

Research on Artificial Intelligence Technology and Application in the Background of Big Data

Shuhe Han

Jiangsu Vocational and Technical Shipping College, Nantong, Jiangsu, 226010, China

hsh@ntsc.edu.cn

Keywords: Big Data Background, Artificial Intelligence Technology, Applied Research

Abstract: This paper mainly discusses and studies the design and implementation of intrusion detection system based on data mining technology, because the pace of scientific development in China is getting faster and faster, but also improves the data mining technology in China. This paper discusses the application scenarios and key technologies of data mining technology, and analyzes the main application prospects of data mining technology in depth.

1. Introduction

Since entering the 21st century, China's Internet information technology and mobile data mining technology have made great progress and brought great convenience to our work and life. At the same time, the continuous improvement of mobile devices, especially the emergence of smart phones, also promotes the large-scale growth of mobile users, at the same time, it has caused great pressure on the carrying capacity of mobile networks. And the current 4 G data mining technology has been far from meeting the actual needs of the majority of users. In this case, researchers developed data mining techniques to improve the overall efficiency of communication networks. The rapid development of network brings new hope for enterprise processing and promotes the improvement of enterprise processing level and quality. In the construction of enterprises, the significance of investment in network technology processing is not only to strengthen the close relationship between enterprises and various departments, but also to ensure the exchange and transmission of information in various links, but also to enhance many business contacts and exchanges, thus speeding up the process of enterprise network informatization and improving the handling level of enterprise modernization. Big data is an innovative technology that can promote the rapid development of enterprises and bring great convenience to the operation and processing of enterprises. For the privacy protection of big data, it can effectively protect the personal information privacy of every patient. The application of Internet technology makes big data processing have more advantages, so that the defects in privacy processing are constantly improved. However, the big data security problems in the process of enterprise construction need to be improved and improved continuously, so as to bring practical help to enterprises. Nowadays, major enterprises have entered into the use of big data in information construction. Facts have proved that most enterprises in our country have implemented network information processing. According to the use effect, big data processing technology is indeed much more efficient than manual processing. The development speed of enterprise processing has been greatly strengthened, and the influence of network information technology on the traditional enterprise processing mode is very great. The combination of the two has laid the foundation for the enterprise network information market; Whether it is the enterprise's resource allocation, mechanical equipment, medical supply, patient's consumption behavior can be completed quickly through the network. The combination of big data processing technology information and enterprise processing provides more scientific and advanced technical means and concrete methods for the development of enterprise processing. Enterprises can integrate big data processing technology with enterprise information processing, form online information processing, and then develop relevant network information software, implement timely and effective online information processing, so as to promote the

development of enterprises to implement network information processing mode. The information processing technology of enterprises includes three parts: information processing technology, information database technology and security and secrecy technology. It is necessary to establish an information security system to prevent attacks and threats against the processing information system. Establish a complete information database, preferably with a comprehensive record of all information in the medical profession. Pay attention to the security and confidentiality of the database, while keeping the data confidential, but also do a good job of backup, because once the computer hardware system is paralyzed, it will cause the loss of information. Enterprise information processing has been a necessary trend of development. Enterprises should vigorously support and increase the reform of enterprise processing, with the greatest support power to promote the development of information work.



Figure 1 Big data

2. Application Scenario of Data Mining Technology

2.1. Communication Scenarios Between Data Mining Machines

The main problem with Internet of things applications is the ability to support several major terminals, which requires that the terminal cost of each machine should be much lower than the standard mobile terminal. the application scheme also requires relatively low power consumption to ensure that the battery is sufficient to use for at least a few years. At the same time, the coverage of Internet of things applications is also very powerful, which can cover the basement area. The Internet of things application can adopt control signal optimization technology, non-electric band and narrow band transmission technology. non-telex technology can provide effective support for multiple terminals while using wireless resources, and the use of technology is competitive, thus helping to effectively reduce the overhead of control signals. narrowband transmission technology can significantly reduce equipment costs and allow for extended coverage [1] .

2.2. Data Mining Technology Network Intensive Coverage

most applications with 5G of data mining technology are strongly associated with intensive coverage (e.g. shopping malls, conference rooms and offices). A user experience should be more than 2 G in such an environment. Obviously, the density of communication network users is very large in typical spaces such as indoor and outdoor. for very dense application scenarios, according to their application fields, communication networks can be divided into macroscopic cells, small regions and millimeter ranges. the topological morphology of these cells shows strong diversity and heterogeneity [2]. the antenna height and profit of each cell, signal transfer power and so on are also very different fields. The ultra-intensive application scenario scheme can use virtual cellular technology, wireless backhaul technology and new modulation coding technology. When deploying in-room applications, you can increase your user experience through high-frequency communication.



Figure 2 Big data

2.3. Data Mining Technology Macro Coverage Increases Application Scenarios

the macro coverage improved application scenario is located in most frequency ranges and the macro unit coverage capacity can reach a radius of one mile. According to this application scheme, the road loss number of each user and base station is significantly different, resulting in different SNR [3]. Macro stations can usually have many antennas, so this application scheme can use non-electric transmissions, new modulation codes, and large antennas. These types of techniques can usually coexist effectively, that is, the combination effect is more ideal, and the combination effect is greater than the sum of the effects used by a single technique.

