Application Analysis of Artificial Intelligence in Computer Network Technology

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Abstract: Artificial Intelligence (AI) is a kind of intelligent behavior similar to human being which helps human being to participate in dangerous and complicated work directly. The effective application of computer network technology has changed people's production and life style, and technological innovation has paid more attention to intelligence and humanity, leading to that artificial intelligence has become a development trend. This paper analyzes the general situation of artificial intelligence and its application and future development in computer network technology, hoping to provide help for related work.

Keywords: Artificial Intelligence; Computer Network Technology; Application

Artificial intelligence brings together the knowledge and experience of many subjects, makes the network communication technology more artificial and intelligent, and meets the service demand of network technology. Artificial intelligence has been applied in many fields in the present age, which brings a new development direction for the way of production and life. Therefore, it is an important way to promote the development of productive forces and the reform of economic structure to strengthen the technical research of artificial intelligence and explore the practical application of this technology in computer network technology, since it plays an active role in the development stage of intelligent economy and information technology.

1. Artificial intelligence

Artificial intelligence is a new technology that combines the development, research and popularization of theories, methods, technologies and application systems. Under the comprehensive effect of mathematics, information theory, linguistics, computer science and other disciplines, the machine and equipment has the ability of simulating human's consciousness and behavior, which is similar to human's thinking. It is convenient for human's production and living environment, and can help human to accomplish many high-risk, complex and mechanical high-quality jobs. It already exists in a wide range of industries, as shown in **Figure 1.**

Artificial intelligence belongs to computer science, and its application advantages in computer network technology are shown as follows: First, it has strong information processing ability, and it can quickly obtain reliable information in large amount of information resources according to humanized logic processing mode with its obvious timeliness and rapidity; second, it has strong ability of cooperation, can integrate limited resources, realize the hierarchical management of the computer network, and accomplish the management work together, thus greatly speeding up the work efficiency; third, it has strong memory ability, it can analyze and process the usage information of the browser in the complex network information, and form the database, which plays a certain role of security supervision.
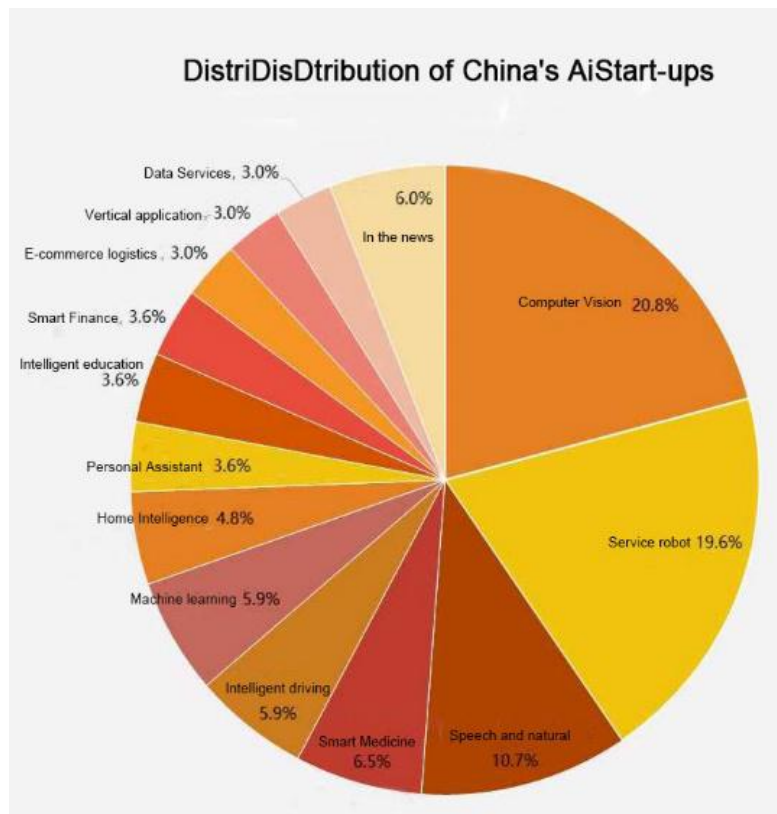
Figure 1. Distribution of China's AI start-ups.

2. Application of artificial intelligence in computer network technology

In the rapid development of social economy, people will put forward more intelligent, human-based service requirements for computer technology, so artificial intelligence reflects a wide range of applicability. The interactive development of computer network technology and artificial intelligence is embodied in:

2.1 Network security management

2.1.1 Smart firewall

The setting of firewall is to protect file information, in case it will be stolen maliciously. The traditional firewall technology has some shortcomings, the program content is fixed, when the new structure appears, it will directly threaten the file information security. The application of artificial intelligence is an evolution of firewall technology, which can resist the new structural firewall problem better, especially the SSL stream data encrypted in the traditional firewall. Based on the characteristics of archives, the relevant monitoring system can be more perfect under the function of artificial intelligence, such as what kind of information, what kind of permission to log on, what kind of permission to open, as well as the outside network access to the archives information can enjoy a wider scope of information access under further strengthening control. From the data link layer to the application layer, it belongs to the monitoring object, and TCP / IP Protocol layer needs to be taken the security monitoring comprehensively, so as to enhance the security performance of the whole archive network.

