports, annual reports of enterprises, internal documents and data, etc.

In this study, based on document analysis, seven primary key data F1, F2, [...] F7 are selected, that is, AI and human rights protection, human rights endowment of AI products, fault liability of AI products, moral orientation of AI products, lack of legal protection related to AI, imperfection of ethical principles and immaturity of AI technology.

A total of 100 documents on AI human rights protection have been studied, and a comprehensive evaluation of the research on human rights protection documents has been carried out. In this study, two methods are combined. Document analysis is used to screen documents, grab keywords from documents and find the text basis for research work. The human rights ethical problems caused by AI technology and their causes are dealt with by statistics, and the countermeasures of human rights ethical problems caused by AI technology are found out.

3.2 An overview of artificial intelligence technology and human rights ethics

Since the emergence of AI technology, it has won the favor and research enthusiasm of many scholars, and now it has developed into all aspects of various applications. Machine learning is a branch of AI (Abualigah *et al.*, 2018a). Because of its strong self-learning ability and the ability to learn and summarize large amounts of data, it has good practical application effect in solving complex classification or recognition problems with unclear internal patterns (Abualigah *et al.*, 2018b). The block diagram of AI learning system is shown in Figure 1.

AI (AI) Technology is a new science which rose in the 1950s. It not only studies technology, but also applies related technology to products and develops intelligent products. It is a technical discipline resembling or partly resembling human beings, which is used to help people complete related activities and extend some human intelligence. The disassembly of AI is “artificial” and “intelligent”. “Artificial” can be easily understood, that is, the artificial system, is the high intelligence technology created within the scope of human resources. AI technology imitates human beings to some extent, so the study of AI sometimes means the study of human beings themselves (Chen, 2018).

Robotics, also known as Robotics or Robotics Engineering, focuses on the realization of human-like functions of robots and the control of the relationship between robots and objects they communicate with. There are many subjects and fields related to robotics. Relevant disciplines include: kinematics, dynamics, sensing, control technology, action planning and so on.

In the 1960s, with the rapid development of industrial automation and computer technology, robotics came into being and achieved good results. Robots began to be produced and used in large quantities. In the application stage, especially in dangerous work field, intelligent robots are urgently needed to replace human beings, which also promotes the progress of robotics research and technology. Robotics is an important branch of AI, so its development also promotes the progress of AI. A system can even build a giant model in the research and application of AI to simulate world changes. Intelligent products and their use in daily life have become common. Many countries have invested a lot of money and energy in this regard, but this has also brought various ethical problems to human beings.

Human’s social attribute is human’s essential attribute, and human exists in the complex network of society. To guarantee the harmony of social life, social life requires people to follow certain morals in their interaction. It is in these moral requirements that human rights are realized. Human rights are deduced from these most basic and common moral norms. Human rights exist because of the inherent dignity of human existence. Although human rights originate from morality, they also embody morality all the time in the practice of human rights. Human rights are a legitimate and reasonable existence in human society. In law, the rights, obligations and status of human beings in politics all come from the legitimate existence of human rights. This value is justified by human rights ethics.

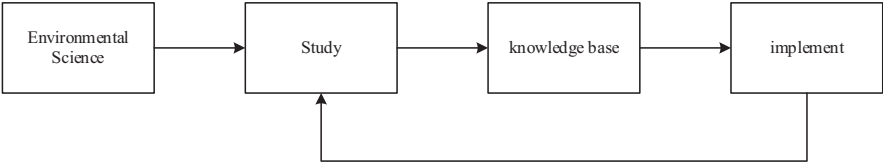


Figure 1.
Structural block
diagram of AI
learning system

4. Experiments

AI needs the supervision of the public on the road to human level AI and super intelligence. Throughout the world's management of AI, there is no complete system and policy to guide the supervision and use of AI in various countries. The literature research of AI in China is analyzed in this study. Document analysis is the main research method used here. By inquiring more relevant literature about AI and obtaining relevant literature in various ways, the source of information can be more scientific and credible. People organize information in an orderly and systematic way, and record it on a certain carrier through various words, digital symbols, videos and image sounds, which is called literature. The main sources of literature used in this study are shown in Figure 2.

In this study, 100 documents on AI human rights protection are selected for research.

