

Ethical Codes and Policy Recommendations of the Development of Artificial Intelligence

Jiawei Cao

Xi'an Jiaotong University City College, Xi'an, Shanxi, 710018, China

ABSTRACT

With the popularization and application of artificial intelligence technology, ethical issues have become increasingly prominent, which involve the safety and reliability of the technology itself, and affect the human subjectivity, social equity and sustainable development. Therefore, while promoting technological progress, the ethical codes and policy framework of artificial intelligence should be stressed to ensure the sustainability of technological development. This paper studies the ethical codes and policy recommendations of the development of artificial intelligence, with a view to providing theoretical suggestions for solving the ethical problems of artificial intelligence.

KEYWORDS

Artificial intelligence; Ethical codes; Policy recommendations

The core of ethics is to instruct people how to make right choices in complex social situations. At present, policymakers around the world are beginning to pay attention to the ethical issues of artificial intelligence and developing corresponding policy frameworks. For example, the European Union issued the "Ethics Guidelines for Trustworthy AI", which emphasizes technical transparency, fairness and accountability. Several pieces of legislation in the United States regulate the use of artificial intelligence in areas such as privacy protection, data security and algorithmic fairness. China has also actively promoted the construction of artificial intelligence ethics, and issued a series of policy documents, which emphasize both technological development and ethical governance. From the perspective of ethics, this paper will discuss the principles and policy suggestions of artificial intelligence ethics, in order to provide theoretical suggestions for constructing the development path of artificial intelligence in line with ethics.

1 Basic Theories

1.1 Artificial Intelligence

Artificial intelligence (AI) is the branch of computer science, which seeks to implement automated operation and intelligent behavior of computer systems or programs by simulating and extending human intelligence. The basic theories of artificial intelligence include multi-disciplinary knowledge such as computer science, mathematics, statistics, neuroscience and cognitive science. The system continuously improves and optimizes its own performance by processing large amounts of data, recognizing patterns and self-learning, and gradually realizes automatic processing from simple tasks to complex tasks. With the development of computer technology, artificial intelligence has gradually moved from theory to practical application, and its application covers all aspects from

daily life to professional fields, so as to improve the efficiency and service level of various industries, and promote the development of economy and society. In the medical field, through big data analysis and machine learning algorithms, artificial intelligence assists doctors in the diagnosis of diseases, formulation of personalized treatment plans and research and development of new drugs, which significantly improves the efficiency and accuracy of medical services.

In the financial sector, artificial intelligence is widely used in risk management, algorithmic trading, customer service and fraud detection, thus improving the operational efficiency and security of financial institutions.

1.2 Ethical Codes

Ethical codes refer to a series of guiding principles and standards, which are set up to ensure the legitimacy, justice and morality of behavior, in the process of social behavior and decision-making. Ethical codes provide moral guidelines for individuals and society to help people make ethical decisions in the face of complex moral dilemmas. They are also important tools to maintain social order and promote social harmony.

They are usually derived from social moral traditions, laws, regulations and cultural habits, and cover all levels from individual behavior to organizational behavior.

On the one hand, ethical codes are binding and exert a profound influence on the behavior of individuals and organizations through public opinion, moral pressure, and inner beliefs. For example, in the field of business, ethical codes may require companies to pursue profits while not neglecting the social responsibility and environmental protection.

On the other hand, ethical codes are universal and applicable to specific individuals or organizations, as well as to the whole society. No matter in the family and community, or in the broader social system, ethical codes play an important role in maintaining the moral order.

2 Principles of Ethical Codes for Artificial Intelligence

2.1 Principle of Human Subjectivity

The principle of human subjectivity emphasizes that the development and application of artificial intelligence technology must always be centered on the interests and well-being of humans.

This principle, derived from humanistic philosophy, advocates that in the context of rapid technological development, it is necessary to ensure the dominant position of human beings at all times and avoid the infringement of technology on human subjectivity.

Specifically, the principle of human subjectivity requires full consideration of human dignity, privacy, freedom and autonomy in the design, development and application of artificial intelligence system, ensuring that every step of technological progress can enhance the quality of human life, rather than cause threats and damages to human life. In practical applications, developers should prioritize the protection and respect of human subjectivity as an important design goal^[1].

For example, when developing a medical diagnostic system, technology should assist doctors to make more accurate diagnoses, rather than completely replace the role of doctors, so as to ensure that the treatment plan of patients is still led by professionals with humanistic care. In addition, the right of privacy is the basic embodiment of human subjectivity, and any violation of privacy may pose a serious threat to individual freedom and autonomy.

