

# Data Mining Technology in the Background of Big Data Era

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**Abstract.** The rapid development of information technology and the application of computer information technology have incorporated all aspects of people's lives. Big data has become an important topic in many research fields, such as data mining, machine learning, and social networking, while big data analysis and its technical applications bring new challenges.

## Introduction

At present, it is a big data era. Human society is dealing with information data all the time. In the face of massive amounts of data, if we want to dig out high-value information data, we must establish a scientific and comprehensive big data mining platform to continuously improve data processing. The quality and efficiency. With the continuous development of cloud computing models, many large-scale development platforms on the market can always adopt different measures and technologies to combine large-scale systems and provide the platform with the required information services. In the new era, facing the rapid growth of data volume, how to tap useful information in massive system information has become an important issue for data integration systems. Enterprises should integrate cloud computing technology into the construction of big data mining platforms. Effectively improve the value acquisition of data mining, and can achieve scientific control of various costs, to break the drawbacks of traditional data mining methods, to maximize the user's relevant performance requirements for mining calculations.

## Big Data Era

Big data can also be called massive data. Specifically, the amount of data in this data processing area is too large. The amount of data can not be obtained and processed through the software that is widely distributed in the market, and at the same time, through the application and analysis of big data, It can help companies adjust their business direction in less time. The Big Data concept name first appeared in an academic paper by the McKinsey Institute. Big data technology will have an abyssal impact on people's working lives and will provide convenience and development space for many industries. People's use of big data indicates that the new wave of productivity will grow rapidly. According to relevant statistical data, in March 2012, the U.S. government stated that it will invest 200 million U.S. dollars to launch big data and development plans, further enabling people to obtain information from big data. As of 2017, the amount of information and data in China has increased by 1.8 ZB, and on average, everyone has more than 200 GB of information resources. This shows that the massive growth of data is the label of this era.

## Big Data Mining

Big data mining is the mining of huge potential information and knowledge from large data with large volumes, diverse types, fast dynamic circulation, and low value density, and is provided to users in the form of services. Compared with traditional data mining, it is also aimed at mining valuable information and knowledge. However, there are differences in terms of the technological development background, the data environment they face, and the breadth and depth of the excavation.

After the arrival of big data, the rapid growth of data volume has also brought about difficulties in information retrieval, efficiency, and many other data processing problems. Data mining technology has emerged from this. After long-term development, data mining technology has become more mature and mature. The formation of a normative theoretical system and operating methods has undergone qualitative changes. The study of data mining in our country started late, and we want to promote the development of artificial intelligence by improving the technical capabilities of data mining. Therefore, our country has higher requirements for the technical depth of data mining.

### The Status of Big Data Development

The era of big data is based on the extensive development of the Internet and various new technologies. Digital media, online media, and a variety of new media have gradually broken the scope of traditional cognition and gradually transformed cognition into a process of learning and understanding of social self-help and mutual assistance that has increasingly rich sources and gradual division of labor. From the current point of view, most scholars believe that the research of data mining is still at a stage of extensive research and exploration. On the one hand, the concept of data mining has been widely accepted. In theory, a number of challenging and forward-looking issues have been proposed to attract more and more researchers. On the other hand, the extensive application of large-scale data mining will take time, and it requires deep research to accumulate and enrich engineering practices.

**Choose Difficulty to Rise.** The emergence and widespread use of various new media technologies have gradually enriched network resources and brought people and customs from around the world, real-time economic news and entertainment into the eyes of people. Everyone has become a manufacturer and user of massive information. . However, the massive data information also increases the difficulty of data identification, selection, collection, and utilization, which sometimes greatly affect work efficiency.

**Diversification.** The wide application of Internet technologies, microelectronics technologies, and platforms such as qq, WeChat, Weibo, and public accounts has broadened the methods for acquiring knowledge and has brought the world's various information and knowers closer together. In particular, smartphones, tablets, iPads, and various cloud storage spaces now make it easier for learners to engage in more diverse forms of information and learn at any time and place. The arrival of the era of big data has brought unprecedented diversity of cognitive methods, which has fundamentally changed the limitations of traditional teaching time and place.

### Application of Data Mining Technology in Big Data

**Application Status.** In the era of big data, people need more scientific and sophisticated data extraction methods, and they need to efficiently and accurately present target information in massive data. This requires data mining technology support. Data mining can be based on the user's actual information to obtain demand, develop search scope and structure framework.

Mining technology can be used as a user to provide a variety of data positioning modes such as document classification, voice recognition, and video search. At the same time, the data mining technology can realize the classification management of information resources, and further reduce the difficulty of data search by establishing a sub-database corresponding to resource classification, which provides effective help for people's data search needs.

There are mainly the following types of big data mining technologies: First, the classification algorithm for smaller data. Find out the data with common characteristics in the data and classify it. For shopkeepers, they can classify the purchase situation of shop goods within a certain period of time, and push targeted products according to each user's buying habits and preferences. Increase trading volume. Second, the regression analysis, this way is to express the mapping relationship through the functional relationship between data, and then to dig out the model of the interdependence of attribute values between different data. For example, the company conducts a

regression analysis of sales over the past period of time, forecasts sales trends for the same period of time based on the results of data analysis, and makes changes to sales strategies and marketing strategies based on sales goals. Third, clustering, this method is similar to the classification, but the purpose of the two is different, specifically for the differences between the data and the same point of the data classification.

**Artificial Intelligence Data Mining Technology.** Artificial intelligence expert system technology has made great contributions to computer network management and system evaluation. At this stage, the knowledge base of the expert system covers basic theory, direct experience, and indirect experience. Put various expert experiences in a database into a database and use computer network technology to code them so that each computer network management decision is based on the expert support included in the expert system and uses the same method to make management and evaluation work. There are also expert decisions. In order to ensure the security of basic data information of various people in computer networks, it is necessary to use the technologies provided by expert systems to enhance the security of computer networks. The application of artificial intelligence to intrusion detection can effectively support the work of the computer expert system, establish a professional database of experts in a faster and more timely manner, and compile this expert database into specific computer instructions. When an outsider invades, he can use it as a direct basis for making judgments, and trace the source of the intrusion in a timely manner to arrive at an accurate consequence judgment. Through this method, it is very effective to improve the accuracy of security detection. way of doing.

### Neural Network Data Mining Technology

Simulating the operation of the human brain is the basic method of neural networks. By simulating the way people do things, neural networks have a greater role in acceptability and fault tolerance than other systems. In addition, the neural network can self-organize and self-adaptive the learning process of the training data, and can obtain the most typical features of the sample and the ability to distinguish the data. In order to obtain data demand, obtain corresponding data information. And neural network data mining technology can store, process, and correct errors in the searched data information. It can be adjusted by adjusting the weights of different network parameters during training and learning. It has a strong external environment to adapt to the transforming ability and has a very strong Anti-jamming capability. Neural network data mining technology has been widely used in the fields of artificial intelligence, medical influence, robotics, and industrial machine automation.

### Conclusion

In the era of big data, artificial intelligence technology has a tremendous impact on computer network technology. The article lists the artificial neural network, artificial intelligence in the application of computer network technology in a microcosm. More application examples are numerous to mention. This kind of benign combination is not only the natural demand of people's production and life, but also a strong evidence for the progress of human society. Through the continuous development of artificial intelligence, human life will inevitably be more efficient and comfortable. There are also great prospects for the resolution of social realities.

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