With "human rights protection" as the key word, the Internet search engine is searched for the academic materials, news articles and book information about human rights protection published by the news portal in recent years, as shown in Figure 3.

In the reading room, the printed books from 1950 to now are consulted. The repetitive literature on human rights protection research is excluded, and the disposable literature is used as the main research object of this study. Documents collected in books and periodicals are shown in Figure 4.

The full-text database of Chinese academic journals is searched for relevant articles published in domestic journals since 1950, and manually searched for enterprise informatization research literature published in professional journals such as AI, AI application and human rights protection, as shown in Table I.

In this study, through literature analysis, articles on human rights protection in the development of AI are sorted out. After obtaining the basic sample data, the work is further carried out. The ultimate goal is to find out the relative importance of these documents, and according to the status of human rights protection research, replace and reduce the inappropriate old documents, update human rights protection literature. In this study, the analysis tool SPSS statistical analysis software is used for clustering analysis to carry out data validity test purposes.

In this study, the number and proportion of each data appearing in the literature research of human rights protection accounted for the total number and proportion of all data in the literature research of human rights protection, is regarded as the importance of this data. If there are n documents on human rights protection and m documents included in the study of human rights protection, P_{ij} is the important degree of item J of the n th document on human rights protection (P_{ij} is 0-1 variable). 0 represents that the information is not mentioned in the document on human rights protection, and 1 represents that the information is mentioned in the document on human rights protection. The value of P_j is:

