

Application Prospect of Artificial Intelligence in Computer Network Technology

Jihong Liu^{1, a}, Yiyang Jianyin^{1, *}

The Asia Pacific School of Business, International Plaza, 10# Anson Road, 079903, Singapore

*Corresponding author: Yiyang Jianyin (kendihg@163.com), ^ayx900312@126.com

Abstract: With the continuous development of artificial intelligence technology, its application prospects in computer network technology are gradually showing. In the introduction, the research points out the importance and prospects of artificial intelligence in computer networks, and then introduces the basic concepts and technologies of artificial intelligence in computer network technology from the aspects of machine learning technology, intelligent interaction technology and data analysis technology. In the application of enterprise network architecture, this study reveals the intelligent upgrading of network equipment such as routers and switches, as well as the way of using artificial intelligence in security defense and risk management. In terms of mobile Internet network technology, this study analyzes the deep integration of artificial intelligence and 5G mobile communication, as well as the improvement of network service quality and the artificial transformation of operation support technology. Finally, this paper draws the conclusion that artificial intelligence is becoming the strongest assistant in the field of computer network technology, and it is the direction of future network technology development.

Keywords: Artificial Intelligence, Computer Network, Application Prospects, Machine Learning, Intelligent Interaction, Data Analysis.

1. Introduction

With the continuous development of computer technology, the application of artificial intelligence (AI) technology is becoming wider and wider. The application of AI in the field of computer network technology is becoming wider and wider. AI technology is an intelligent technology that enables machines to act like human beings, which can make computer network systems become automatic, intelligent and delicate.

The basic concepts and technologies of AI in computer network technology mainly refer to machine learning technology and intelligent interaction technology, which can help computer systems process information more intelligently. Machine learning technology can enable computer networks to self-learn, find problems and solve problems, which not only saves a lot of human and material resources, but also improves the flexibility and scalability of the system. Intelligent interaction technology can make human-computer interaction more intelligent, natural and flexible, and exchange information more efficiently based on a large amount of data, thus improving the efficiency of the network.

The integration of data analysis technology and AI is one of the important directions of its application in computer network technology. Data analysis technology can help computer systems better mine, analyze, process and apply data, while AI technology can improve the intelligence level of the network. The application of AI in enterprise network architecture mainly refers to the intelligent upgrading of network equipment such as routers and switchboards, as well as the application of AI in security defense and risk management and control. Intelligent upgrading can provide enterprises with more efficient, safe, reliable, flexible and scalable network services, thus improving their core competitiveness. The application of AI in security defense and risk control can improve the security level of information in the enterprise, reduce the risk of network information disclosure, and protect the brand image and reputation of the

enterprise.

In a word, the application scope of AI in computer network technology is wide, which can make network systems automatic, intelligent and delicate, improve the efficiency of the network, and provide users with better, safer, more efficient and reliable network services.

2. Basic concepts and Technologies of AI in Computer Network Technology

2.1. Basic concepts and characteristics of machine learning technology

As one of the important branches of AI, machine learning can automatically obtain and improve computer algorithms and improve the intelligent level of computers. In computer network technology, machine learning technology has been widely used in various fields, such as network security, network optimization, network management, etc. With machine learning technology, abnormal behaviors in the network can be identified through the learning and analysis of massive data, and the network can thus be independently managed and optimized. In the future network, machine learning will play a more important role in realizing the self-management of the network and improving the intelligent level of the network.

Unlike traditional computer networks, machine learning technology can automatically identify abnormal behaviors in the network and provide intelligent solutions. Machine learning technology has also been widely used in the intelligent interaction of the network. For example, chatbots, intelligent voice recognition and other technologies can provide users with more convenient and efficient services while improving the user experience. For the future development of network, AI technology will surge and has a profound influence and promotion effect.

2.2. Application of intelligent interaction technology in computer network

Intelligent interaction technology is a hot topic in the field of AI. In computer network technology, the application of intelligent interaction technology is particularly important. It can realize natural language interaction and intelligent recommendation between computers and users, thus effectively improving the user experience. In the enterprise network architecture, such as intelligent customer service, the application of AI can enable the enterprise to communicate with customers more efficiently. AI plays a positive role in improving the business level of the enterprise, while reducing the communication costs of the enterprise. In mobile Internet technology, intelligent interaction technology also has wide application, such as smart home, intelligent driving and human-computer interaction. With the continuous development of AI technology, the application of intelligent interaction technology in computer network technology will be wider.

2.3. Thoughts on the integration of data analysis technology and AI

The rapid development of data analysis technology has provided important support for the development of AI. Through the integration of AI and data analysis technology, various data can be analyzed through intelligent algorithms, thus providing accurate decision-making support for enterprises according to the results. Typical applications combining AI and data analysis include intelligent recommendation, intelligent search, etc., which can meet the needs of users and improve user satisfaction. Meanwhile, in other fields such as finance and medical care, AI and data analysis technology can also improve efficiency, reduce costs and make more contributions. Therefore, the integration of AI and data analysis technology, as well as the application of this technology in computer network technology, will undoubtedly have a huge influence.