3. Key Technologies of Data Mining

3.1. High-Frequency Segment Transmission of Data Mining Technology

At present ,3 GHz mobile phone system frequency band is widely used, with the increase of mobile users, the demand for transmission is also increasing, but the spectrum resources are insufficient. Within high frequency segments, such as the millimeter-wave frequency range is usually about 28 GHz,64 the antenna can be used by full benefit beam technology, and the download speed between 2 km reaches the download speed IG per second[4]. High frequency band is the technology that must be introduced in the application of data mining technology, and its advantage is that the number of antennas and equipment is sufficient, which can effectively meet the actual demand of audience spectrum resources. However, the high frequency technology also has the deficiency, namely its transmission distance is relatively short, the application is vulnerable to the weather and the environment influence. Therefore, in the design of high frequency transmission technology, we need to pay attention to these problems.

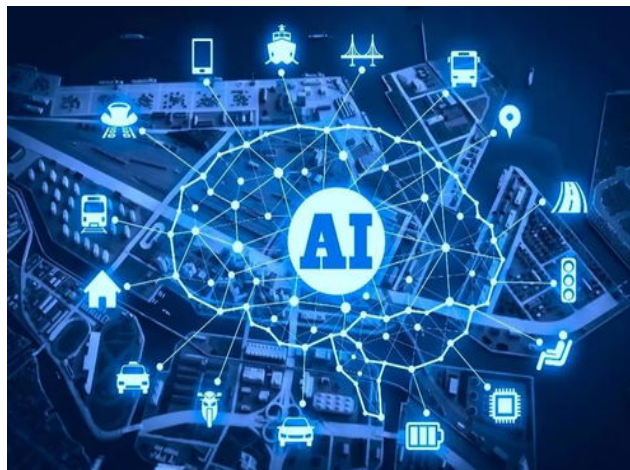


Figure 3 Big data

3.2. Multi-Antenna Transmission of Data Mining Technology

At present, the application of data mining technology should improve the efficiency of spectrum use more than 10 times, which is also the main task facing at present. In the process of application, the use of multiple antennas can meet the different needs of different users, thus improving the effect of wireless signals. Data mining technology not only achieves the goal of environmental protection, but also expands the network coverage. 3D the continuous progress of multi-antenna technology is an effective solution to the problem of low spectrum. Because of the wide use of active technology, 128 points can be used at the same time, which helps to form 3 D MIMO technology, which can fully meet the actual needs of individual users, and further expand the wireless signal coverage.

3.3. Data Mining Technology for Direct Communication Transmission

The application of data mining technology has been able to achieve the ultimate goal of direct communication of communication equipment, but also can effectively reduce the energy consumption of power supply, so as to better play the advantage of spectrum resources, so as to improve the efficiency of 5G of communication and effectively improve the quality of 5G of communication. If using data mining technology to increase the corresponding network traffic speed by 1000 times, it is necessary to use dense network technology to achieve this goal. 5G the distribution of network data traffic in hot spots and indoor space, it can effectively improve the user utilization rate and expand the network coverage. So far, all kinds of advanced intelligent devices have been widely used in various industries and , and the demand for data traffic by a large number of users is increasing, so it is necessary to actively adopt the super-auto network technology to greatly increase the data traffic of 5G communication networks[5]. dense network technology can effectively expand the network coverage area and can greatly increase the system capacity. But there is one. Fixed deficiency, that is, in a small range of use, will be a certain interference, thus affecting the performance of the network.

4. Conclusion

Computer network technology has been widely used in various departments of enterprises, because of the convenience brought by network information technology, staff to a large extent improve their own work efficiency, network technology plays a great role in enterprise construction. Using big data processing technology to make the enterprise information construction as the breakthrough point to carry on the effective reform, is the inevitable trend of the enterprise fine processing development. Data mining technology plays a great role in the modern intelligent system of our country, which can not only realize all aspects of monitoring, all-round coverage of 24 hours uninterrupted operation, but also improve the signal coverage. Through this article, we also understand the close relationship between data mining technology application scenarios and this key technology. To sum up, the emergence of data mining technology fully meets the higher requirements of communication networks in different industries. Therefore, in the practical application of data mining technology involving various complex advanced technologies, it is necessary to fully understand the key technologies and mastering methods of data mining technology, combine the characteristics of different application scenarios, select the corresponding technologies, and promote the optimization of application impact.

Fund Project

Jiangsu Provincial Department of Transportation Science and Technology Project: Rural Road Traffic Safety Monitoring and Early Warning System Research 2014C03-02; Research Project of Jiangsu Nautical Society: Research on the selection of uncorrected ships of magnetic compass based on big data in China 2018A12

References

- [1] Shengyuan, Liu., Zhenzhi, Lin., Jincheng, Li., et al. A Review and Prospect of Power System Situation Perception Technology. *Power System Automation*, vol. 44, no. 3, pp. 229-239, 2020.
- [2] Liu, Guannan. A Study on Data Science Talent Training in Business School. *Education Guide* (first half month), no. 10, pp. 74-79, 2019.
- [3] Yang, Suixian., Liu, Xing., Kang, Hui., et al. Interactive Design and Experience + Intelligent Design of Internet. *Packaging Engineering*, vol. 40, no. 16, 2019.
- [4] Li, Hongbao., Yuan, Mingyuan., Wang, Haiying. The driving force of "artificial intelligence + education" and the analysis and reflection of the new guide ——UNESCO 《artificial intelligence in education "report. *Journal of Distance Education*, vol. 37, no. 4, pp. 3-12, 2019.
- [5] Zhang, Chunhong. Application of artificial intelligence technology in computer network in big data era. *Science and Technology Innovation*, no. 3, pp. 90-91, 2020.