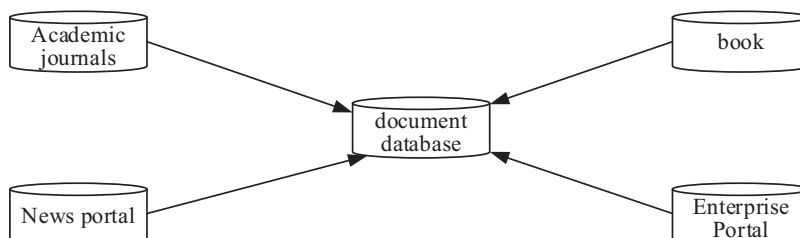


Figure 2.
Composition and
structure of document
sources

EL
37,5

920

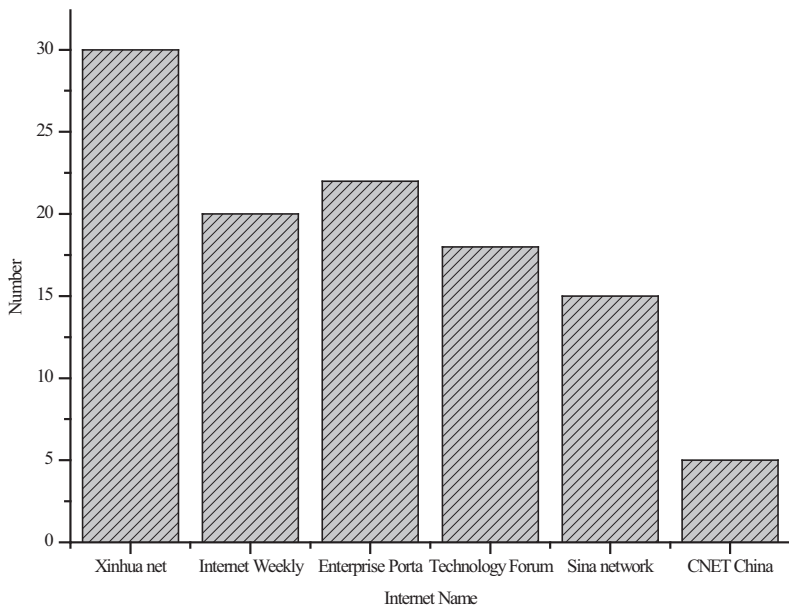


Figure 3.
AI case source

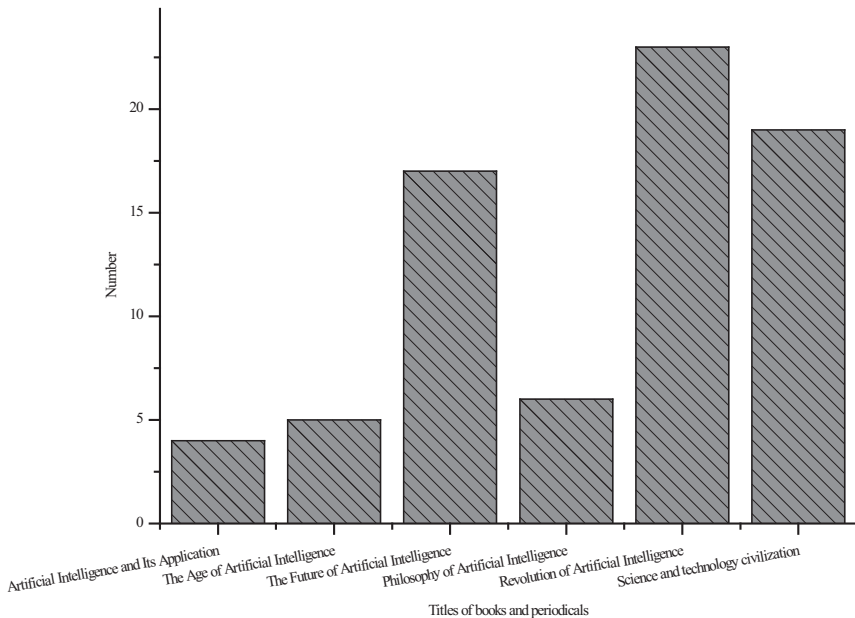


Figure 4.
Number of
documents collected
from books and
periodicals

$$p_j = \sum p_{ij}/n \quad (1)$$

P_j distribution is as shown in Figure 5:

By sorting the average values of all data, the importance of each data can be sorted. After the average value is obtained, the analysis of variance should be used to help determine whether the average value of each data is significantly different before sorting.

By means of SPSS calculation, the values of the six data are considered to be significantly different, and their values are not caused by random errors. By comparing the importance of data horizontally and vertically, the ranking of data can be obtained preliminarily.

In this study, the R-cluster method is used to cluster the samples of human rights protection. Each of the six documents is an index.

From 2005 to 2015, there were 13,000 articles on AI research in China. In this study, the publication time of one-time literature is taken as the main research object, as shown in Figure 5.

From Figure 6, it can be seen that the number of literatures on AI in China is very few in 2005, which has increased dramatically since 2007 and decreased again in 2009. The number is relatively stable between 2012 and 2014. The exploration and research on AI has matured

