Application of artificial intelligence in computer network security

lei Zhang*, Zening Chen and Shufeng Yang
Shenyang Fire Science and Technology Research Institute of MEM, Shenyang, China

*Corresponding author: zanglei@syfri.cn

Abstract. At present, artificial intelligence technology is more and more common, and has a very broad development prospect. Nowadays, in people's daily work and life cannot do without artificial intelligence devices, such as intelligent home appliances, intelligent society greatly improves the quality of life and work efficiency of people. At the same time, with the continuous improvement of the development level of information technology, the application of artificial intelligence technology has gradually expanded to all walks of life in the society, and plays a positive role in promoting and value, improving people's lives, changing society, and gradually changing the world. In the computer network technology, the full use of artificial intelligence technology, can promote the computer network function more rich and powerful, improve the efficiency of the use of computer network.

1. Introduction
In the 21st century, the computer network technology is changing rapidly through the rapid development of information exchange and communication all over the world. This will help promote friendly relations between countries and help them establish close international cooperative relations. On the other hand, with the improvement and development of economy, the understanding of computer technology is improved, the requirements of computer network technology are higher and higher, and the complexity and interest of computer network technology are also deepened. The emergence of artificial intelligence can alleviate such problems, make multiple intelligences cooperate, and effectively regulate the work among employees. Therefore, the preference of employees for artificial intelligence is increasing. Because artificial intelligence can improve the production efficiency and quality of computer network technology.

2. Advantages of artificial intelligence applied in computer network technology
Artificial intelligence can manage the network. In a link of information storage process, information is directly merged and classified to form more effective information, so as to improve the efficiency of network management. To improve the level of computer network management, artificial intelligence has certain learning and reasoning ability. We can not only learn the lower-level information, but also infer the higher-level information from the lower-level information. Then perform computer network management based on the inferred advanced information.

With the development of economy and society, human society is about to enter the era of big data. The era of big data requires people to spend a lot of time processing big data in their work and life, but
it takes a lot of manpower and time to process these big data. Artificial intelligence can alleviate this situation, use artificial intelligence, select useful data from a large number of data, reduce the consumption of manpower, time and cost. This can not only improve the efficiency of data processing and data search, but also improve the qualification and production efficiency of staff.

According to the development of artificial intelligence, there is still the problem of imperfect intelligent expert system, because in order to achieve good application effect of artificial intelligence, it must be fully integrated with professional knowledge, so that professional problems can be solved. However, the imperfection of the current intelligent expert system makes the relevant professional problems cannot be properly solved in the actual process. In the real system, many related knowledge areas are not all included in the system. Therefore, there are still many shortcomings.

In the process of the application of artificial intelligence, the ability of intelligent system pattern recognition is not very enough, mainly in this process, many patterns cannot be effectively recognized, so there are many problems in the real application process, for users, there is no good experience. In the development of artificial intelligence system, this problem hinders the development of artificial intelligence to a certain extent.

Although the research of robots has made great progress in recent years, in real life, robots cannot really replace human beings, and the robot system cannot fully simulate the human brain, mainly for their lack of obvious self-consciousness, for many of the work is done mechanically, which has a very significant difference with human beings in essence No.

3. Application of artificial intelligence in computer network technology

Now the network security vulnerabilities begin to emerge in endlessly, and the security problem has become one of the most important concerns of users. But when the artificial intelligence is applied, the network security management can not only greatly protect the user's privacy, but also enhance the user's sense of trust. The application of network management is embodied as follows: first, intelligent firewall. In the traditional network system, although the computer has a certain firewall, its security is low, and it is easy for lawless people to invade it. Intelligent firewall can be described as an upgrade of ordinary protective wall. It not only applies identification technology, but also can analyze the information through some methods, such as probability or statistics, but also can eliminate some irrelevant information. As we all know, the network contains information Mass information, the traditional way is to need manual way one by one screening, time-consuming, labor-consuming, engineering is relatively large, and add intelligent means, you can find some eigenvalues from a lot of information, direct access to information and control, so that the network harm efficiency is constantly reduced, timely intercept harmful information, but also complete protection of the network system. Second, intrusion detection. This part appears behind the firewall. If the firewall is broken, intrusion detection technology can analyze the network data in time, classify it efficiently, select the suspicious data from it, and finally generate the corresponding detection report to present to users.

Artificial intelligence agent technology refers to artificial intelligence agent technology, which is composed of many parts, such as knowledge domain database and database. When applying this technology, it can search information according to user-defined situation, obtain corresponding information, and then transfer it to effective location. For users, agent technology plays a very important role and can provide good personalized services. For example, when users search for information through the computer, agent technology can scientifically analyze the relevant information and provide useful information to users. On the one hand, it can save the time for users to filter information, on the other hand, it can let users do more things. In addition, the technology can also provide life services according to the needs of users. For example, when users want to shop online, agent technology will select the corresponding items according to the preferences of users, so that users can browse directly, avoid finding many goods, and improve the convenience.

From the current situation of the network system, management cannot do without artificial intelligence, only strengthen the application, can make the system intelligent. First of all, in the establishment of the network integrated system, the staff can solve the problem through the expert
knowledge base. Because the network is changing rapidly and has a strong dynamic, it is very difficult for the staff to manage at ordinary times. Therefore, the application of intelligent artificial technology is particularly important. As a part of artificial intelligence, expert knowledge base is based on the ideas and experience of experts in many fields. When relevant personnel input these contents into the system, a relatively complete knowledge base will be formed, so that people in other fields can not only search and watch at any time, but also bring great convenience to the staff. For example, when there is a problem in the system, the staff can start the expert experience program, let it work, deal with the problem, so as to complete the management work.

4. Conclusions
In today's increasingly developed network information technology, computer network technology is widely used in all walks of life, we must recognize the value of the application of innovative technology, among them, artificial intelligence technology is a typical computer technology, relying on intelligent machines and equipment, to achieve intelligent control, and then improve production efficiency and quality, improve the efficiency of data and information processing As a result, it saves a lot of time and resources and improves social productivity.

Acknowledgments
This work was financially supported by Fire Rescue Bureau of emergency management department Science and technology projects, 2020XFZD11

References
[1] N A Kozyrev . On the Possibility of Experimental Investigation of Time [J].In Time in Science and Philosophy.1993.
[2] Thomas G.Dietterich,Eric J.Horvitz.Rise of Concerns about AI:Reflections and Directions[J].Communication of the ACM,2015(10).
[3] Xin Dong,Pan Gang. Neuromorphic computing--the machine of a new soul[J].The Economist,2013(8).
[4] David Silver,Aja Huang,Mastering the game of Go with deep neural networks and tree search[J].Nature,2016(529).
[5] Fei-Yue Wang,Jun Jason Zhang,Where does AlphaGo go: from church-turing thesis to AlphaGo thesis and beyond[J].IEEE/CAA Journal of Automatica Sinica,2016