2.1.2 Intelligent intrusion detection system

The intelligent intrusion detection system (ids) is a web page which can detect, visit and retrieve the information of archives. Some web pages are simply information filtering, but some web pages contain viruses or other procedures to facilitate the malicious theft of post-archive information. And the application of artificial intelligence can visit the page of hidden procedures to check, some intrusion type of procedures can be issued in a timely security warning, or even the implementation of timely blocking procedures. Artificial intelligence (AI) has the ability of self-learning. After

receiving the data and technology of intrusion retrieval, the system will evolve and defend itself better.

2.1.3 Intelligent anti-spam software system

Intelligent anti-spam software system can maintain the user's mailbox security by scanning the mailbox. Moreover, searching out the spam, and identifying the virus mail will use artificial intelligence. With its ability of unforeseeable problems and the processing technology of learning reasoning function, it can supervise the content of mail comprehensively and efficiently, and classify many kinds of mail information. So the spam, harmful e-mails can be clearly divided with targeted warning, which significantly reduces the security risk of spam and   has played an important role in the network security.

2.2 Integrated management and systems evaluation

The effective application of artificial intelligence is helpful to enhance the computer network security, and make comprehensive management and evaluation. The sharing, high efficiency and dynamic of computer network objectively increase the difficulty of Network Integrated Management, and manpower is only a part of resources to optimize network management. Artificial intelligence brings together expert skills and professional experience and provides users with the required data and information through the programming form to facilitate users to solve problems. Artificial intelligence has the ability to calculate and process big data. With the help of the management and guidance of computer network technology, it makes decisions for the work of the system and greatly enhances the management efficiency and security performance of the whole network, it is an important guarantee for comprehensive management and systematic evaluation.

3. Advances in artificial intelligence

3.1 Accelerating breakthroughs in core technologies

In the development of information technology, from information to intelligence, the era of mobile interconnection has gradually been transferring to the era of all things interconnection, and artificial intelligence as the most cutting-edge technology, widely exists in all industries to promote its optimization and upgrading. The application of artificial intelligence in enterprises can enhance the comprehensive competitiveness of enterprises while more resources and more research energy will be invested in the research and development of artificial intelligence, and broaden the application scope of artificial intelligence.

3.2 Entering the industry booster phase

At present, artificial intelligence has risen to the national strategic planning, issued a number of rights and interests protection policies. In this environment, the Internet technology giants actively absorb artificial intelligence, capital investment and the specific number of R & D institutions is increasing, market size data shown as **Figure 2**.
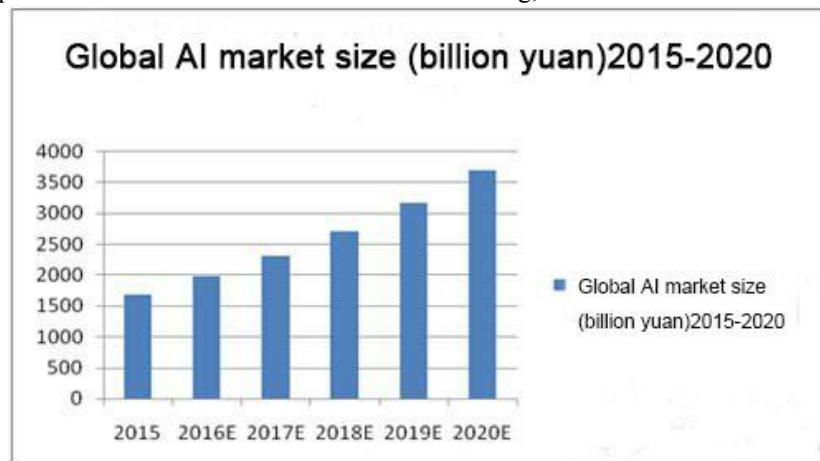

Figure 2. Global AI market size.

3.3 Technology is more mature and the industrial chain is getting better

Artificial intelligence (AI) has gone through three development stages: Computational Intelligence (CI) , Perceptual Intelligence (PI) and Cognitive Intelligence (CI) . Specifically, computational intelligence is the storage, calculation and transmission of data information that improves the processing efficiency of a large number of information resources; perceptual intelligence is the faster way to complete the "see" and "hear" work and it has successfully developed technologies such as a face recognition camera platform and a voice recognition assistant. Artificial intelligence is more humanized and works in a way similar to human thinking, and has developed advanced devices such as self driving cars. Artificial intelligence technology has been witnessing the development of mature, and related production chain is also in the continuous development.

4. Conclusion

To sum up, the popularization of computer network technology brings security risks such as viruses and hackers that threaten the security of network system and user information. Artificial intelligence is produced and developed with computer network technology, which has obvious advantage in information protection and positive effect on other aspects, and promotes the innovation and application of Internet information technology.

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