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Practice and application of artificial intelligence technologies in the digital economy

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Abstract. With the continuous development of the digital economy, artificial intelligence technology is becoming more and more widely used in various fields. This paper mainly discusses the practice and application of artificial intelligence technology in the digital economy, including its application field, technical principle, implementation method, and future development trends. Through analyzing the current application status and existing problems of artificial intelligence technology in the digital economy, this paper puts forward some improvement measures and development suggestions, aiming to provide a reference for promoting the better application of artificial intelligence technology in the digital economy.

Keywords: artificial intelligence, digital economy, practice, application.

1. Introduction

Artificial intelligence technology has become one of the core forces in the development of all walks of life. Still, it has also become an important driving force for China's economic growth. Integrating the digital economy and artificial intelligence technology has promoted the transformation and upgrading of traditional industries. To give full play to the advantages of artificial intelligence technology in the era of digital economy, the paper combines the development process and development status of artificial intelligence technology, showing the practice and application of artificial intelligence technology in the era of digital economy to provide a reference for other scholars.

In academic circles, scholars around the influence of artificial intelligence on economic and social research, how artificial intelligence can promote economic growth, and how to promote economic growth a lot of theoretical discussion and empirical tests, the research results to mining the growth potential of artificial intelligence, explore the development direction of artificial intelligence and accelerate the integration of artificial intelligence and economic development is of great significance. At present, such as Cao Jing, Liu Taoxiong, He Xiaogang, etc., Luo Liangwen, etc., focus on this topic [1-4]. In relevant empirical studies, most studies have confirmed that artificial intelligence can promote economic growth. At the macro level, scholar Graetz et al. [5]. conducted a survey of robot usage in the industrial sectors of 17 countries from 1993 to 2007 and found that the contribution of industrial robots to a country's GDP accounted for about 1 / 10 of the total growth rate. Autor et al. [6]. It also analyzed the use of intelligent machines and the economic operation in some countries from 1993 to 2007 and found that the use of robots would promote the growth of the regional economy to a certain extent and improve the economic growth rate. Chen Deyu et al. [7]. conducted a study on the AI industry and

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economic development in different provinces in China in 2018-2019, and the results showed that the rapid development of the AI industry has further promoted the long-term growth of China's economy. Zheng Jianghuai et al. [8]. analyzed the patent data of artificial intelligence in different provinces in China and found that although the progress of intelligent manufacturing technology will squeeze out a part of the labor force in the secondary industry, it will also improve the overall economic growth level of the region. At the micro level, Li Lei et al. [9]. Used the data of 2000-2013 and the customs trade data of enterprise products to confirm that the use of robots by enterprises can significantly improve labor productivity. The research of Li Yaya [10] and Han [11] also shows that intelligent transformation of enterprises can promote the improvement of total factor productivity. It can be seen that artificial intelligence has played a positive role in promoting the digital economy.

This paper aims to explore the practice and application of artificial intelligence technology in the digital economy, analyze its application status and existing problems in various fields and put forward some improvement measures and development suggestions. This study uses a combination of the literature data method and the empirical analysis method. Firstly, through the sorting and analysis of relevant literature, we can understand the application status and existing problems of AI technology in the digital economy; secondly, through the empirical analysis of some specific cases, we can deeply discuss the practice and application of AI technology in the digital economy.

2. An Overview of Artificial Intelligence Technology

2.1. Definition and Classification of AI Technologies

Artificial intelligence refers to a technology in which computer systems realize autonomous learning, reasoning, judgment, decision-making, and other functions by simulating human intelligence. According to different classification criteria, AI technologies can be divided into weak AI and strong AI. Weak artificial intelligence refers to an intelligent system that can only complete specific tasks, while strong artificial intelligence refers to an intelligent system equal to or exceeding human intelligence. The current research is mainly on weak AI technology.

2.2. The Development Process of Artificial Intelligence Technology

The development of artificial intelligence technology can be divided into three stages: the first stage is the symbolism period when the research focuses on how to make the computer simulate human thinking; the second stage is the connectionism period, when the research focuses on how to make the computer automatically learn and adapt to the environment; the third stage is the machine learning period when the research focuses on how to let the computer automatically extract rules from the data and make predictions and make decisions. At present, machine learning has become one of the main research directions of artificial intelligence technology [12].