In the process of data collection and processing, the requirements of privacy protection and data security must be strictly followed to prevent the abuse of personal privacy data.

2.2 Principle of Sustainable Development

The principle of sustainable development emphasizes that while promoting technological progress and economic development, environmental protection, social justice and economic benefits must be balanced and long-term. The concept of sustainable development is rooted in the importance of ecological protection and resource management, and aims to ensure that current technological advances do not come at the expense of interests of future generations. When designing and developing the artificial intelligence system, the priority should be given to energy efficiency and environmental impact, and the green computing technologies and renewable energy should be utilized to reduce carbon footprint and environmental pollution. For example, while constructing and operating data centers, by optimizing cooling systems, using low-energy hardware and high-efficiency computing algorithms, energy consumption and environmental impact can be significantly reduced. In addition, in the process of automation and intelligence, we should pay attention to the retraining and upgrading of the labor force, and help the workers replaced by technology to transition to new positions, so as to avoid mass unemployment and social unrest. In the process of technology popularization and application, it is necessary to pay attention to the issue of digital divide, formulate fair technology popularization policies and social security measures, so as to promote the inclusive development of society, and achieve a balance between social justice and economic benefits^[2].

2.3 Principle of Ethical Embedding

The principle of ethical embedding advocates the systematic embedding of ethical considerations into every aspect of the design, development and application of artificial intelligence system, which can ensure that artificial intelligence technology always adheres to moral and social values while achieving its functions and objectives, thereby avoiding or reducing potential ethical risks and negative impacts. In the design stage of artificial intelligence system, ethical goals should be clearly defined and used as important guidelines for technology development. For example, when developing the autonomous driving system, the design team should take into account ethical issues, such as how to make decisions in emergency situations to minimize potential threats, in order to human life. In the development and application of artificial intelligence, the principle of ethical embedding also emphasize transparency, interpretability and the establishment of accountability mechanism. Specifically, the artificial intelligence system should have the transparent decision-making process and interpretable algorithmic logic, so that users and regulators can understand and monitor the behavior of artificial intelligence system. When the artificial intelligence system makes mistakes or leads to adverse consequences, it is necessary to clarify the responsible body and ensure that there are appropriate mechanisms for accountability and correction.

3 Policy Recommendations

3.1 Focus on Industrial Upgrading and High-quality Development Needs

Industrial upgrading means the improvement of production efficiency and technological level, and emphasizes the optimization and transformation of economic structure driven by innovation. As the core driving force of a new round of industrial revolution, artificial intelligence technology can significantly improve the intelligence level of various industries. For example, in the manufacturing industry, through the introduction of artificial intelligence technology, the automation and intelligence of the production process can be achieved, thereby improving production efficiency and reducing production costs. Focusing on the needs of industrial upgrading

and high-quality development, the government should formulate policies and measures to encourage enterprises to increase investment in artificial intelligence technology research and development, reduce the research and development costs of enterprises, stimulate the innovation vitality of enterprises through tax relief, research subsidies, etc., and strengthen the basic research of artificial intelligence technology, and establish national artificial intelligence research institutions and laboratories, so as to promote the industry-university-research cooperation, and enhance the technological innovation capability. In addition, the government should promote the deep cooperation among enterprises, scientific research institutions, universities and financial institutions through the policy guidance and market regulation, and form an industrial ecosystem with innovation as the core. Artificial intelligence industry alliances can be established to promote technology standardization and industrial collaborative innovation, and solve common problems and bottlenecks in the application of technology by enterprises.

3.2 Focus on Collaborative Development and Multi-departmental Participation

In the era of rapid development of artificial intelligence technology, the deep integration of various industries and fields requires close cooperation between the government and enterprises, so as to promote the technological progress. On the one hand, the government should play a guiding and coordinating role, formulate macro policies and development plans, and clarify the direction and goals of the development of artificial intelligence technology. It should establish cross-departmental coordination mechanisms and integrate resources to form a unified action program, and promote the collaborative cooperation among various departments and industries such as transportation, medical care and education. The government can lead the establishment of artificial intelligence technology application demonstration projects, encourage information sharing and resource integration among various departments, form comprehensive technical solutions, and improve the overall efficiency and service quality. On the other hand, enterprises should actively cooperate with universities and scientific research institutions to carry out joint research and development among industry, academia and research, and jointly promote technological innovation and achievement transformation. Through the establishment of industrial alliances, enterprises, universities and scientific research institutions can realize the sharing of technological achievements and market resources, solve common technical problems, and promote the standardization and normalization development of technology^[3].