3. Application of AI in Enterprise Network Architecture

3.1. Intelligent upgrading of network equipment such as routers and switchboards

Traditional routers and switchboards can only carry out basic data transmission and routing strategies, which cannot well meet the higher requirements of new network technologies for network equipment. Therefore, the popularization of AI technology has provided a new idea and implementation path for the intelligent upgrading of network equipment. Through the learning and analysis by intelligent algorithms, network devices can realize traffic control and packet forwarding more quickly and accurately, thus significantly improving network quality and user experience. In addition, the intelligent upgrade of equipment such as routers and switchboards can also enable the automatic management of equipment through intelligent network management tools, thus improving the stability and security of equipment, and reducing the difficulty and cost of manual maintenance. In summary, the application of AI technology has brought a broader prospect for the intelligent upgrading of network equipment such as routers and switchboards.

3.2. Application of AI in security defense and risk control

In the enterprise network architecture, security defense and risk control play a crucial role. Since traditional security defense methods can no longer meet the needs of network security, AI is becoming an emerging solution. Through AI technology, network behaviors can be automatically learned and analyzed, and various network attacks can be detected and defended in time. With AI technology, enterprises can detect and respond to network threats more efficiently and in real time.

In terms of security defense, and by using big data analysis technology, AI can detect abnormalities and conduct early warning, realize real-time detection of network attacks, and make quickly response. The network security system based on AI can not only automatically identify network threats, but also automatically analyze and classify the attacks, thus enhancing the comprehensive security performance of the system.

In terms of risk management and control, AI can analyze and identify enterprise data by using data mining and analysis technology, and detect and respond to potential security risks in time. In addition, AI can also help enterprises assess and predict possible future security risks, and provide more comprehensive and in-depth risk management services.

In a word, the application of AI technology in the field of enterprise network security has a broad prospect. It has the advantage of handling network security issues in a highly automated and intelligent manner, thus providing more efficient and reliable security defense and risk management services for the enterprise.

4. Application Prospects of AI in Mobile Internet Technology

4.1. Deep integration of AI and 5G mobile communication

With the rapid development of 5G mobile communication technology, the application of AI is gradually increasing. The high bandwidth and low latency of 5G allow mobile devices to use more data and functions, while the efficiency of AI technology can further promote the development of mobile devices.

AI and 5G mobile communication can be deeply integrated to bring extraordinary upgrades to users' mobile experience. By using AI technology, mobile devices can intelligently manage bandwidth and allocate network resources. Intelligent machine learning algorithms in mobile operating systems can gradually understand users' habits and provide them with more personalized services. In addition, AI technology can also make the 5G network more intelligent.

In short, the deep integration of AI and 5G mobile communication can further promote the development of mobile communication technology. In the future, with the popularization of mobile devices and the continuous improvement of AI technology, this integrated model will have wider and deeper application prospects.

4.2. Improvement of the quality of network service and AI transformation of operation supporting technology

AI technology has been more and more widely used in computer networks, among which the improvement of

network service quality and the AI transformation of operation support technology have become hot spots and difficulties of research. At present, many operators use AI technology to intelligently optimize network services, improve communication quality, reduce latency, and ensure users' network experience and satisfaction.

Through the dynamic adjustment of network resources and traffic, AI technology can improve the performance and utilization of the network, and realize self-adaption of networks, dynamically adjustable services and comprehensive management. Meanwhile, AI technology can also carry out prediction and inference according to the amount of data transmitted by the network, transmission speed and other factors, and allocate network resources in time. In addition, it can also balance the load of the network to ensure security and fairness.

In the era of mobile Internet, personalized services and recommendation systems can be provided through the analysis and prediction of user behavior by using AI technology. For example, personalized products and services can be intelligently recommended according to the needs and preferences of users to improve their shopping experience and satisfaction. Meanwhile, through AI technology, network failures and security threats can also be monitored and handled through intelligent analysis and early warning systems, so as to find and solve network problems in time, and ensure the stable operation and security of the network. In a word, the application prospect of AI technology in the improvement of network service quality and the AI transformation of operation support technology is very broad. In the future, with the continuous development and improvement of technology, AI technology will be applied in more scenarios and fields, thus promoting the rapid development of computer network technology.

5. Conclusion

The application prospect of AI in computer network technology is extremely broad. Whether it is the upgrading and transformation of enterprise network architecture or the improvement and development of mobile Internet network technology, AI technology can play an important role. In the enterprise network, through the intelligent upgrading of network equipment such as routers and switchboards, the operation efficiency of the network can be improved,

management costs can be reduced, and the security of enterprise information can be safeguarded. Meanwhile, in security defense and risk control, AI can be applied to quickly and accurately identify network attacks and take effective preventive measures. Through the deep integration of 5G mobile communication and AI in mobile Internet technology, not only the network speed and communication quality can be effectively improved, but also the development of smart cities, smart medical care and smart transportation can be supported. Moreover, the improvement of network service quality and the AI transformation of operation support technology will also bring people a more efficient and intelligent service experience. It is foreseeable that with the continuous development and application of AI technology, the application prospect of computer network technology will be broader, thus making people's lives and work more convenient.

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