3. Analysis of the Application Status and Problems of Artificial Intelligence Technology in the Digital Economy

3.1. Application Domain Analysis

The application of artificial intelligence technology in the digital economy has been involved in many fields, including finance, medical care, education, transportation and so on. Among them, the financial field has the most extensive applications, including risk control, investment decision, customer service, etc.; the medical field mainly includes disease diagnosis, drug research and development; the education field mainly includes personalized teaching and student evaluation, and the transportation field mainly includes automatic driving and transportation planning [13]. In general, the application of AI technology in the digital economy has achieved some results, but there are still some problems to be solved.

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3.2. Existing Problem Analysis

(1) Data quality problems: The realization of artificial intelligence technology requires a large amount of high-quality data support, but the current data quality in the digital economy is generally low, and there are problems such as data loss and noise interference. These problems can affect the accuracy and reliability of AI algorithms.

(2) Privacy and security issues: In the digital economy, the leakage of personal information has become a serious problem. If personal information is used to train AI models, it may pose a risk of privacy leakage. Therefore, realizing the wide application of artificial intelligence technology under the premise of ensuring information security is an urgent problem to be solved [14].

(3) Ethics: With the continuous development of artificial intelligence technology, some ethical and moral problems have gradually emerged. For example, how should self-driving cars make decisions in dangerous situations? These problems require us to constantly explore technically and also take into account ethical factors [15].

3.3. Problem Solving and Analysis

First, the ideological orientation of general AI should be clarified to ensure that its development and application are always in line with the core socialist values. This means that when developing and applying new AI technologies, we should fully consider their impact on social, economic and cultural aspects, not only subject to the logic of capital operation but to ensure that AI technology can serve the fundamental interests of the people. Efforts should be made to bridge the information gap and the digital divide, promote the equitable distribution of scientific and technological achievements, and ensure that everyone can enjoy the convenience brought by the new generation of artificial intelligence technology. In the process of applying new technologies, we should follow the principle of fairness and justice to avoid exacerbating social inequality and promote the transformation from a "digital divide" to a "digital dividend".

Secondly, strengthen the research development and innovation of general artificial intelligence and establish a new position for the spread of socialist ideology. From the technical logic of the content generated by the new generation of artificial intelligence such as ChatGPT, the content it generates is not the result of simple logical reasoning but the result of "collecting big data without difference" + “manual marking reinforcement learning” [16]. We can not only provide it with high-quality content and data but also strengthen its learning process through manual annotation. At the ninth collective study session of the Political Bureau of the CPC Central Committee, General Secretary Xi Jinping stressed the need to enhance original capabilities, take key and core technologies as the main direction, and lay a solid foundation for the development of the new generation of artificial intelligence.

Finally, strengthen the construction of policies, regulations and ethics of general artificial intelligence, adjust the ideological management logic and innovate management thinking. In the process of the development and application of the new generation of artificial intelligence technology, it is necessary to strengthen the legislation in the field of the general model, formulate relevant laws and regulations, clarify the legal scope of the application of new technologies, and ensure that they are not used to spread bad information and damage the socialist ideology. We need to shift from the review and guidance of specific content to the screening and management of massive data and information so as to ensure the reasonable compliance of data sources and reduce the potential risks caused by data deviation.

4. Conclusion

Through technological breakthroughs, we can realize the challenges brought by the new mode of "man-machine" communication to the mainstream ideology into new opportunities for its development, carry forward the socialist core values, and establish a new position for the dissemination of socialist ideology.

We should shift from only focusing on the management of network communication to the whole process management of "data collection-screening-generation- -interaction-feedback" of the general large model to ensure that all links of the new technology are under effective supervision and improve the pertinence and comprehensiveness of ideological management. In addition, we need to make full

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use of new technologies such as artificial intelligence and big data to form a management mode and management thinking of "technology management technology", so as to put technology "into the cage" while developing technology. Through technical means, improve the monitoring and intervention ability of the general large model, ensure that technological development and ideological management promote each other, and jointly promote social harmony and stability.

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