Table I.
Number of documents collected from databases

Titles of books and periodicals	Wanfang data
Number of cases	30

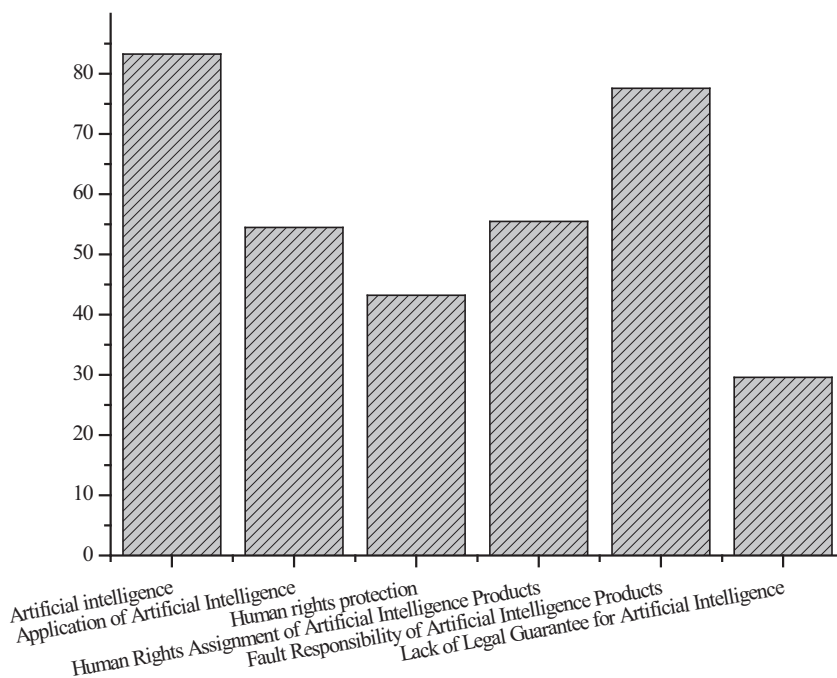
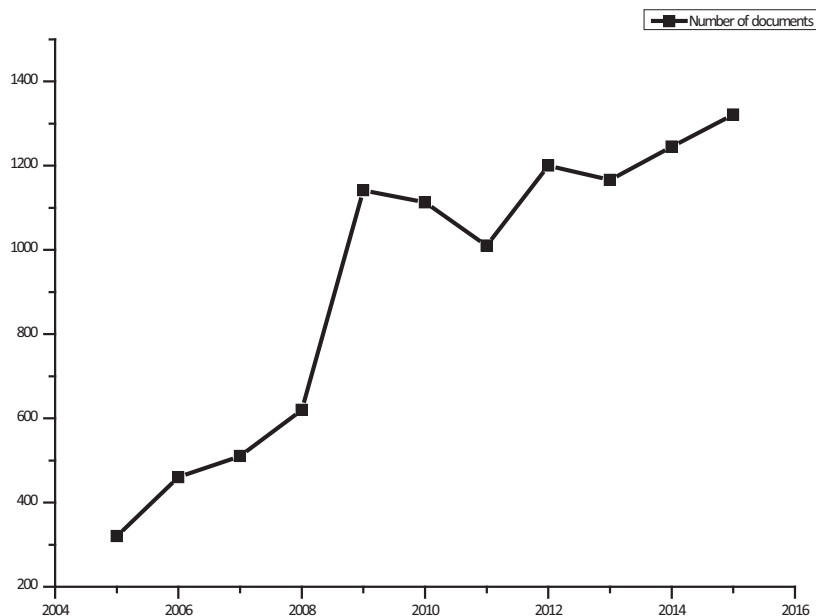


Figure 5.
The number of references to Human Rights Protection Documents
 p_j ($0 < p_j < 1$)

EL
37,5

922

Figure 6.
Time distribution of
AI literature
publication in China



and the research content has become more and more perfect. The whole distribution of samples is reasonable, which lays a foundation for our research work.

5. Discussion

Most researchers consider the definition of human rights from the political, moral and other aspects. In this study, human rights are understood from the perspective of philosophy and ethics, and the experience of previous scholars' explanations of human rights are drawn on. Human rights is a concept peculiar to human society, which reflects people's yearning for beauty between people and between people and society. The connotation of human rights can be summarized as follows. It refers to all the rights and obligations that people should enjoy to survive and develop, and to live in harmony with others and society under a certain social and historical condition and under a relatively stable social and natural environment. In other words, human rights ethics can also be a combination of all the ethics and morals contained in the concept of human rights, as well as the social system and social moral principles. Since ancient times, the development of ethics has been a process of discarding the moral concepts established by human beings. It is also a process of moral practice in which human rights ethics is constantly perfected. Human rights have a moral core.

In the study of human rights ethics in the application and development of AI technology, Marxist human rights ethics is always expounded and based on. According to Marxist theory, it is in favor of the pursuit of human rights. The human rights view of Marxist theoretical system also draws lessons from the human rights view and practice of some capitalism. Standing on the position of emancipating humankind, it is necessary to take the essence and remove the dross, and set up the Marx doctrine of human rights ethics guided by the principle of collectivism and driven by realistic interests.

The so-called absolute guarantee means that the basic human rights stipulated in the Constitution cannot be arbitrarily limited or exceptional by other legal norms. Because the absolute safeguard mode is based on the Constitution and through the constitution's own system, it is also called the "constitutional safeguard" mode. Relative safeguard means that other legal norms are allowed to restrict the basic human rights stipulated in the Constitution directly and effectively. Because the relative guarantee way is to realize the guarantee of basic human rights through common law rather than constitution itself, it can also be called the "guarantee according to law" way. The former is the right of national self-determination, and the latter is the freedom of migration in civil liberties. The absolute guarantee of the right of national self-determination is because the impact of its implementation is no longer attached to the citizens themselves, but also has a great impact on the realization of the basic human rights of the nation and other citizens. Therefore, different guarantees of different basic human rights do not mean that basic human rights have their own priorities, but that the impact of the realization of different basic human rights has different sizes. As the constitution of China is not suitable, the protection of citizens' basic human rights in China belongs to the second way of guaranteeing citizens' basic human rights, that is, the protection according to law. Accordingly, the judicial relief of citizens' basic human rights is accomplished through common law litigation, namely civil litigation, criminal litigation and administrative litigation.