3.3 Promote the Effective Coverage of Application Scenarios and Multiple Channels

The application of artificial intelligence requires a wide range of application scenarios and effective coverage of multiple channels, in order to maximize the potential of artificial intelligence. On the one hand, the government and enterprises should work together to explore and cultivate application scenarios in various industries, and promote the implementation and practice of artificial intelligence technology in more fields. For example, in the medical field, artificial intelligence can be applied to disease diagnosis, personalized treatment and drug research and development, and improve the accuracy of diagnosis and the specificity of treatment through big data analysis and deep learning technology. In the field of education, artificial intelligence can realize the personalized learning recommendation, intelligent assessment and optimal allocation of educational resources, and improve the quality and equity of education. In the financial sector, artificial intelligence can be used for risk control, intelligent advisory and customer service to improve the efficiency and security of financial services. On the other hand, the promotion and application of artificial intelligence technology cannot be separated from powerful computing

power, rich data resources and efficient network environment, so the government should increase investment in information infrastructure, and build a high-speed, stable and secure network environment to support the large-scale data processing and real-time information transmission.

3.4 Focus on Innovative Elements and High-level Talent Systems

In terms of innovation elements, the government should encourage enterprises and scientific research institutions to increase investment in artificial intelligence technology research and development by formulating and implementing a series of incentive policies. Specifically, special funds can be set up to support the basic research and exploration of cutting-edge technologies and promote original technological breakthroughs. The government should strengthen the protection of intellectual property rights, and create a good environment for innovation to ensure that innovation results can be effectively protected by laws and applied commercially. In terms of high-level talent systems, the government and enterprises should make joint efforts to build sound talent training and introduction mechanisms to attract and cultivate artificial intelligence talents with international competitiveness^[4], such as increasing support for universities and scientific research institutions, promoting the development and teaching reform of AI-related disciplines, and cultivating students' innovative thinking and practical abilities. Through the establishment of artificial intelligence academy, multi-disciplinary joint training projects and other ways, the training quality of artificial intelligence talents can be improved.

4 Conclusion

Based on the theoretical basis of artificial intelligence and ethical codes, this paper points out the principles of artificial intelligence ethical codes such as the principle of human subjectivity, the principle of sustainable development and the principle of ethical embedding. And it puts forward policy suggestions from four aspects: focusing on industrial upgrading and high-quality development needs, focusing on collaborative development and multi-departmental participation, promoting the effective application scenarios and multiple channels, and focusing on innovative elements and high-level talent systems, so as to actively create an innovation ecology, give play to the advantages of China's broad market and rich application scenarios, promote the safe, reliable, controllable, healthy and harmonious development of artificial intelligence, make artificial intelligence become the core driving force of a new round of scientific and technological revolution and industrial transformation, and empower the Chinese-style modernization.

Funding

2024 Study on the ideological connotation and practical value of General Secretary Xi Jinping's ideological connotation and practical value research on the important exposition of people's health (20240185); The 2024 School-level Scientific Research Potential Cultivation Project of Xan Jiaotong University City College: Research on Integrating Xi Jinping Cultural Thoughts into the Teaching of Ideological and Political Theory Courses in Colleges and Universities (2024PY11)

About the Author

Jiawei Cao(1981.08-), Male, Han, Suizhou, Hubei Province, Doctor; Associate Professor, Xi'an Jiaotong University City College, Researcher at the International Information Philosophy Research Center of Xi'an Jiaotong University; Research Fields: Philosophy of Information, Marxist Theory, Artificial Intelligence Ethics and Interdisciplinary Application.

References

- [1] ZHOU Qingshan, ZHENG Xia, HUANG Guobin. Policy Text Content Analysis of the Core Principles of Artificial Intelligence Ethics [J]. Journal of Chongqing University of Posts and Telecommunications (Social Science Edition), 2022,34(05):9-20.
- [2] RU Peng, QIN Xiaoyang, SU Jun. Risks, Principles and Responsibilities: An Investigation into the Construction of Social Experiment Ethics Code System of Artificial Intelligence Based on Experimental Path [J]. Science of Science and Management of Science and Technology, 2019,45(04):98-117.
- [3] LI Wenjun, LI Wei. Theoretical Logic and Policy Suggestions of the New Generation of Artificial Intelligence to Promote the High-quality Development [J]. New Industrialization, 2023,13(08):5-8+14.
- [4] SUN Jin. Research on Current Policy Optimization of Artificial Intelligence Development in Guangdong Province [D]. South China University of Technology, 2022.