Marxist human rights ethics is the connotation of continuous development. Therefore, it has strong vitality. In the construction of human rights ethics theory, first of all, it is necessary to pay special attention to using Marxism to guide and ensure the status of Marxism. Then, the relevant practice situation of China is combined with it to promote the unity of power and obligation. It is necessary to continue to adhere to the principles of collectivism and humanitarianism, attach importance to human life and freedom as the main content, take the comprehensive development of society and human beings and harmonious coexistence as the starting point and the foothold, and jointly establish a human rights ethics with Chinese characteristics.

At present, the legislative process of AI is relatively slow, and there is no relevant legislation, but the legislation is needed. At present, researchers are studying implanting small chips into the human brain. With the rapid development of chip technology, it is hard to say who controls anyone after the combination of chip and human brain. This path may be a shortcut for the development of AI, but it is also very risky. Once the technology is mature and widely used, the risk may be beyond human's means. This still needs to prevent risks and divide responsibilities from a legal point of view before it happens.

The most effective way to deal with the ethical problems in AI science is to integrate ethical system into scientific research and put it into practice. Through the above, it can be understood what ethical problems human rights face in the process of AI development. Under the principle of upholding Marxist human rights ethics, it is necessary to use ethics to restrain systematically, methodologically, purposefully and regularly, that is, to establish an effective ethical system. The orientation of the system should be based on the premise of harmlessness, people-oriented and controllable technology.

Better human development also requires continuous innovation and breakthroughs in AI. The development of technology requires the continuous research efforts of scientists, while the direction of technology development and whether it is abused need to be ethically and legally solved. Now, the intelligent technology is mainly realized through computer technology, and computer technology is risky, so AI technology has security risks. All kinds of vulnerabilities in programming technology are hidden dangers of future security of AI. Therefore, the current AI researchers need to be vigilant, cautious, and incorporate the

necessary moral and ethical ideas into their programming, so that the design of programming can be more reassuring, the service of future AI can be more humanized, and the AI machine and people can have more dignity.

In a word, to enhance citizens' awareness of human rights, citizens' trust in government and law should be strengthened at the stage of citizens' awareness of human rights, human rights claims and human rights requirements, so as to strengthen their trust in national legal system. To cultivate citizens' awareness of human rights, the state and society need to pay more efforts.

6. Conclusions

Nowadays, people can accept the view that AI technology has changed people's lives, facilitated life and improved efficiency. Therefore, in the future development, AI is likely to trigger the next industrial revolution. At present, Internet technology is perhaps the most popular technology. In the future, AI technology or products may replace the Internet, create a new industrial revolution, and promote more rapid economic development.

Therefore, the development of AI technology should take serving human beings as the highest scale, and should always be the main goal of all technological struggles. The development of AI technology needs to enrich this sentimental world, but cannot desalinate people's emotional world. AI technology always needs to consider "human nature". It is not to satisfy the interests of a person or a group, nor is it simply to show off the ability and sense of achievement of scientists. These are the areas where AI human rights ethics need to be regulated. The study of human rights ethics in AI pays attention not only to the ethical and moral status of human beings in front of intelligent machines, but also to the specific human rights of intelligent machines, so that both sides can live in harmony and intelligent machines can serve human beings better. At the same time, excessive sensitivity needs to be avoided. At present, AI technology and related products are still under human control. The research on human rights ethics of AI still needs to be focused on. At the very least, it is necessary to maintain the same speed of development as technology, coordinate progress, conform to human nature, conform to morality, and let science and technology benefit mankind.

At present, it is particularly important to further study the principle of human rights protection in theory. In this study, the principle of human rights protection is tried to study from the perspective of human rights protection literature in the literature analysis method based on AI. Obviously, this research should not be limited to the framework of public law. The research on the principle of human rights protection is not only theoretical research and literary research. Its deeper value should lie in legislative construction, judicial practice and social value.

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